acts 2014

IMS Health
Quality Assurance

Statistical Services

http://us.imshealth.com/actsonline

imshealth ™

INTELLIGENCE APPLIED.

Contents

Abstract

"Fast is fine, but accuracy is everything"
Xenophon, 431-350 BC

Dear Client:

We know that you depend upon having the right information at the right time in order to make effective decisions and react appropriately to rapidly changing markets. It is with this fundamental concept in mind that we undertake each year to evaluate our success in meeting your dual needs for *Accuracy* and *Timeliness* in our deliveries.

The IMS Health Annual Report on Quality Assessment, ACTS, serves as a reference on our performance. We're proud this year to be publishing the report's 28th edition, as this sustained effort demonstrates our high commitment to meeting your information needs.

We're happy to report that in 2013, we regained an overall precision level of 94%. This index is an aggregate of the precision in our retail, hospital, and pharmacy-based services. The high degree of accuracy is visible in all underlying offering types: pharmacy retail at 94% and OTC offerings at 92%. Hospital reports, now at 92%, even had their best year in a five-year span. Please view the detailed results by region and country in the respective sections of this publication.

On the delivery side, we saw a slight increase of 0.2 days in timeliness, for an overall result of 24.7 days. Simultaneously, the average on-target performance declined by one percentage point to 82%. One of our key objectives for the future is to reduce delivery time through increased efficiency and further automation. However, acceleration shall and will not take place at the expense of our product quality. *Accuracy is everything.*

In 2014 – and after having performed a LEAN exercise around the entire ACTS preparation and delivery process – we installed a newly developed monitoring system which alerts us to any undesired trend in performance. As a result, we've been able to implement corrective actions much earlier than in the past.

ACTS is a quality monitoring system that still is unique in the data industry and that would not be possible without your collaboration. We wish to express our deepest gratitude to more than 2,600 clients in headquarter facilities and local affiliates for their information contributions which demanded both time and effort. Your participation in the process is invaluable to IMS Health and serves our entire clientele by supporting an objective assessment of data and service quality.

We are confident that this year's report will once again give you valuable insight into IMS Health's quality commitment. Your comments and questions are very welcome; we invite you to keep the discussion alive and help us make ACTS a superior and relevant reference.

Yours sincerely,

Stefan Ziegele

Vice President
IMS Statistical Services & Advanced Analytics

Accuracy

The IMS Validation Studies, with their global reach and standardized measures, provide pharmaceutical companies with an impartial and forthright reference with which to judge the quality of IMS data. By thus reporting on the precision of IMS' decision-support tools, validation studies facilitate pharmaceutical companies' international decision making.

The Validation Process

IMS conducts its Validation Studies in close co-operation with our service subscribers. Once we complete our year-end pharmacy audit, we supply our subscribers with software that presents our estimated yearly sales volume for each product pack. Subscribers then enter their *actual* sales volume based on what they supplied to retail pharmacies.

We then calculate an "R-Value" representing the ratio of *estimated* sales as projected by IMS to *actual* sales as reported by our industry partners. For each product examined, we calculate an individual "R-Value." We also calculate an average R-Value across all validated product forms.

R-Values indicate the scale of overestimation or underestimation in IMS results. An R-Value of 1.0 is the ideal and would mean that our projection matched reality exactly. Due to the nature of statistical sampling, R-Values typically deviate from 1.0, and it is only practical to strive for individual R-Values that are clustered tightly around this theoretical ideal.

We express audit precision (or the degree of clustering) as the percentage of all *individual* R-Values that fall within a predefined range of deviation around the *average* R-Value. The standard precision range is ± 22.5 percentage points around the average over/underestimation. The greater the data precision, the more tightly R-Values will be clustered in the centre of this range.

A precision value of 90 percent, paired with a zero percent bias, can be interpreted as follows: On average, IMS audit data reflect a high degree of homogeneity since 90 percent of the validated product forms lie between −22.5 percent and +22.5 percent of the reported industry numbers.

Conceptually, comparing IMS audit estimates with manufacturer sales data requires that the numbers be fully compatible. This compatibility hinges on the ability of companies participating in the validation study to segregate their internal sales data, isolating those sales channeled to the pharmacy retailing sector. The degree to which they can do this correlates closely with the technical infrastructure of the country and the complexity of the distribution system. When sales to other market sectors (e.g., tenders, exports) are not segregated and instead are included in a company's sales, the assumption is that IMS data have underestimated reality, and consequently they are viewed as incorrect.

Parallel trade practices add another element of incompatibility to the data. Typically, manufacturers are unaware of the sales volume that sub-distributors and

pharmacies *export to* other countries (parallel exports) or *import* from other countries (parallel imports). In parallel *export* situations, the *industry* numbers are usually inflated by sales that never entered the domestic pharmacy market. Conversely, in parallel *import* situations in which the imported items are not isolated, for example through official parallel traders, *IMS* numbers are usually inflated.

Due to growing issues with data incompatibility, validation studies are gradually losing some of their potency as an objective measure of accuracy. Thus we are in the process of evaluating measures of data relevance for those regions highly affected by parallel business (e.g., European rim). Nevertheless, we believe that once we exclude products typically

traded in parallel from the validation process, the exercise still provides a good overall picture of the accuracy and trends achieved in the individual markets.

Validation Study results are considered to be representative of the survey universe if more than 20 percent of the market is reflected in what our data partners send us. If the total market coverage reported by our data partners falls between 10 and 20 percent, validation results may still give a good indication of change from one year to the next, but otherwise must be used with care. Studies with participation rates less than 10 percent are included in the ACTS report but marked as *not representative* by means of an uncolored bar.

The 2013 Validation Results

The validation process usually starts 2-3 months after the close of the year being validated. Typically, it can take up to ten months after we receive final feedback and can complete the analysis of any given country. This year, the last completed materials for 2013 were returned to us in January 2015.

The 2013 participation level decreased slightly to a total of 35 companies on average participating in a country's validation process, down from 36 companies in 2012. In total, 2,601 company affiliates world-wide participated in the 2013 validation surveys and supplied a total of 90,704 product forms for analysis.

Global Validation Results

Until a couple of years ago, we only validated IMS retail audits while hospital, OTC and PharmaTrend offerings were quality-assessed more on a sporadic basis. Along with an upgrading of the ACTS validation process, we also incorporated these other standard deliverables in ACTS and have provided you lately with individual validation results. One request from our readers' community was to summarize all individual validation results to one single metric – the *Global*

Precision Index. This is an aggregate of all validations performed with uninterrupted 5-years data and serves as a high level indicator on IMS data accuracy. For 2013, this global index utilized the outcome from 88 validation studies and demonstrated a high degree of stability across the 5-years time period. Lately, an overall improvement of 0.7 percentage points can be reported, from 93.1% in 2012 to 93.8% in 2013.

Global Precision Index (%)

|	2009	2010	2011	2012	2013
	94.0	93.4	94.3	93.1	93.8
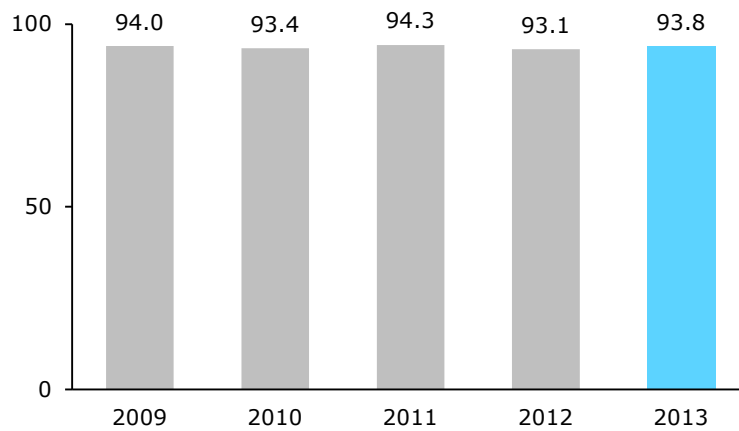
Retail Validation Results

For the 2013 validation studies, 62 countries provided analyzable results. No validation study was necessary in Denmark, Finland, the Netherlands, Norway and Sweden because we collect full census data in these countries. There, precision results are assumed to be 100 percent. This makes a total of 67 sets of validation results, of which 55 have uninterrupted five-year results. The overall degree of precision in IMS retail pharmaceutical reports is best described by an aggregated precision index for these 55 countries:

Retail Precision Index (%)

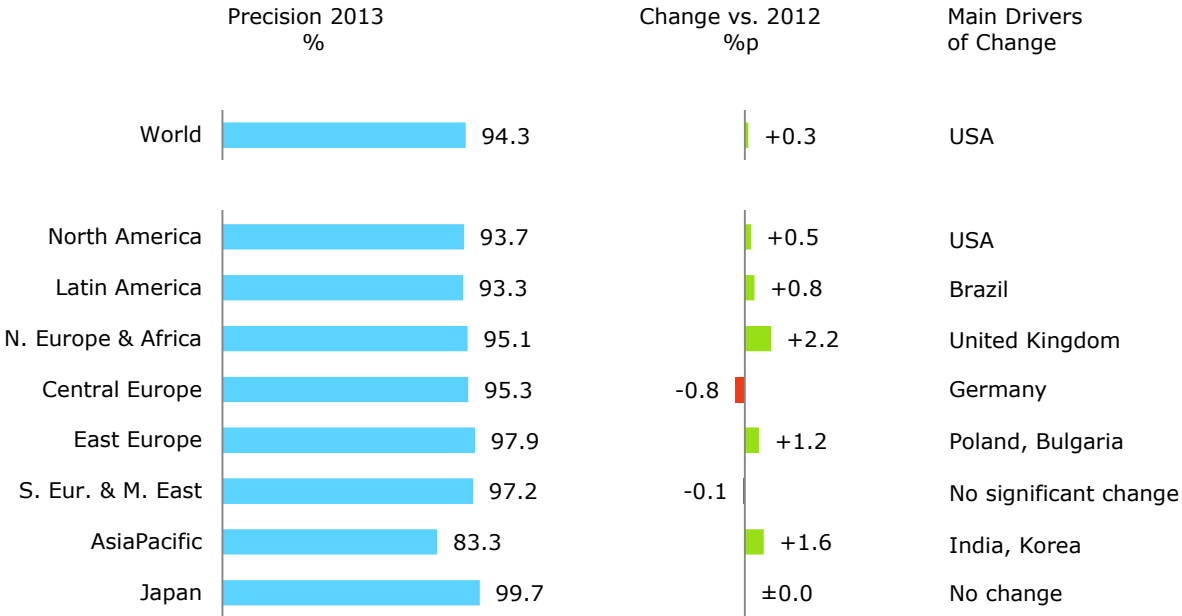|	2009	2010	2011	2012	2013
	94.8	94.3	95.0	94.0	94.3
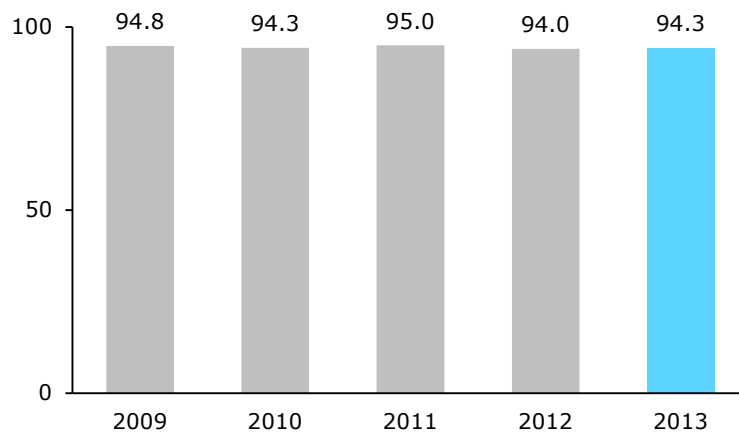
Overall, the Retail Precision Index over the 5-year period documents solid outcome in maintaining existing levels of data quality well above the 90% margin.

In 2013, the index improved by 0.3 percentage points over 2012 to 94.3% on average.

Regional Retail Validation Results

Six regions managed to improve or maintain their 2012 result also in 2013. *Japan* continued to hold the lead with 99.7%, followed by *East Europe* at 97.9% and *South Europe & Mid East* at 97.2%. Only two regions had an insignificant decline of less than one percentage point compared to 2012. All regions in detail and their main contributors to changes are listed below:

	Precision 2013 %	Change vs. 2012 %p	Main Drivers of Change
World	94.3	+0.3	USA
North America	93.7	+0.5	USA
Latin America	93.3	+0.8	Brazil
N. Europe & Africa	95.1	+2.2	United Kingdom
Central Europe	95.3	-0.8	Germany
East Europe	97.9	+1.2	Poland, Bulgaria
S. Eur. & M. East	97.2	-0.1	No significant change
AsiaPacific	83.3	+1.6	India, Korea
Japan	99.7	±0.0	No change

Improvement & Deterioration by Country

More details on the markets with an improved or declined precision value are given in the table on the subsequent page.

Country	Improvement	
	Precision 2013 %	Change vs. 2012 %p
Algeria	88.5	+10.1
Australia	99.9	+3.8
Brazil	95.9	+2.2
Bulgaria	97.9	+3.4
Colombia	84.3	+2.3
Dominican Rep.	75.9	+3.8
Greece	91.5	+2.3
Hong Kong	75.4	+2.4
India	85.8	+4.0
Latvia	82.3	+9.9
Lebanon	94.1	+27.6
Malaysia	83.5	+2.4
New Zealand	98.8	+5.3
Paraguay	37.1	+3.9
Serbia	90.1	+6.1
Singapore	77.7	+3.7
Un. Kingd. (BPI)	89.8	+4.6
Un. Kingd. (PBS)	91.3	+4.0
Vietnam	61.3	+7.7

Country	Deterioration	
	Precision 2013 %	Change vs. 2012 %p
Bangladesh	70.6	-4.6
Bolivia	52.3	-2.9
Estonia	82.7	-5.7
Peru	93.2	-4.6
Venezuela	93.8	-2.7

Eighteen countries turned out with a strong improvement (>2 percentage points) over 2012. Remarkable growth of more than 27 percentage points can be reported for *Lebanon*, followed by *Algeria* with 10.1 and *Latvia* with 9.9 percentage points improvement. Only five countries were facing more accentuated decline (>2 percentage points) over 2012, with Estonia showing the biggest precision loss of more than 5 percentage points. All these countries are in the focus of our quality-improving initiatives 2015.

Country-specific Results

The validation studies mentioned on the following country pages refer to the IMS retail reports, with the following exceptions:

Country	Market covered
Australia, Croatia, Czech Republic, Hungary, India, Japan, Poland, Russia, Serbia, Slovak Republic, Slovenia, USA	Retail + Hospital market
Hong Kong, Indonesia, Vietnam	Total market
Malaysia, Singapore, South Africa	Total private market

Further parts of this accuracy section, which follow the retail validation pages, highlight other validation initiatives of high interest to our data subscribers:

- OTC Validation Studies
- PharmaTrend Validation Studies
- Hospital Validation Studies
- Specialty Markets Validation Results
- Validating IMS Forecasting Services

In addition, we are providing updates on the latest measures we've taken to sustain today's quality levels:
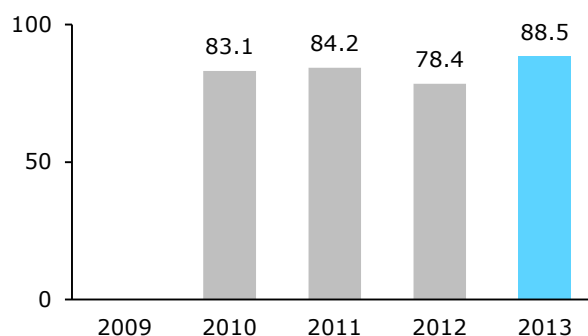
- Universe Updates
- Data Capture

Algeria

Precision (%)

Overall precision index significantly improved by 10.1 percentage points in 2013

Large product forms reached 93.6%, medium 83.1% and small 82.4%

Forms validated in both years, 2012 and 2013, improved by 7.5 percentage points to 88.0% in 2013
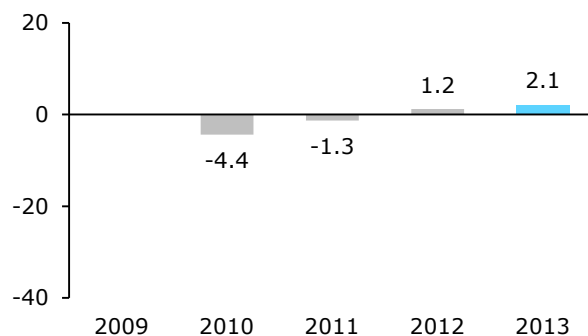

Over/Underestimation (%)

Overall overestimation slightly increased by 0.9 percentage points in 2013

Large product forms were overestimated by 2.6%, medium by 1.3% and small by 0.4%

Overestimation of forms validated in both years, 2012 and 2013, slightly increased by 0.4 percentage points to 4.8% in 2013

Participation

	2009	2010	2011	2012	2013
Participating companies		9	11	13	**12**
Validated market share in unit terms		23%	26%	27%	**26%**
Validated product forms		196	258	235	**238**

Actions

Continue wholesaler panel expansion

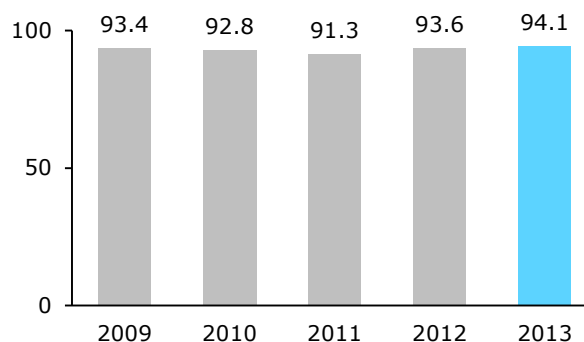# Argentina

Precision (%)

Overall precision index improved by 0.5 percentage points in 2013

Large product forms reached 95.0%, medium 94.5% and small 90.5%

Forms validated in both years, 2012 and 2013, decreased by 0.4 percentage points to 94.8% in 2013

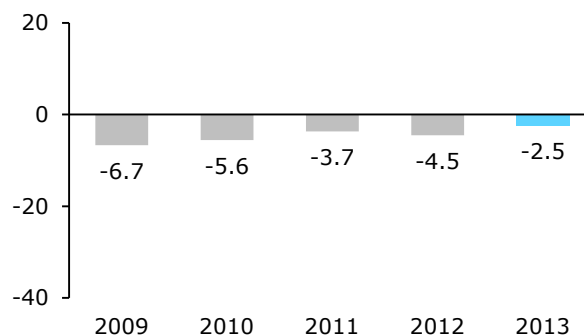|	2009	2010	2011	2012	2013
	93.4	92.8	91.3	93.6	94.1

Over/Underestimation (%)

Overall underestimation improved by 2.0 percentage points in 2013

Large product forms were underestimated by 3.3%, medium by 1.5% and small by 1.6%

Underestimation of forms validated in both years, 2012 and 2013, improved by 1.8 percentage points to 2.2% in 2013

	2009	2010	2011	2012	2013
	-6.7	-5.6	-3.7	-4.5	-2.5

Participation

	2009	2010	2011	2012	2013
Participating companies	76	75	64	64	**65**
Validated market share in unit terms	66%	59%	63%	59%	**57%**
Validated product forms	3,688	3,436	3,074	2,929	**2,836**

Actions

No action required from the statistical point of view

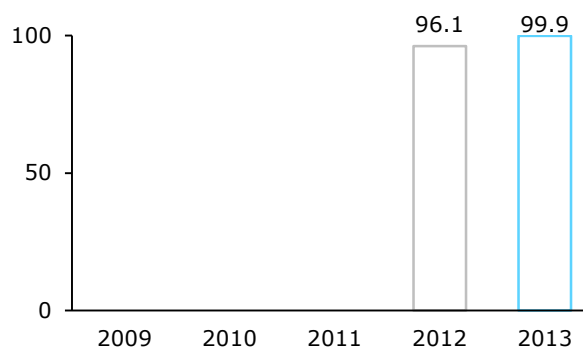# Australia

Precision (%)

Overall precision index improved by 3.8 percentage points in 2013

Medium product forms reached a perfect 100% and small forms 99.7%. A minor number of large product forms was grouped into the medium class for analysis

Forms validated in both years, 2012 and 2013, improved by 0.6 percentage points to 100% in 2013

				96.1	99.9

(Bar chart, Precision %, y-axis 0 to 100)
- 2012: 96.1
- 2013: 99.9
- x-axis years: 2009, 2010, 2011, 2012, 2013

Over/Underestimation (%)

Overall underestimation improved by 2.2 percentage points in 2013

Medium product forms were overestimated by 0.4% and small forms were underestimated by 2.4%. A minor number of large product forms was grouped into the medium class for analysis

Bias of forms validated in both years, 2012 and 2013, turned from 1.1% underestimation in 2012 to 1.3% overestimation in 2013

(Bar chart, Over/Underestimation %, y-axis -40 to 20)
- 2012: -2.5
- 2013: -0.3
- x-axis years: 2009, 2010, 2011, 2012, 2013

Participation

	2009	2010	2011	2012	2013
Participating companies				18	**16**
Validated market share in unit terms				6%	**2%**
Validated product forms				779	**419**

Actions
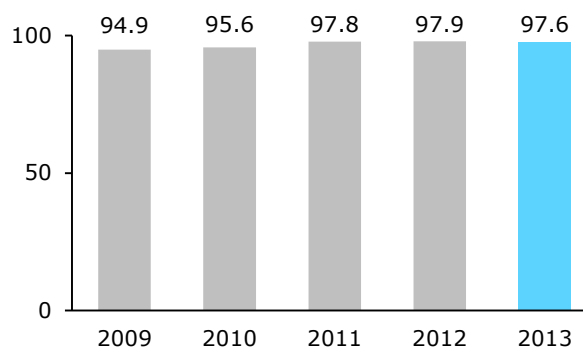
Motivate more companies to participate in the validation study

Austria

Precision (%)

Overall precision index slightly declined by 0.3 percentage points in 2013

Large product forms reached 99.3%, medium 96.8% and small 93.3%

Forms validated in both years, 2012 and 2013, improved slightly by 0.1 percentage points to 98.2% in 2013

Year	Value
2009	94.9
2010	95.6
2011	97.8
2012	97.9
2013	97.6

Over/Underestimation (%)

Overall underestimation improved by 0.5 percentage points in 2013

Large product forms were underestimated by 1.5%, medium by 0.9% and small by 1.8%

Underestimation of forms validated in both years, 2012 and 2013, improved by 0.5 percentage points to 1.4% in 2013

Year	Value
2009	-0.1
2010	-1.5
2011	-1.3
2012	-1.9
2013	-1.4
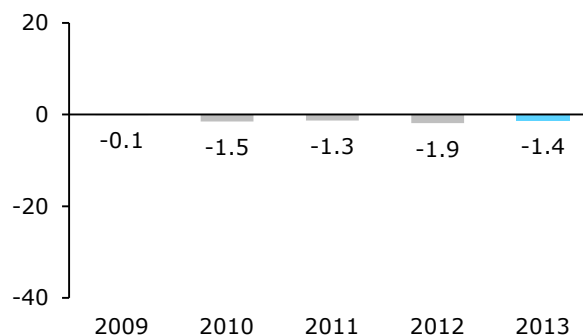
Participation

	2009	2010	2011	2012	2013
Participating companies	17	12	16	16	**14**
Validated market share in unit terms	37%	16%	30%	25%	**30%**
Validated product forms	974	474	791	654	**802**

Actions

No action required from the statistical point of view

Bangladesh
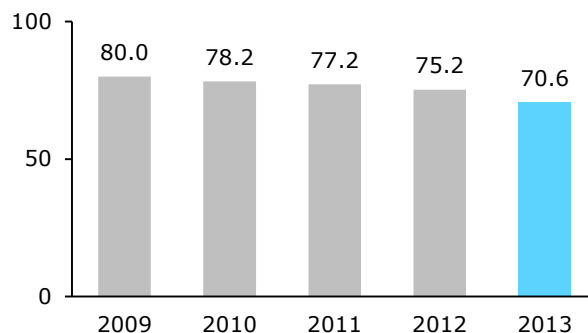
Precision (%)

Overall precision index declined by 4.6 percentage points in 2013

Large product forms reached 84.8%, medium 60.1% and small 44.4%

Forms validated in both years, 2012 and 2013, declined by 1.3 percentage points to 74.0% in 2013
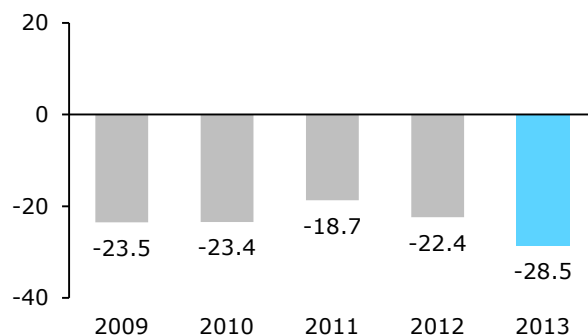

Over/Underestimation (%)

Overall underestimation increased by 6.1 percentage points in 2013

Large product forms were underestimated by 26.4%, medium by 30.6% and small by 32.9%

Underestimation of forms validated in both years, 2012 and 2013, increased by 4.0 percentage points to 25.6% in 2013

Participation

	2009	2010	2011	2012	2013
Participating companies	15	14	12	12	**10**
Validated market share in unit terms	47%	52%	36%	39%	**40%**
Validated product forms	1,440	1,627	1,306	1,617	**1,599**

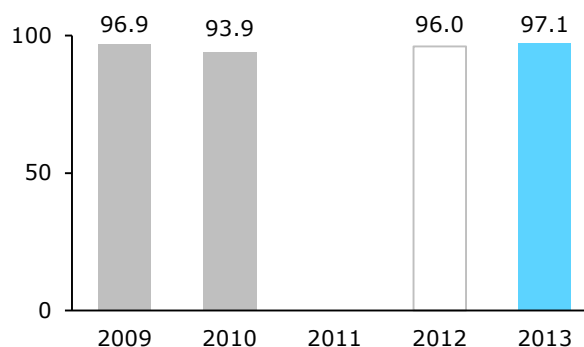## Actions

Implement new pharmacy census and new regional granularity

Belgium

Precision (%)

Overall precision index improved by 1.1 percentage points in 2013

Large product forms reached 98.5%, medium 95.0% and small 96.7%

Forms validated in both years, 2012 and 2013, improved by 1.7 percentage points to 99.2% in 2013

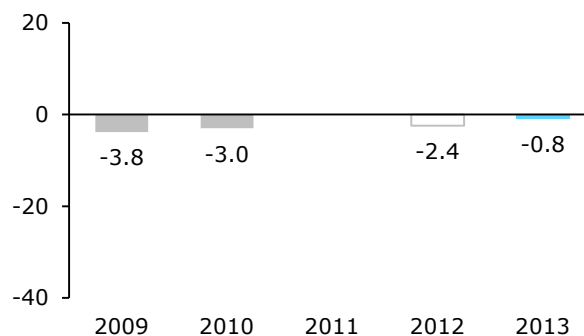|	2009	2010	2011	2012	2013
	96.9	93.9		96.0	97.1

Over/Underestimation (%)

Overall underestimation improved by 1.6 percentage points in 2013

Large product forms were underestimated by 0.4%, medium by 0.9% and small by 2.1%

Underestimation of forms validated in both years, 2012 and 2013, slightly improved by 0.2 percentage points to 0.9% in 2013

	2009	2010	2011	2012	2013
	-3.8	-3.0		-2.4	-0.8

Participation

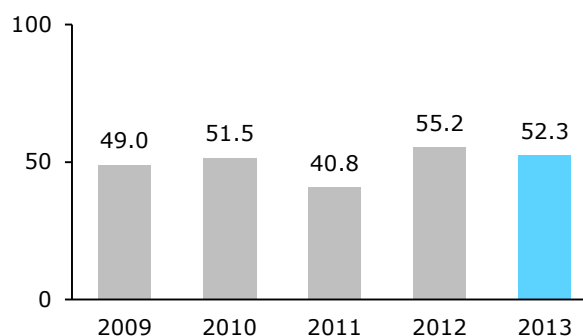|	2009	2010	2011	2012	2013
Participating companies	16	13		8	**17**
Validated market share in unit terms	19%	15%		8%	**21%**
Validated product forms	514	420		205	**603**

Actions

Review methodology for direct sales

Bolivia

Precision (%)

Overall precision index declined by 2.9 percentage points in 2013

Large product forms reached 54.3%, medium 55.0% and small 40.2%

Forms validated in both years, 2012 and 2013, declined by 3.4 percentage points to 55.1% in 2013

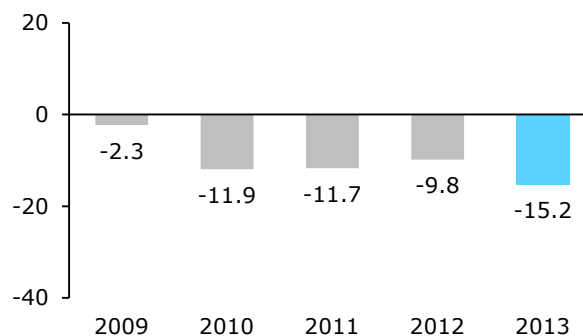|	2009	2010	2011	2012	2013
	49.0	51.5	40.8	55.2	52.3

Over/Underestimation (%)

Overall underestimation increased by 5.4 percentage points in 2013

Large product forms were underestimated by 17.1%, medium by 11.0% and small by 13.1%

Underestimation of forms validated in both years, 2012 and 2013, increased by 2.7 percentage points to 10.8% in 2013

	2009	2010	2011	2012	2013
	-2.3	-11.9	-11.7	-9.8	-15.2

Participation

	2009	2010	2011	2012	2013
Participating companies	66	67	62	45	**35**
Validated market share in unit terms	54%	60%	63%	55%	**51%**
Validated product forms	1,417	1,515	1,535	1,335	**1,214**

Actions

Improve panel fulfillment

Conduct distribution channel study

Universe update on-going

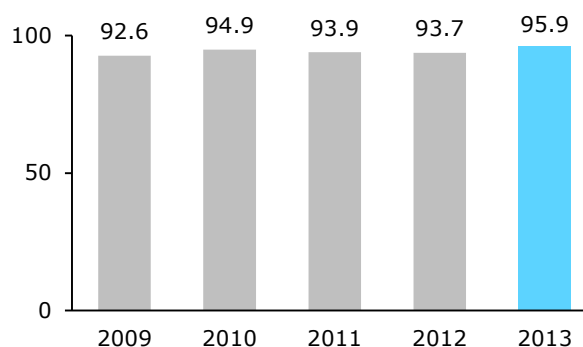# Brazil

Precision (%)

Overall precision index improved by 2.2 percentage points in 2013

Large product forms reached 98.2%, medium 95.3% and small 89.2%

Forms validated in both years, 2012 and 2013, declined by 1.2 percentage points to 96.3% in 2013

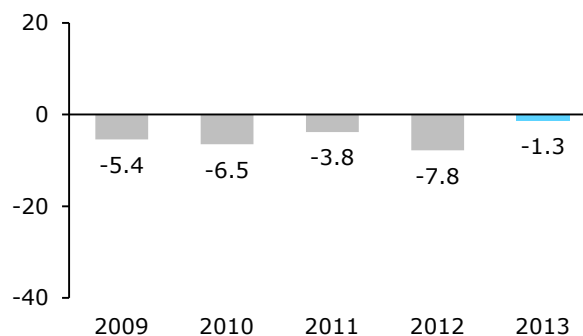|	2009	2010	2011	2012	2013
	92.6	94.9	93.9	93.7	95.9

Over/Underestimation (%)

Overall underestimation improved by 6.5 percentage points in 2013

Large product forms were underestimated by 0.8%, medium by 1.2% and small by 3.0%

Underestimation of forms validated in both years, 2012 and 2013, improved by 3.9 percentage points to 0.7% in 2013

	2009	2010	2011	2012	2013
	-5.4	-6.5	-3.8	-7.8	-1.3

Participation

	2009	2010	2011	2012	2013
Participating companies	23	15	28	28	**36**
Validated market share in unit terms	25%	12%	16%	18%	**20%**
Validated product forms	1,232	684	997	1,250	**1,353**

Actions

Evaluate options for segmented consumer health and PMB projections

Bulgaria
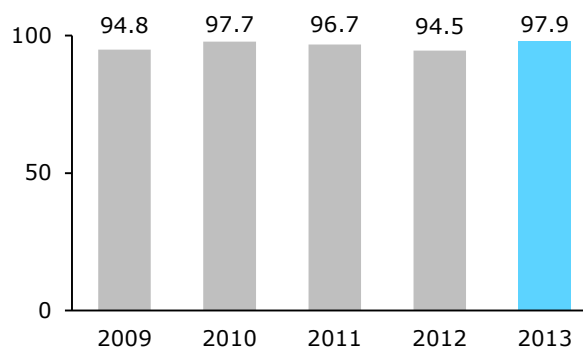
Precision (%)

Overall precision index improved by 3.4 percentage points in 2013

Large product forms reached 99.2%, medium 97.8% and small 93.9%

Forms validated in both years, 2012 and 2013, improved by 1.3 percentage points to 98.0% in 2013

Year	Value
2009	94.8
2010	97.7
2011	96.7
2012	94.5
2013	97.9

Over/Underestimation (%)

Overall overestimation increased slightly by 0.6 percentage points in 2013

Large and medium product forms were overestimated by 1.6% and 0.9%, respectively, small forms were underestimated by 0.8%

Overestimation of forms validated in both years, 2012 and 2013, increased by 1.3 percentage points to 1.5% in 2013

Year	Value
2009	2.2
2010	-3.3
2011	-1.0
2012	0.5
2013	1.1

Participation

|	2009	2010	2011	2012	2013
Participating companies	49	68	49	59	58
Validated market share in unit terms	46%	59%	51%	58%	58%
Validated product forms	590	790	718	851	826

Actions

No action required from the statistical point of view

Canada

Precision (%)

Overall precision index declined by 0.9 percentage points in 2013

Large and medium product forms both reached 98.6%, small 95.1%

Forms validated in both years, 2012 and 2013, declined by 0.8 percentage points to 98.1% in 2013
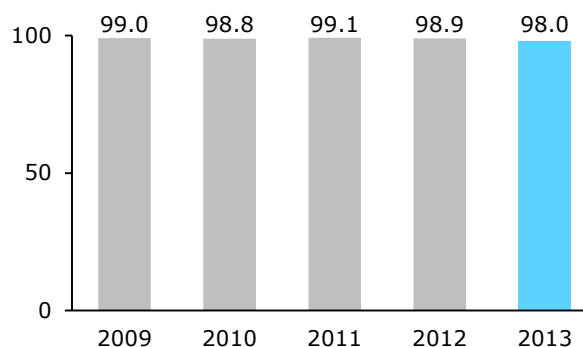
	2009	2010	2011	2012	2013
	99.0	98.8	99.1	98.9	98.0

Over/Underestimation (%)

Overall overestimation improved by 0.7 percentage points in 2013

Large and medium product forms were overestimated by 0.5% and 0.9%, respectively, small forms were underestimated by 0.2%

Overestimation of forms validated in both years, 2012 and 2013, improved by 0.6 percentage points to 0.5% in 2013

	2009	2010	2011	2012	2013
	0.6	0.7	0.6	1.2	0.5

Participation

	2009	2010	2011	2012	2013
Participating companies	80	85	87	88	**94**
Validated market share in unit terms	95%	95%	95%	95%	**95%**
Validated product forms	2,920	3,036	3,179	3,259	**3,381**

Actions

Evaluate options to enhance projection methodology

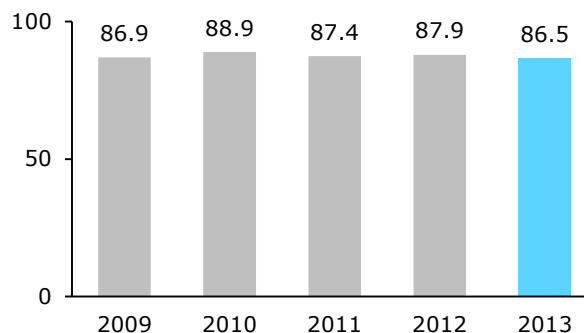# Central America

Precision (%)

Overall precision index declined by 1.4 percentage points in 2013

Large product forms reached 90.3%, medium 85.4% and small 76.0%

Forms validated in both years, 2012 and 2013, marginally declined by 0.1 percentage points to 89.8% in 2013
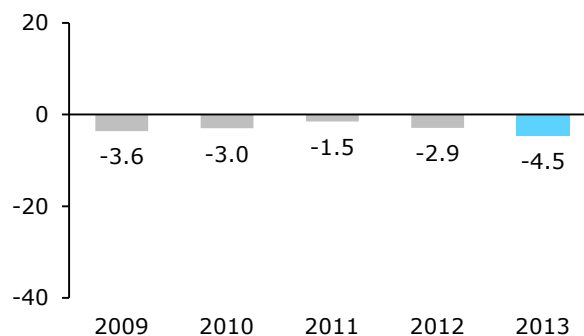
100	86.9	88.9	87.4	87.9	86.5
50					
0	2009	2010	2011	2012	2013

Over/Underestimation (%)

Overall underestimation increased by 1.6 percentage points in 2013

Large product forms were underestimated by 4.4%, medium by 4.9% and small by 4.0%

Underestimation of forms validated in both years, 2012 and 2013, increased by 0.8 percentage points to 3.4% in 2013

20					
0	-3.6	-3.0	-1.5	-2.9	-4.5
-20					
-40	2009	2010	2011	2012	2013

Participation

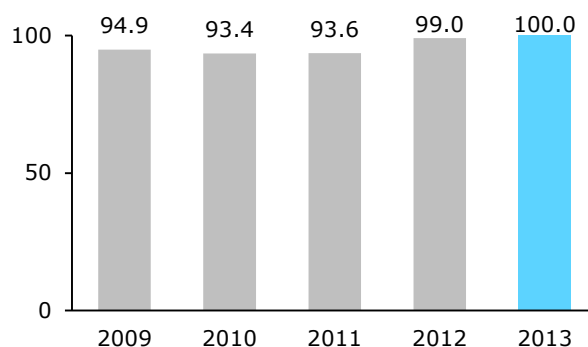|	2009	2010	2011	2012	2013
Participating companies	33	25	29	31	**26**
Validated market share in unit terms	34%	29%	30%	33%	**32%**
Validated product forms	1,920	1,505	1,692	1,833	**1,675**

Actions

Adjust projection level

Chile

Precision (%)

Overall precision index improved by 1.0 percentage point to a perfect 100% in 2013

All sales volume groups reached 100%

Forms validated in both years, 2012 and 2013, improved by 0.9 percentage points to 100% in 2013
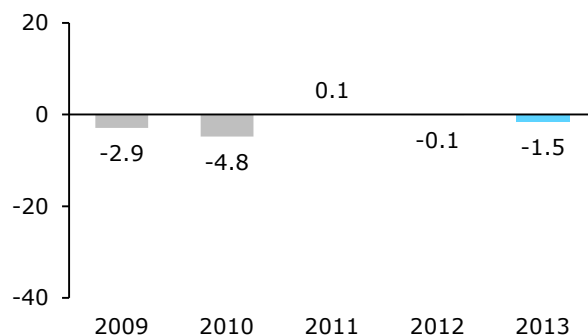
	2009	2010	2011	2012	2013
	94.9	93.4	93.6	99.0	100.0

Over/Underestimation (%)

Overall underestimation increased by 1.4 percentage points in 2013

Large and medium product forms both were underestimated by 1.3%, small by 2.3%

Underestimation of forms validated in both years, 2012 and 2013, increased by 1.2 percentage points to 1.3% in 2013

	2009	2010	2011	2012	2013
	-2.9	-4.8	0.1	-0.1	-1.5

Participation

	2009	2010	2011	2012	2013
Participating companies	26	22	13	15	**13**
Validated market share in unit terms	39%	26%	14%	20%	**18%**
Validated product forms	1,260	1,327	669	842	**709**

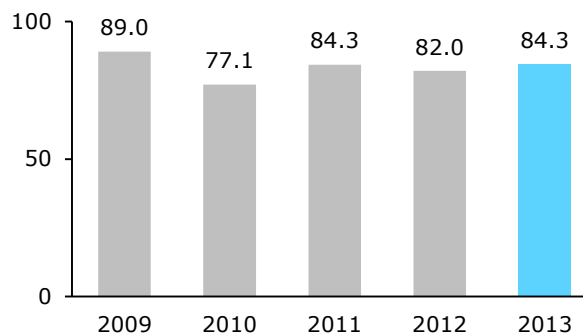## Actions

No action required from the statistical point of view

Colombia

Precision (%)

Overall precision index improved by 2.3 percentage points in 2013

Large product forms reached 89.3%, medium 79.8% and small 76.6%

Forms validated in both years, 2012 and 2013, declined by 5.7 percentage points to 82.8% in 2013

Year	Value
2009	89.0
2010	77.1
2011	84.3
2012	82.0
2013	84.3

Over/Underestimation (%)

Overall underestimation improved by 4.1 percentage points in 2013

Large product forms were underestimated by 3.7%, medium by 4.3% and small by 2.1%

Underestimation of forms validated in both years, 2012 and 2013, improved by 5.5 percentage points to 3.6% in 2013
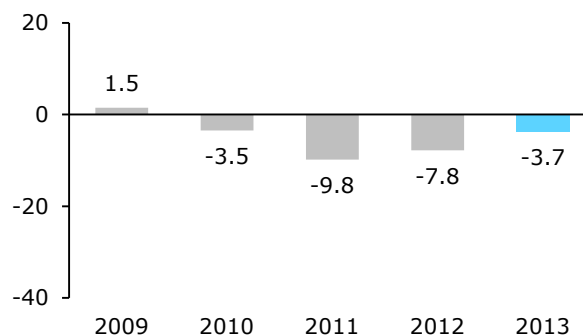
Year	Value
2009	1.5
2010	-3.5
2011	-9.8
2012	-7.8
2013	-3.7

Participation

	2009	2010	2011	2012	2013
Participating companies	23	18	8	18	**14**
Validated market share in unit terms	29%	30%	14%	23%	**18%**
Validated product forms	1,384	1,193	554	1,078	**810**

Actions

Review internal quality assurance process

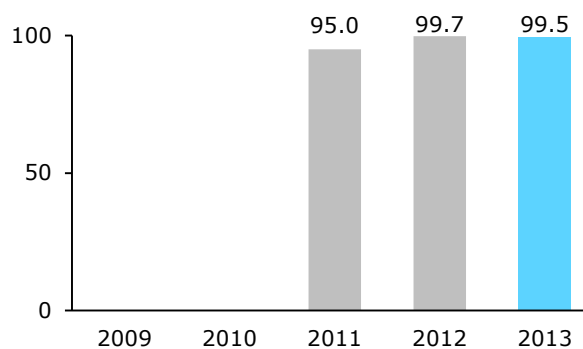# Croatia

Precision (%)

Overall precision index declined marginally by 0.2 percentage points in 2013

Large and medium product forms both reached a perfect 100%, small forms 96.7%

Forms validated in both years, 2012 and 2013, declined negligibly by 0.1 percentage points to 99.7% in 2013

Year	Value
2011	95.0
2012	99.7
2013	99.5

Over/Underestimation (%)

Overall underestimation improved by 1.7 percentage points in 2013

Large product forms were overestimated by 1.1%, medium by 0.3% and small showed no bias at all

Overestimation of forms validated in both years, 2012 and 2013, improved by 2.2 percentage points to 0.7% in 2013

Year	Value
2011	0.6
2012	2.4
2013	0.7

Participation

	2009	2010	2011	2012	2013
Participating companies			8	10	**11**
Validated market share in unit terms			13%	41%	**37%**
Validated product forms			262	541	**535**

Actions

No action required from the statistical point of view
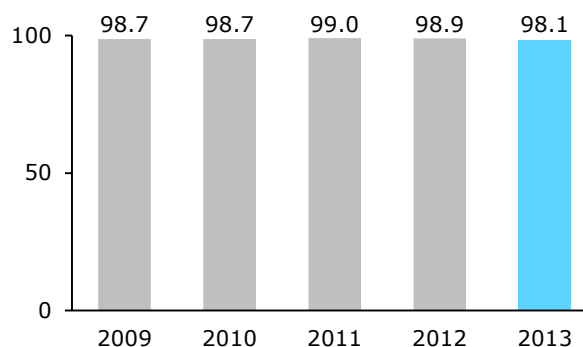
Czech Republic

Retail+Hospital Validation Study

Precision (%)

Overall precision index declined by 0.8 percentage points in 2013

Large product forms reached 99.5%, medium 98.2% and small 93.3%

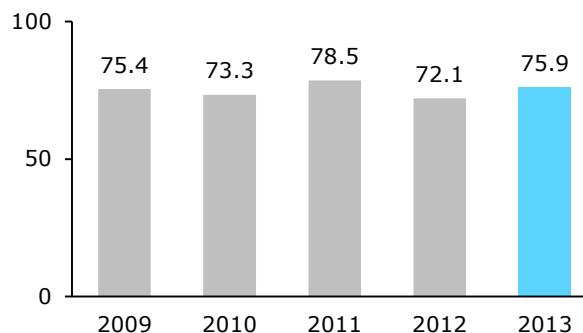Forms validated in both years, 2012 and 2013, slightly declined by 0.2 percentage points to 98.7% in 2013

Over/Underestimation (%)

Overall underestimation increased by 0.6 percentage points in 2013

Large product forms were underestimated by 1.3%, medium by 1.5% and small by 2.6%

Underestimation of forms validated in both years, 2012 and 2013, marginally increased by 0.1 percentage points to 1.2% in 2013
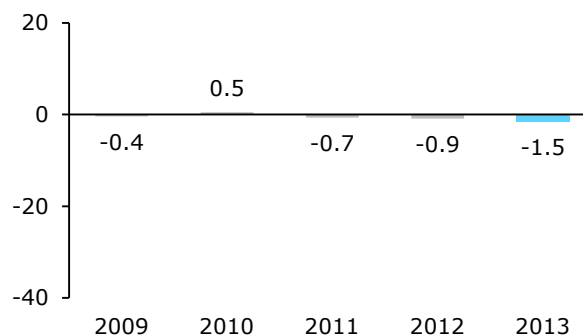
Participation

	2009	2010	2011	2012	2013
Participating companies	19	28	25	29	**22**
Validated market share in unit terms	37%	51%	46%	48%	**44%**
Validated product forms	890	1,134	1,055	1,147	**1,148**

Actions

No action required from the statistical point of view

Dominican Republic

Precision (%)

Overall precision index improved by 3.8 percentage points in 2013

Large product forms reached 77.3%, medium 75.8% and small 71.3%

Forms validated in both years, 2012 and 2013, improved by 3.6 percentage points to 79.4% in 2013
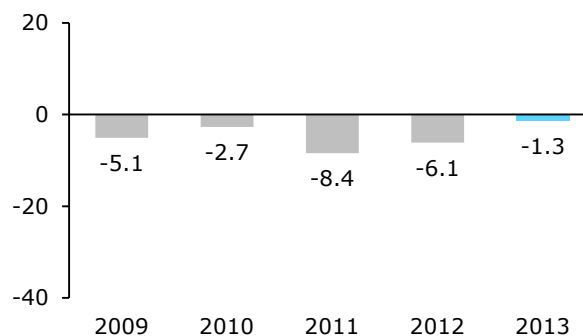

Over/Underestimation (%)

Overall underestimation improved by 4.8 percentage points in 2013

Large product forms were underestimated by 2.7%, medium overestimated by 0.9% and small forms underestimated by 1.2%

Underestimation of forms validated in both years, 2012 and 2013, improved by 3.8 percentage points to 1.4% in 2013

Participation

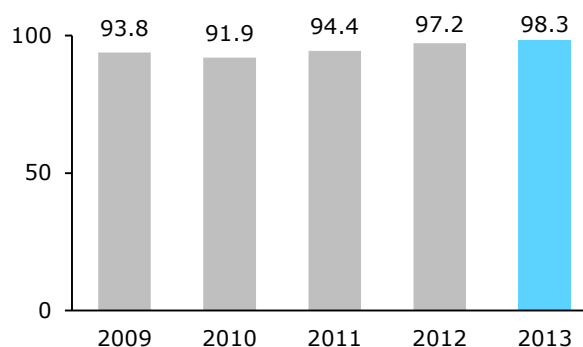|	2009	2010	2011	2012	2013
Participating companies	28	24	31	19	**22**
Validated market share in unit terms	37%	35%	46%	27%	**27%**
Validated product forms	1,628	1,384	1,953	1,251	**1,387**

Actions

Adjust projection level

Ecuador

Precision (%)

Overall precision index improved by 1.1 percentage points in 2013

Large product forms reached 99.6%, medium 99.4% and small 91.7%

Forms validated in both years, 2012 and 2013, slightly improved by 0.1 percentage points to 98.3% in 2013

Year	Value
2009	93.8
2010	91.9
2011	94.4
2012	97.2
2013	98.3

Over/Underestimation (%)

Overall underestimation improved by 1.2 percentage points in 2013

Large product forms were underestimated by 4.5%, medium by 2.7% and small by 1.3%

Underestimation of forms validated in both years, 2012 and 2013, improved by 0.4 percentage points to 3.2% in 2013

Year	Value
2009	-4.1
2010	-3.0
2011	-4.8
2012	-4.7
2013	-3.5
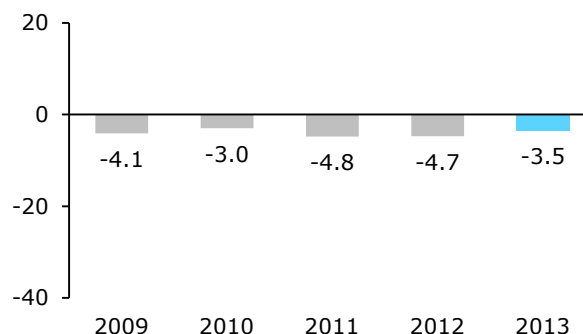
Participation

	2009	2010	2011	2012	2013
Participating companies	74	86	88	89	**80**
Validated market share in unit terms	67%	68%	74%	72%	**62%**
Validated product forms	2,288	2,394	2,478	2,449	**2,119**

Actions

No action required from the statistical point of view

Egypt
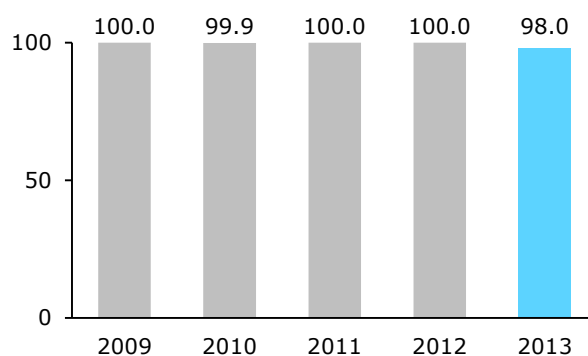
Precision (%)

Overall precision index declined by 2.0 percentage points in 2013

Large product forms reached 98.0%, medium 99.5% and small 95.1%

Forms validated in both years, 2012 and 2013, slightly declined by 0.4 percentage points to 99.6% in 2013
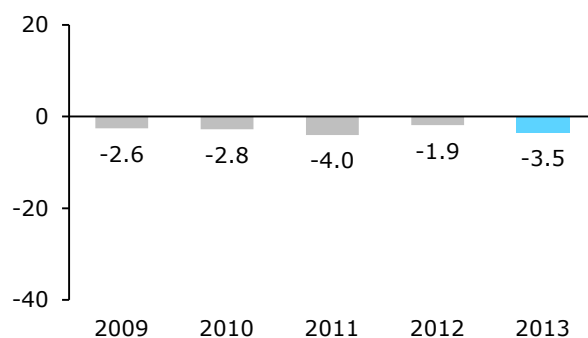

Over/Underestimation (%)

Overall underestimation increased by 1.6 percentage points in 2013

Large product forms were underestimated by 3.1%, medium by 4.1% and small by 3.8%

Underestimation of forms validated in both years, 2012 and 2013, increased by 0.7 percentage points to 2.2% in 2013

Participation

Participation	2009	2010	2011	2012	2013
Participating companies	49	64	30	46	**41**
Validated market share in unit terms	42%	44%	30%	24%	**22%**
Validated product forms	980	980	748	604	**542**

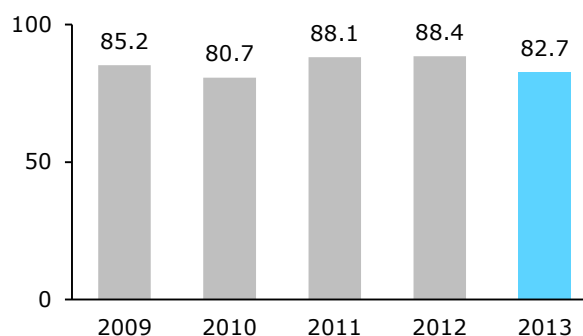## Actions

No action required from the statistical point of view

Estonia

Precision (%)

Overall precision index declined by 5.7 percentage points in 2013

Large product forms reached 81.8%, medium 84.6% and small 82.1%

Forms validated in both years, 2012 and 2013, improved by 0.6 percentage points to 89.1% in 2013

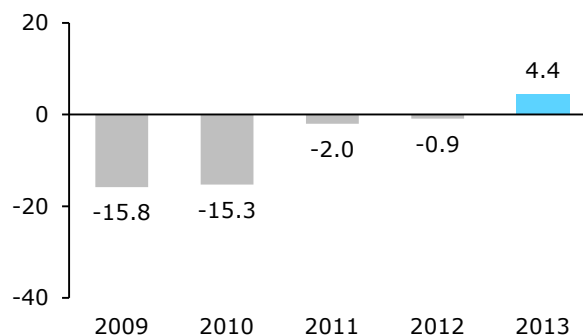| Year	Value
2009	85.2
2010	80.7
2011	88.1
2012	88.4
2013	82.7

Over/Underestimation (%)

Overall bias turned from 0.9% underestimation in 2012 to 4.4% overestimation in 2013

Large product forms were overestimated by 5.7%, medium by 1.8% and small by 2.2%

Overestimation of forms validated in both years, 2012 and 2013, increased by 6.7 percentage points to 8.1% in 2013

Year	Value
2009	-15.8
2010	-15.3
2011	-2.0
2012	-0.9
2013	4.4

Participation

	2009	2010	2011	2012	2013
Participating companies	10	11	6	17	**10**
Validated market share in unit terms	25%	24%	17%	15%	**21%**
Validated product forms	325	290	204	220	**265**

Actions

Review projection level

Germany
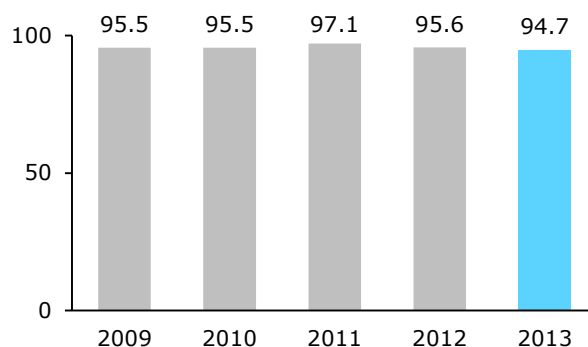
Precision (%)

Overall precision index declined by 0.9 percentage points in 2013

Large product forms reached 95.0%, medium 95.4% and small 92.6%

Forms validated in both years, 2012 and 2013, declined by 0.4 percentage points to 95.6% in 2013
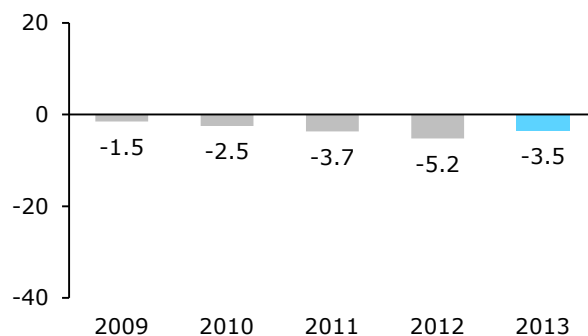

Over/Underestimation (%)

Overall underestimation improved by 1.7 percentage points in 2013

Large product forms were underestimated by 3.8%, medium by 3.2% and small by 2.3%

Underestimation of forms validated in both years, 2012 and 2013, improved by 1.7 percentage points to 3.9% in 2013

Participation

	2009	2010	2011	2012	2013
Participating companies	37	33	33	35	**30**
Validated market share in unit terms	25%	26%	24%	24%	**26%**
Validated product forms	3,878	3,114	3,230	3,139	**3,059**

Actions

No action required from the statistical point of view

Greece
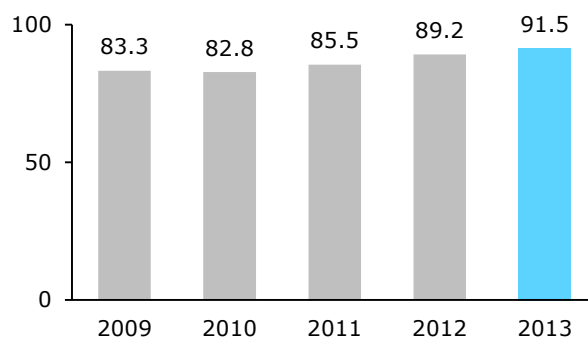
Precision (%)

Overall precision index improved by 2.3 percentage points in 2013

Large product forms reached 97.3%, medium 89.7% and small 75.5%

Forms validated in both years, 2012 and 2013, improved by 1.2 percentage points to 91.1% in 2013

Over/Underestimation (%)

Overall underestimation improved by 0.7 percentage points in 2013

Large product forms were underestimated by 1.4%, medium by 2.1% and small by 3.8%

Underestimation of forms validated in both years, 2012 and 2013, improved by 0.6 percentage points to 1.4% in 2013

Participation

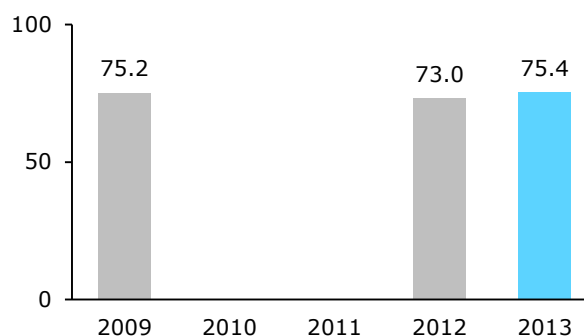|	2009	2010	2011	2012	2013
Participating companies	86	92	68	85	**76**
Validated market share in unit terms	59%	67%	60%	69%	**68%**
Validated product forms	1,214	1,084	962	1,074	**964**

Actions

Review quality of incoming data

Hong Kong

Precision (%)

Overall precision index improved by 2.4 percentage points in 2013

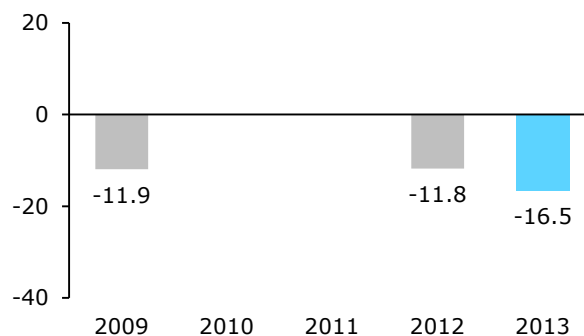Large product forms reached 86.5%, medium 72.5% and small 44.4%

Precision (%) bar chart:
- 2009: 75.2
- 2012: 73.0
- 2013: 75.4

Over/Underestimation (%)

Overall underestimation deteriorated by 4.7 percentage points in 2013

Large product forms were underestimated by 9.2%, medium by 19.4% and small by 24.0%

Over/Underestimation (%) bar chart:
- 2009: -11.9
- 2012: -11.8
- 2013: -16.5

Participation

	2009	2010	2011	2012	2013
Participating companies	36			26	**25**
Validated market share in unit terms	23%			20%	**17%**
Validated product forms	1,131			964	**901**

Actions

Review projection level and panel composition
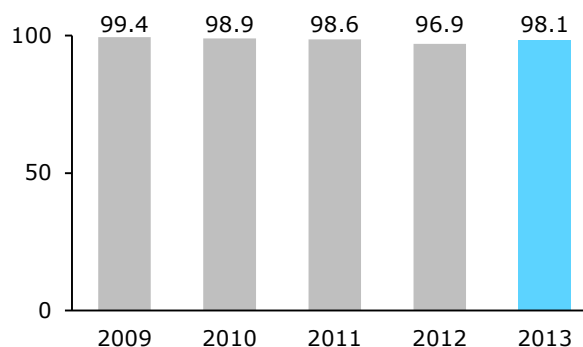
Hungary

Precision (%)

Overall precision index improved by 1.2 percentage points in 2013

Large product forms reached 98.4%, medium 98.5% and small 96.1%

Forms validated in both years, 2012 and 2013, improved by 0.4 percentage points to 98.2% in 2013

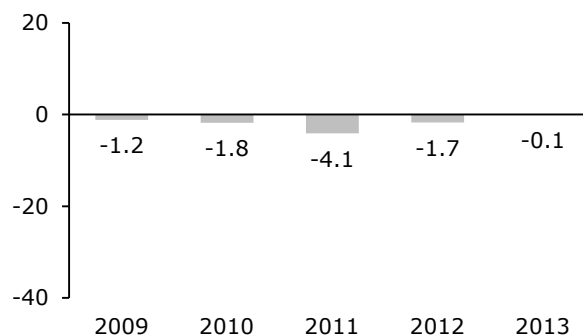|	2009	2010	2011	2012	2013
	99.4	98.9	98.6	96.9	98.1

Over/Underestimation (%)

Overall underestimation improved by 1.6 percentage points in 2013

Large product forms were overestimated by 0.1%, medium forms were underestimated by 0.1% and small by 0.8%

Underestimation of forms validated in both years, 2012 and 2013, improved by 1.6 percentage points to 0.1% in 2013

	2009	2010	2011	2012	2013
	-1.2	-1.8	-4.1	-1.7	-0.1

Participation

	2009	2010	2011	2012	2013
Participating companies	46	88	90	82	**84**
Validated market share in unit terms	38%	78%	77%	76%	**76%**
Validated product forms	869	1,612	1,697	1,703	**1,696**

Actions

No action required from the statistical point of view

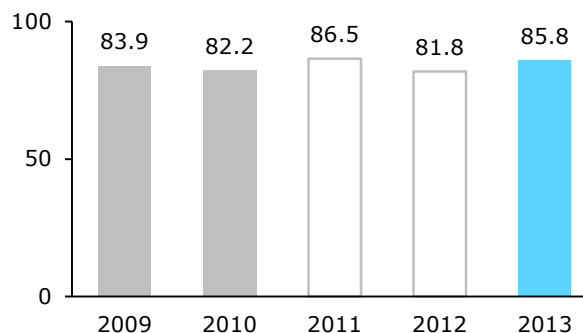# India

Precision (%)

Overall precision index improved by 4.0 percentage points in 2013

Forms validated in both years, 2012 and 2013, declined by 5.8 percentage points to 85.6% in 2013

Over/Underestimation (%)

Overall underestimation improved by 2.2 percentage points in 2013

Large product forms were underestimated by 9.6%, medium by 5.9% and small by 9.6%

Underestimation of forms validated in both years, 2012 and 2013, improved by 3.5 percentage points to 8.2% in 2013
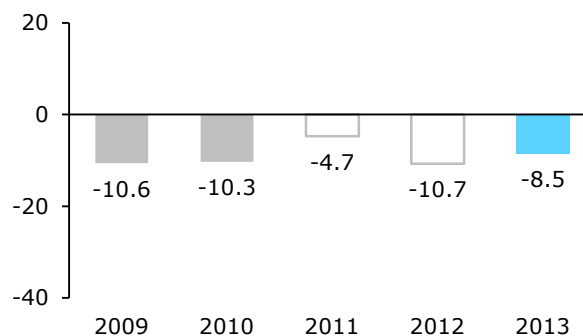
Participation

	2009	2010	2011	2012	2013
Participating companies	42	41	11	17	**20**
Validated market share in unit terms	27%	19%	7%	8%	**14%**
Validated product forms	2,901	2,058	770	1,208	**1,978**

Actions

Implement new census and stockist lists

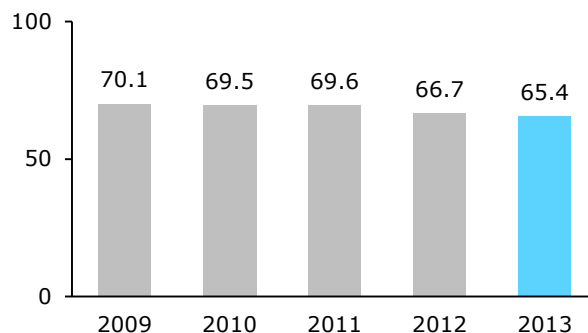Motivate more companies to participate in the validation study

Indonesia

Precision (%)

Overall precision index declined by 1.3 percentage points in 2013

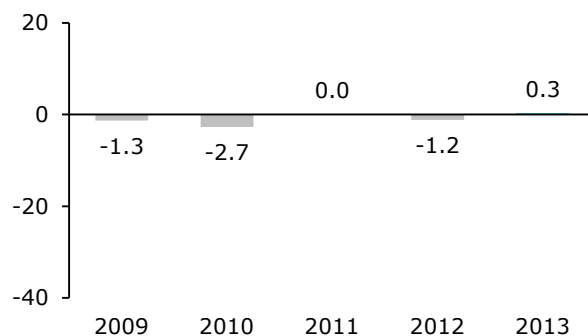Large product forms reached 64.0%, medium 65.0% and small 71.0%

```
100 ┤
    │  70.1   69.5   69.6   66.7   65.4
 50 ┤  ███    ███    ███    ███    ███
    │  ███    ███    ███    ███    ███
  0 ┴──────────────────────────────────
     2009   2010   2011   2012   2013
```

Over/Underestimation (%)

Overall bias turned from slight underestimation to small overestimation in 2013

Large product forms were overestimated by 1.8%, medium forms were underestimated by 3.4% and small by 6.3%

```
 20 ┤
    │                  0.0           0.3
  0 ┤──▄────▄──────────────▄────────────
    │ -1.3  -2.7          -1.2
-20 ┤
    │
-40 ┤
     2009   2010   2011   2012   2013
```

Participation

	2009	2010	2011	2012	2013
Participating companies	72	80	78	62	**64**
Validated market share in unit terms	48%	49%	48%	43%	**44%**
Validated product forms	3,669	5,573	5,641	4,981	**4,367**

Actions

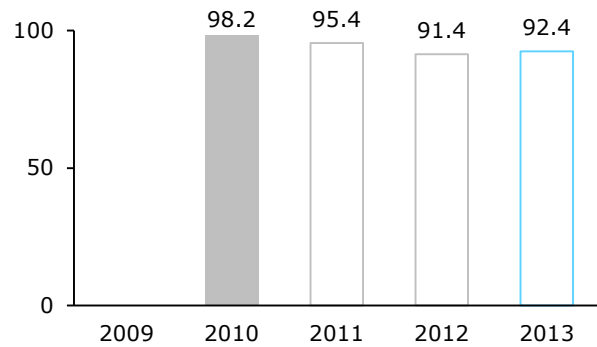Enhance projection methodology

Improve data collection and coding quality

Ireland

Precision (%)

Overall precision index improved by 1.0 percentage point in 2013

Medium product forms reached 91.8% and small 93.3%. A minor number of large product forms was grouped into the medium class for analysis

Over/Underestimation (%)

Overall bias turned from 1.0% overestimation in 2012 to 2.9% underestimation in 2013

Medium product forms were underestimated by 2.9% and small by 2.4%. A minor number of large product forms was grouped into the medium class for analysis

Participation

	2009	2010	2011	2012	2013
Participating companies		20	23	12	**14**
Validated market share in unit terms		16%	9%	6%	**6%**
Validated product forms		313	261	188	**166**

Actions
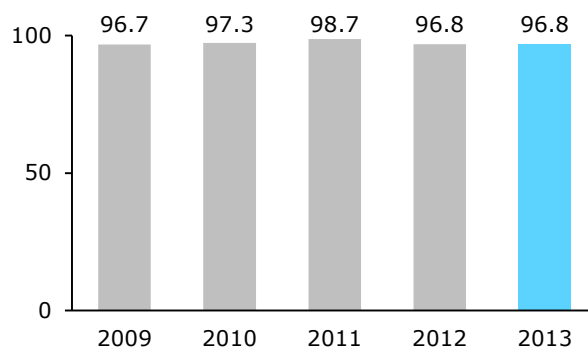
Motivate more companies to participate in the validation study

Italy

Precision (%)

Overall precision index remained stable in 2013

Large product forms reached 97.5%, medium 96.8% and small 94.5%

Forms validated in both years, 2012 and 2013, slightly improved by 0.2 percentage points to 97.5% in 2013

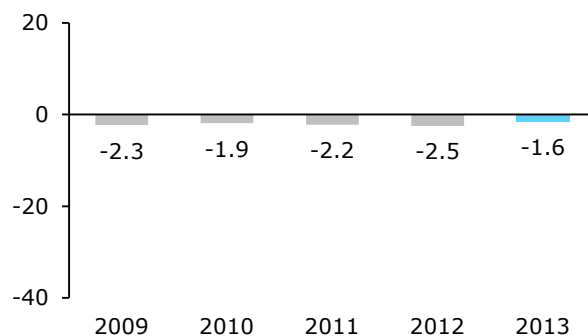|	2009	2010	2011	2012	2013
	96.7	97.3	98.7	96.8	96.8

Over/Underestimation (%)

Overall underestimation improved by 0.9 percentage points in 2013

Large product forms were underestimated by 1.1%, medium by 2.1% and small by 2.5%

Underestimation of forms validated in both years, 2012 and 2013, improved by 1.3 percentage points to 1.3% in 2013

	2009	2010	2011	2012	2013
	-2.3	-1.9	-2.2	-2.5	-1.6

Participation

	2009	2010	2011	2012	2013
Participating companies	26	32	28	29	**31**
Validated market share in unit terms	27%	27%	33%	32%	**28%**
Validated product forms	868	808	997	1,081	**1,001**

Actions

No action required from the statistical point of view

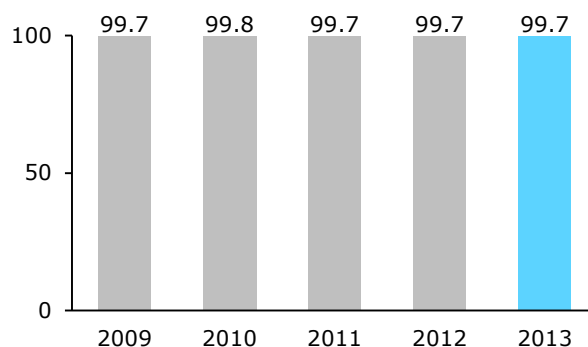# Japan

Precision (%)

Overall precision index remained stable in 2013

Large product forms reached 99.9%, medium 99.8% and small 99.0%

	2009	2010	2011	2012	2013
	99.7	99.8	99.7	99.7	99.7

Over/Underestimation (%)

Overall marginal overestimation remained stable in 2013

Large product forms were overestimated by 0.1%, medium by 0.9% and small by 0.6%

	2009	2010	2011	2012	2013
	0.0	0.1	0.3	0.1	0.1

Participation

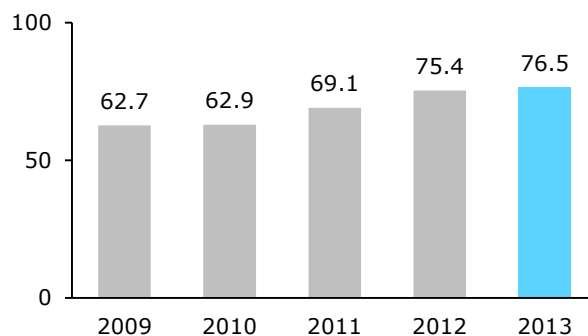|	2009	2010	2011	2012	2013
Participating companies	53	51	51	53	**55**
Validated market share in unit terms	73%	67%	68%	71%	**70%**
Validated product forms	3,136	2,861	2,989	3,056	**3,096**

Actions

No action required from the statistical point of view

Jordan

Precision (%)

Overall precision index improved by 1.1 percentage points in 2013

Large product forms reached 89.2%, medium 66.9% and small 53.2%

Forms validated in both years, 2012 and 2013, slightly improved by 0.7 percentage points to 74.6% in 2013

| Year	Value
2009	62.7
2010	62.9
2011	69.1
2012	75.4
2013	76.5

Over/Underestimation (%)

Overall underestimation significantly increased by 8.2 percentage points in 2013

Large product forms were underestimated by 18.6%, medium by 16.2% and small by 22.8%

Underestimation of forms validated in both years, 2012 and 2013, significantly increased by 5.7 percentage points to 14.8% in 2013
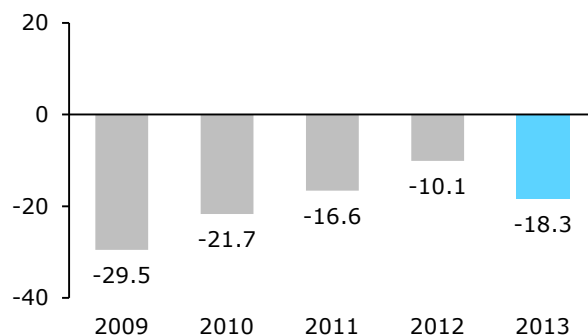
Year	Value
2009	-29.5
2010	-21.7
2011	-16.6
2012	-10.1
2013	-18.3

Participation

	2009	2010	2011	2012	2013
Participating companies	19	16	15	10	**10**
Validated market share in unit terms	40%	36%	31%	17%	**25%**
Validated product forms	770	733	594	349	**457**

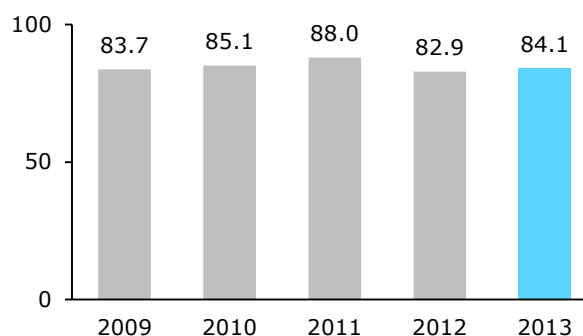## Actions

Review projection level

Consider use of distributor data

Korea

Precision (%)

Overall precision index improved by 1.2 percentage points in 2013

Large product forms reached 87.5%, medium 81.9% and small 77.0%

Forms validated in both years, 2012 and 2013, significantly improved by 14.5 percentage points to 83.1% in 2013

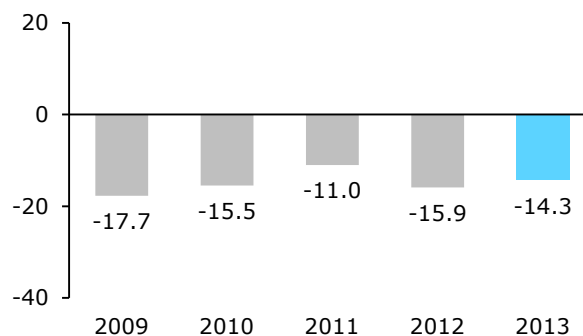|	2009	2010	2011	2012	2013
	83.7	85.1	88.0	82.9	84.1

Over/Underestimation (%)

Overall underestimation improved by 1.6 percentage points in 2013

Large product forms were underestimated by 14.6%, medium by 12.8% and small by 16.6%

Underestimation of forms validated in both years, 2012 and 2013, improved by 8.2 percentage points to 9.6% in 2013

	2009	2010	2011	2012	2013
	-17.7	-15.5	-11.0	-15.9	-14.3

Participation

	2009	2010	2011	2012	2013
Participating companies	27	23	19	16	**12**
Validated market share in unit terms	28%	30%	22%	12%	**18%**
Validated product forms	891	935	887	696	**734**

Actions

Review projection level and panel composition

Improve data collection and coding quality

Kuwait

Precision (%)

Overall precision index slightly improved by 0.3 percentage points in 2013

Large and medium product forms both reached a perfect 100%, small forms 99.6%

Forms validated in both years, 2012 and 2013, improved by 0.4 percentage points to a perfect 100% in 2013

Year	Value
2009	95.9
2010	99.8
2011	98.7
2012	99.6
2013	99.9
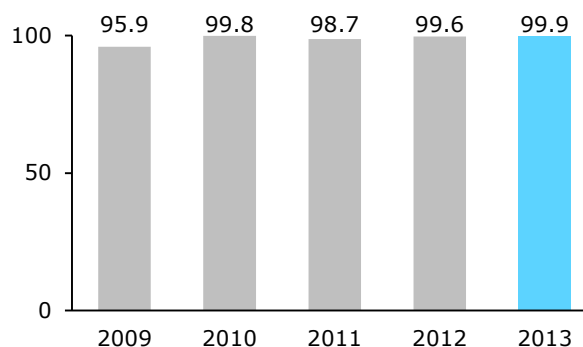
Over/Underestimation (%)

Overall underestimation slightly improved by 0.1 percentage points in 2013

Large and medium product forms were both underestimated by 0.4%, small by 0.3%

Underestimation of forms validated in both years, 2012 and 2013, slightly improved by 0.1 percentage points to 0.4% in 2013

Year	Value
2009	-1.0
2010	0.5
2011	-0.5
2012	-0.5
2013	-0.4

Participation

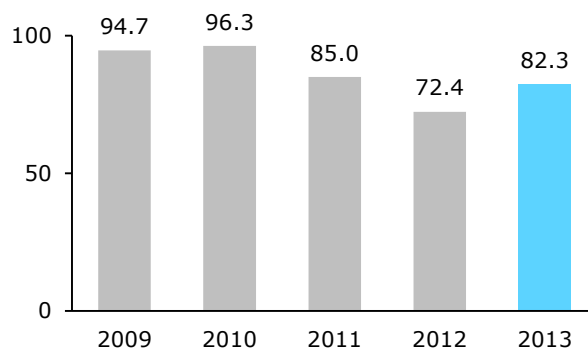|	2009	2010	2011	2012	2013
Participating companies	16	15	23	26	**33**
Validated market share in unit terms	29%	33%	36%	46%	**51%**
Validated product forms	333	317	484	520	**579**

Actions

No action required from the statistical point of view

Latvia

Precision (%)

Overall precision index significantly improved by 9.9 percentage points in 2013

Large product forms reached 91.1%, medium 78.6% and small 60.5%

Forms validated in both years, 2012 and 2013, considerably improved by 15.6 percentage points to 85.8% in 2013

```
100      94.7    96.3
                        85.0
                                72.4    82.3

 50

  0
        2009    2010    2011    2012    2013
```
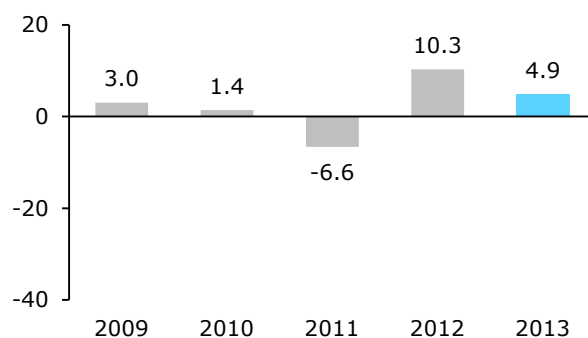
Over/Underestimation (%)

Overall overestimation improved by 5.4 percentage points in 2013

Large product forms were overestimated by 3.9%, medium by 5.7% and small by 9.6%

Overestimation of forms validated in both years, 2012 and 2013, improved by 3.9 percentage points to 6.6% in 2013

```
 20
                                10.3
        3.0     1.4                     4.9
  0
                        -6.6

-20

-40
        2009    2010    2011    2012    2013
```

Participation

	2009	2010	2011	2012	2013
Participating companies	15	17	17	13	**11**
Validated market share in unit terms	27%	24%	21%	15%	**19%**
Validated product forms	397	478	483	303	**335**

Actions

Review projection level
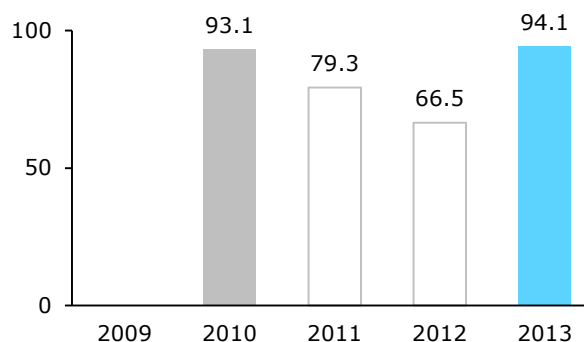
Lebanon

Precision (%)

Overall precision index improved by 27.6 percentage points in 2013 due to significant expansion of panel data

Large product forms reached 94.7%, medium 99.0% and small 82.1%

Forms validated in both years, 2012 and 2013, improved by 6.1 percentage points to 86.4% in 2013
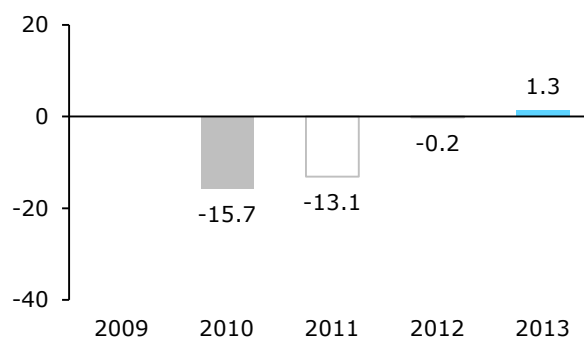

Over/Underestimation (%)

Overall bias turned from 0.2% underestimation in 2012 to 1.3% overestimation in 2013

Large product forms were overestimated by 4.3%, medium forms were underestimated by 1.7% and small by 4.6%

Bias of forms validated in both years, 2012 and 2013, turned from 3.8% underestimation in 2012 to 3.9% overestimation in 2013

Participation

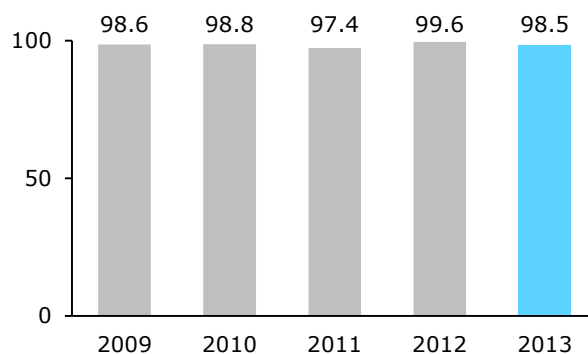|	2009	2010	2011	2012	2013
Participating companies		12	24	8	**19**
Validated market share in unit terms		12%	9%	6%	**15%**
Validated product forms		138	192	131	**290**

Actions

Increase and stabilize validation participation

Lithuania

Precision (%)

Overall precision index slightly declined by 1.1 percentage points in 2013

Large product forms reached a perfect 100%, medium 97.2% and small 96.1%

Forms validated in both years, 2012 and 2013, negligibly declined by 0.1 percentage points to 99.4% in 2013

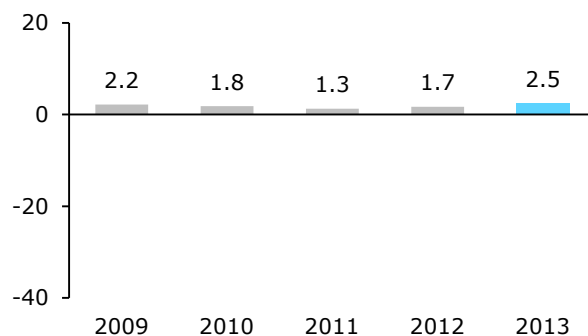| Year	2009	2010	2011	2012	2013
Value	98.6	98.8	97.4	99.6	98.5

Over/Underestimation (%)

Overall overestimation increased by 0.8 percentage points in 2013

Large product forms were overestimated by 3.9%, medium by 0.6% and small forms were underestimated by 1.2%

Overestimation of forms validated in both years, 2012 and 2013, increased by 1.2 percentage points to 3.2% in 2013

Year	2009	2010	2011	2012	2013
Value	2.2	1.8	1.3	1.7	2.5

Participation

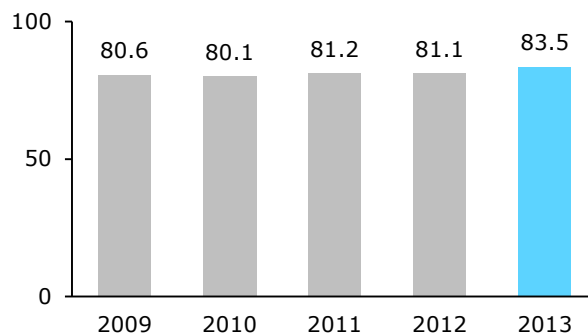|	2009	2010	2011	2012	2013
Participating companies	21	16	21	12	**11**
Validated market share in unit terms	31%	28%	19%	13%	**17%**
Validated product forms	446	473	364	203	**266**

Actions

No action required from the statistical point of view

Malaysia

Precision (%)

Overall precision index improved by 2.4 percentage points in 2013

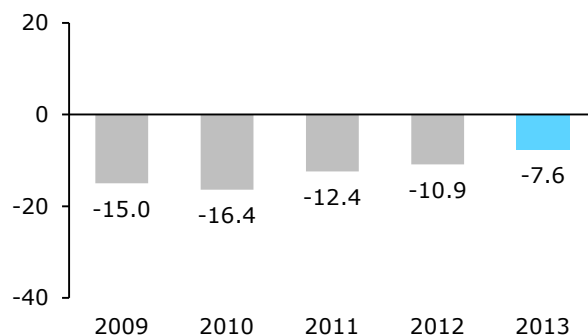Large product forms reached 87.9%, medium 80.7% and small 74.2%

Bar chart — Precision (%):
- 2009: 80.6
- 2010: 80.1
- 2011: 81.2
- 2012: 81.1
- 2013: 83.5

Over/Underestimation (%)

Overall underestimation improved by 3.3 percentage points in 2013

Large product forms were underestimated by 5.2%, medium by 10.4% and small by 10.7%

Bar chart — Over/Underestimation (%):
- 2009: -15.0
- 2010: -16.4
- 2011: -12.4
- 2012: -10.9
- 2013: -7.6

Participation

	2009	2010	2011	2012	2013
Participating companies	46	61	63	64	**74**
Validated market share in unit terms	29%	33%	35%	32%	**32%**
Validated product forms	1,982	2,332	2,519	2,795	**3,392**

Actions
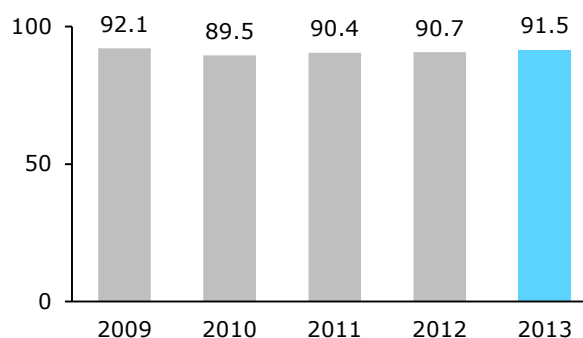
Expand panel coverage

Invest in new projection methodologies

Mexico

Precision (%)

Overall precision index improved by 0.8 percentage points in 2013

Large product forms reached 94.3%, medium 88.8% and small 87.6%

Forms validated in both years, 2012 and 2013, slightly improved by 0.1 percentage points to 91.4% in 2013

	2009	2010	2011	2012	2013
	92.1	89.5	90.4	90.7	91.5

Over/Underestimation (%)

Overall overestimation increased by 5.4 percentage points in 2013

Large product forms were overestimated by 8.9%, medium by 3.6% and small by 5.8%

Overestimation of forms validated in both years, 2012 and 2013, increased by 5.7 percentage points to 7.6% in 2013

	2009	2010	2011	2012	2013
	-0.8	-0.8	1.6	1.4	6.8

Participation

	2009	2010	2011	2012	2013
Participating companies	41	36	37	25	**23**
Validated market share in unit terms	36%	39%	35%	35%	**31%**
Validated product forms	1,660	1,762	1,722	1,619	**1,548**

Actions

Evaluate options for segmented consumer health and PMM projections

Morocco

Precision (%)

Overall precision index marginally declined by 0.2 percentage points in 2013

Large and medium product forms both reached a perfect 100%, small forms reached 96.0%

Forms validated in both years, 2012 and 2013, slightly declined by 0.4 percentage points to 99.4% in 2013

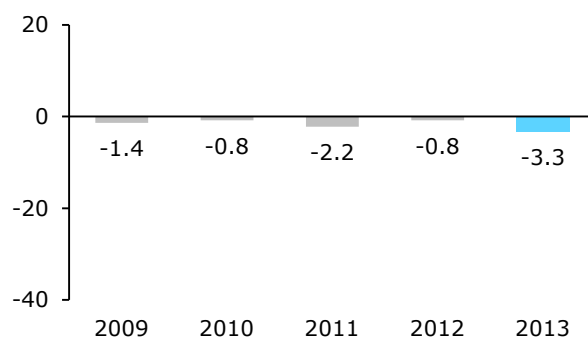| Year	Value
2009	95.2
2010	96.9
2011	99.2
2012	99.6
2013	99.4
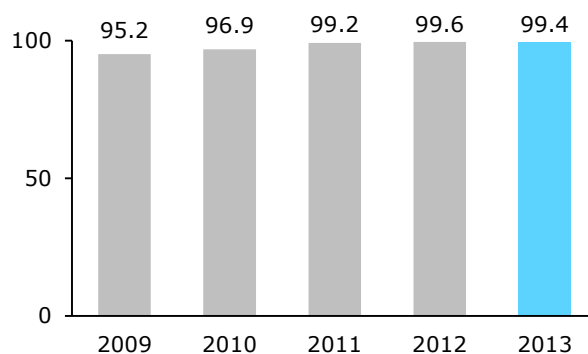
Over/Underestimation (%)

Overall underestimation increased by 2.5 percentage points in 2013

Large product forms were underestimated by 4.0%, medium by 2.1% and small by 2.8%

Underestimation of forms validated in both years, 2012 and 2013, increased by 2.6 percentage points to 3.2% in 2013

Year	Value
2009	-1.4
2010	-0.8
2011	-2.2
2012	-0.8
2013	-3.3

Participation

	2009	2010	2011	2012	2013
Participating companies	98	111	155	95	**63**
Validated market share in unit terms	59%	59%	80%	59%	**36%**
Validated product forms	904	963	1,347	958	**650**

Actions

Analyze direct sales projection frame

Conduct distribution channel survey

New Zealand

Precision (%)

Overall precision index improved by 5.3 percentage points in 2013

Large product forms reached a perfect 100%, medium 99.1% and small 94.5%

Forms validated in both years, 2012 and 2013, improved by 2.0 percentage points to 99.1% in 2013

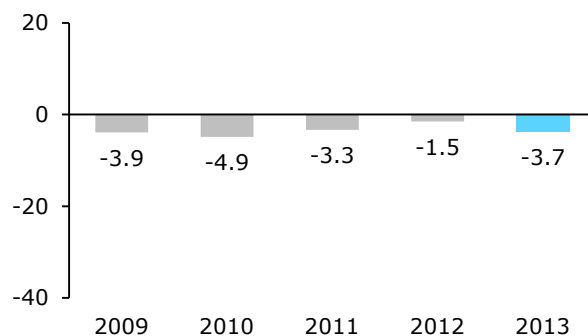|	2009	2010	2011	2012	2013
	97.0	97.2	96.3	93.5	98.8
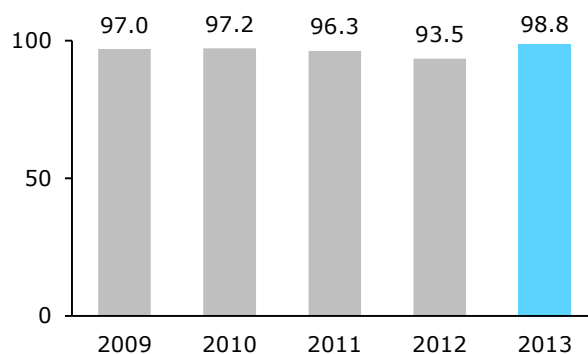
Over/Underestimation (%)

Overall underestimation increased by 2.2 percentage points in 2013

Large product forms were underestimated by 2.4%, medium by 4.4% and small by 6.2%

Underestimation of forms validated in both years, 2012 and 2013, increased by 0.5 percentage points to 3.6% in 2013

	2009	2010	2011	2012	2013
	-3.9	-4.9	-3.3	-1.5	-3.7

Participation

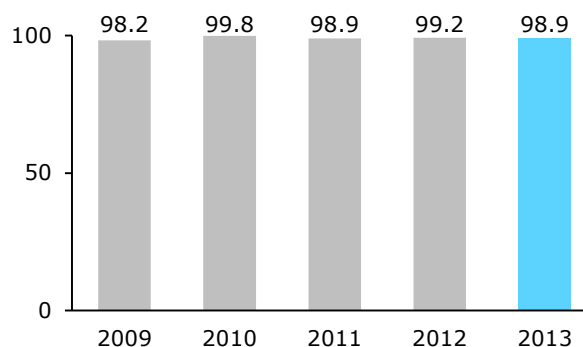|	2009	2010	2011	2012	2013
Participating companies	36	33	35	43	**34**
Validated market share in unit terms	65%	40%	58%	69%	**50%**
Validated product forms	425	325	416	506	**410**

Actions

Review validation process

Pakistan

Precision (%)

Overall precision index slightly declined by 0.3 percentage points in 2013

Large product forms reached a perfect 100%, medium 99.3% and small 94.3%

Forms validated in both years, 2012 and 2013, declined by 0.4 percentage points to 98.8% in 2013

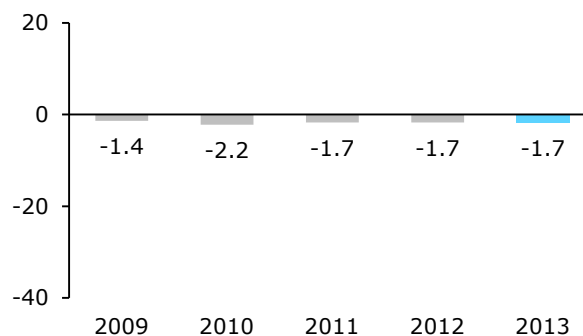|	2009	2010	2011	2012	2013
	98.2	99.8	98.9	99.2	98.9

Over/Underestimation (%)

Overall underestimation remained unchanged in 2013

Large product forms were underestimated by 1.8%, medium by 1.3% and small by 1.8%

Underestimation of forms validated in both years, 2012 and 2013, remained at 1.6% in 2013

	2009	2010	2011	2012	2013
	-1.4	-2.2	-1.7	-1.7	-1.7

Participation

	2009	2010	2011	2012	2013
Participating companies	97	103	108	104	**101**
Validated market share in unit terms	73%	79%	78%	78%	**70%**
Validated product forms	2,503	2,633	2,881	2,843	**2,474**

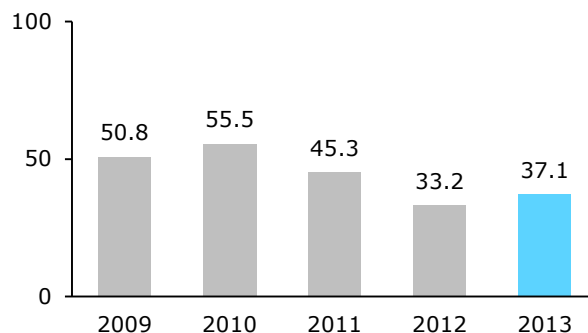## Actions

No action required from the statistical point of view

Paraguay

Precision (%)

Overall precision index improved by 3.9 percentage points in 2013

Large product forms reached 32.3%, medium 42.3% and small 42.6%

Forms validated in both years, 2012 and 2013, improved by 8.5 percentage points to 52.1% in 2013

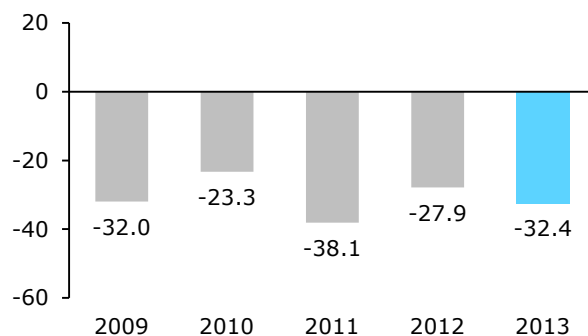| Year	Value
2009	50.8
2010	55.5
2011	45.3
2012	33.2
2013	37.1

Over/Underestimation (%)

Overall underestimation increased by 4.5 percentage points in 2013

Large product forms were underestimated by 38.5%, medium by 19.5% and small by 18.8%

Underestimation of forms validated in both years, 2012 and 2013, improved by 13.4 percentage points to 22.1% in 2013

Year	Value
2009	-32.0
2010	-23.3
2011	-38.1
2012	-27.9
2013	-32.4

Participation

	2009	2010	2011	2012	2013
Participating companies	28	78	81	106	**68**
Validated market share in unit terms	30%	50%	57%	48%	**47%**
Validated product forms	830	1,495	1,622	1,459	**1,386**

Actions

Improve panel fulfillment
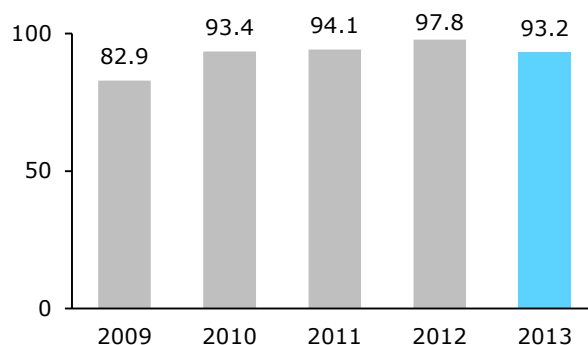
Conduct distribution channel study

Universe update on-going

Peru

Precision (%)

Overall precision index declined by 4.6 percentage points in 2013

Large product forms reached 92.4%, medium 96.0% and small 90.1%

Forms validated in both years, 2012 and 2013, declined by 3.2 percentage points to 94.3% in 2013
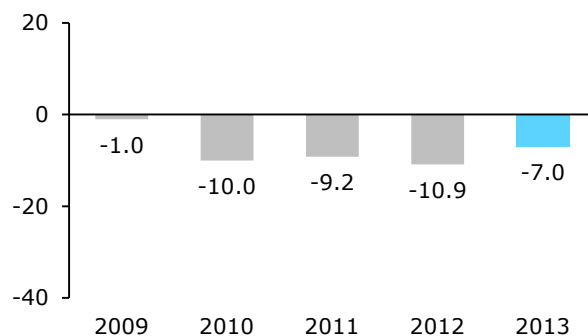
Over/Underestimation (%)

Overall underestimation improved by 3.9 percentage points in 2013

Large product forms were underestimated by 6.9%, medium and low forms both by 7.2%

Underestimation of forms validated in both years, 2012 and 2013, improved by 6.7 percentage points to 6.0% in 2013

Participation

	2009	2010	2011	2012	2013
Participating companies	17	22	28	14	**14**
Validated market share in unit terms	28%	39%	44%	23%	**24%**
Validated product forms	854	1,236	1,281	710	**749**

Actions

Review internal quality assurance process

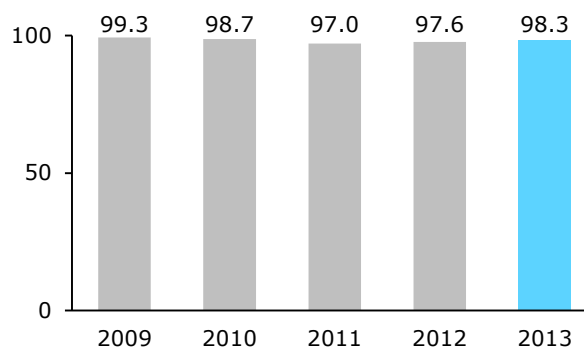# Philippines

Precision (%)

Overall precision index improved by 0.7 percentage points in 2013

Large product forms reached 98.9%, medium 96.9% and small 99.4%

Forms validated in both years, 2012 and 2013, slightly improved by 0.4 percentage points to 98.8% in 2013

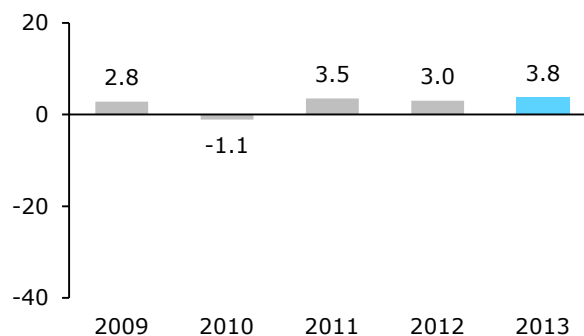|	2009	2010	2011	2012	2013
	99.3	98.7	97.0	97.6	98.3

Over/Underestimation (%)

Overall overestimation increased by 0.8 percentage points in 2013

Large product forms were overestimated by 3.3%, medium by 5.0% and small by 3.6%

Overestimation of forms validated in both years, 2012 and 2013, increased by 0.4 percentage points to 3.9% in 2013

	2009	2010	2011	2012	2013
	2.8	-1.1	3.5	3.0	3.8

Participation

	2009	2010	2011	2012	2013
Participating companies	22	24	23	19	**17**
Validated market share in unit terms	38%	41%	42%	35%	**34%**
Validated product forms	597	852	805	616	**613**

Actions

Review projection methodology

Project ethical prescription and OTC products differently

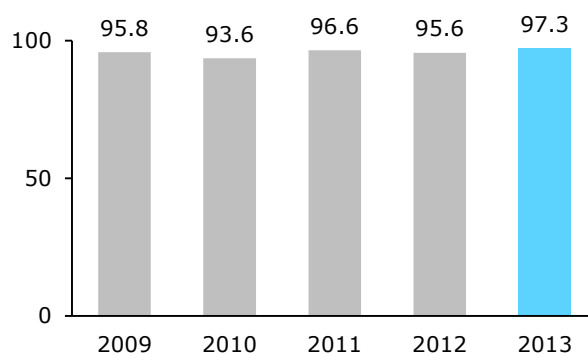# Poland

Precision (%)

Overall precision index improved by 1.7 percentage points in 2013

Large product forms reached 99.3%, medium 95.7% and small 93.8%

Forms validated in both years, 2012 and 2013, improved by 1.5 percentage points to 98.6% in 2013

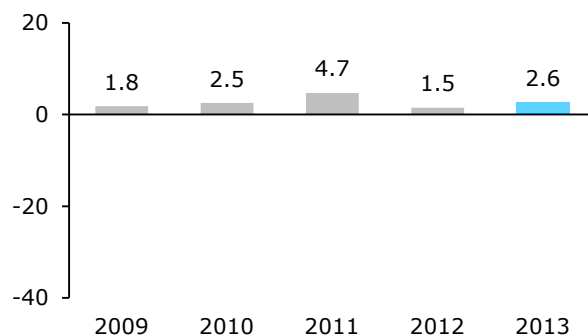|	95.8	93.6	96.6	95.6	97.3
	2009	2010	2011	2012	2013

Over/Underestimation (%)

Overall overestimation increased by 1.1 percentage points in 2013

Large product forms were overestimated by 3.4%, medium by 2.0% and small by 1.5%

Overestimation of forms validated in both years, 2012 and 2013, slightly increased by 0.9 percentage points to 2.4% in 2013

	1.8	2.5	4.7	1.5	2.6
	2009	2010	2011	2012	2013

Participation

	2009	2010	2011	2012	2013
Participating companies	48	65	82	90	**74**
Validated market share in unit terms	21%	31%	55%	39%	**30%**
Validated product forms	902	1,104	1,667	1,383	**1,139**

Actions

No action required from the statistical point of view

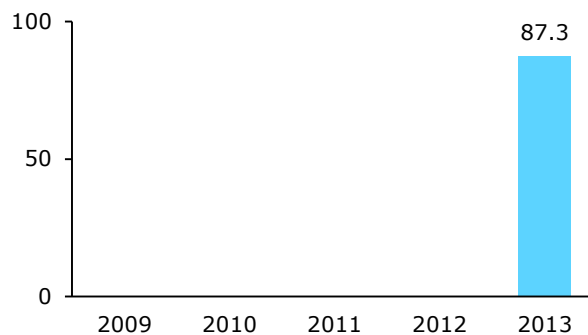# Russia

Precision (%)

Overall precision index achieved 87.3% in the first validation study in 2013

Large product forms reached 90.3%, medium 87.9% and small 76.2%

	2009	2010	2011	2012	2013
					87.3

Over/Underestimation (%)

Overall bias showed 14.6% underestimation in 2013

Large product forms were underestimated by 13.5%, medium by 14.7% and small by 18.5%

	2009	2010	2011	2012	2013
					-14.6

Participation

	2009	2010	2011	2012	2013
Participating companies					**65**
Validated market share in unit terms					**27%**
Validated product forms					**1,555**

Actions

Review validation process

Saudi Arabia
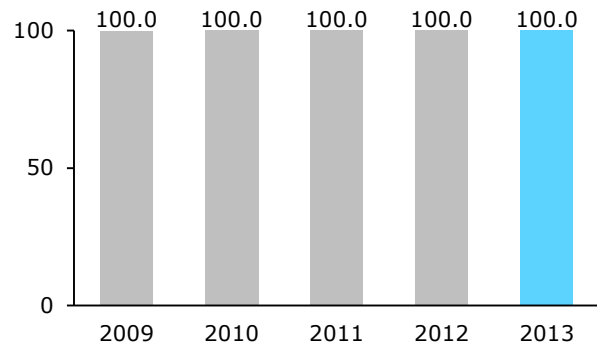
Precision (%)

Overall precision index reached again a perfect 100% in 2013

All sales volume groups reached 100%

Forms validated in both years, 2012 and 2013, reached again 100% in 2013

	2009	2010	2011	2012	2013
	100.0	100.0	100.0	100.0	100.0

Over/Underestimation (%)

Overall overestimation improved by 0.3 percentage points in 2013

Large product forms were overestimated by 1.8%, medium by 2.5% and small by 3.2%

Overestimation of forms validated in both years, 2012 and 2013, improved by 0.2 percentage points to 2.4% in 2013

	2009	2010	2011	2012	2013
	1.2	1.6	2.1	2.4	2.1

Participation

	2009	2010	2011	2012	2013
Participating companies	38	50	50	48	**60**
Validated market share in unit terms	43%	52%	59%	53%	**65%**
Validated product forms	696	758	763	726	**917**

Actions

No action required from the statistical point of view

Serbia
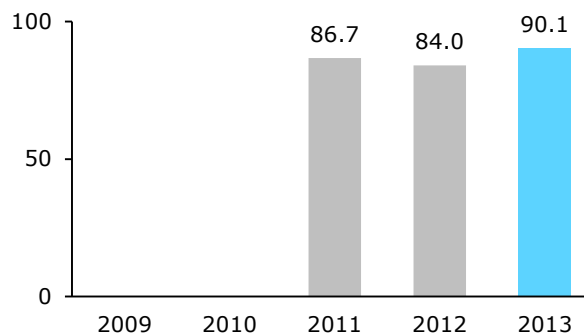
Precision (%)

Overall precision index improved by 6.1 percentage points in 2013

Large product forms reached 88.9%, medium 91.3% and small 91.8%

Forms validated in both years, 2012 and 2013, improved by 2.1 percentage points to 90.2% in 2013

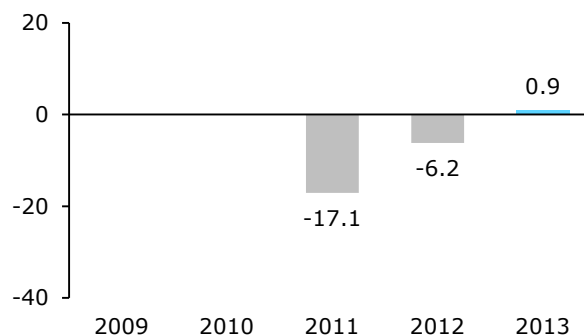|	2009	2010	2011	2012	2013
			86.7	84.0	90.1

Over/Underestimation (%)

Overall bias improved from 6.2% underestimation to a slight 0.9% overestimation in 2013

Large product forms were overestimated by 1.5%, medium forms showed no bias and small forms were underestimated by 0.5%

Bias of forms validated in both years, 2012 and 2013, improved from 6.1% underestimation in 2012 to 1.4% overestimation in 2013

	2009	2010	2011	2012	2013
			-17.1	-6.2	0.9

Participation

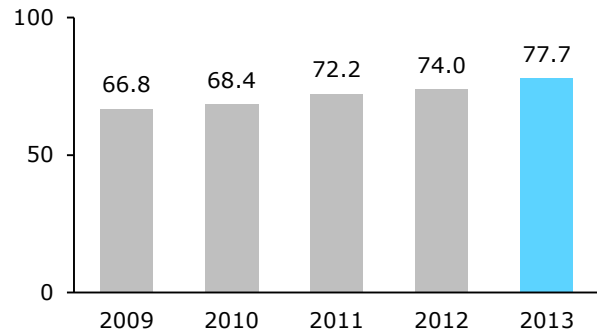|	2009	2010	2011	2012	2013
Participating companies			15	21	**16**
Validated market share in unit terms			47%	57%	**56%**
Validated product forms			349	478	**456**

Actions

No action required from the statistical point of view

Singapore

Precision (%)

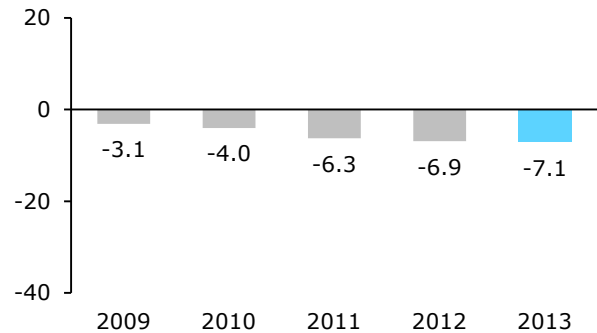Overall precision index improved by 3.7 percentage points in 2013

Large product forms reached 77.9%, medium 78.4% and small 75.9%

Over/Underestimation (%)

Overall underestimation increased by 0.2 percentage points in 2013

Large product forms were underestimated by 4.8%, medium by 9.3% and small by 10.3%

Participation

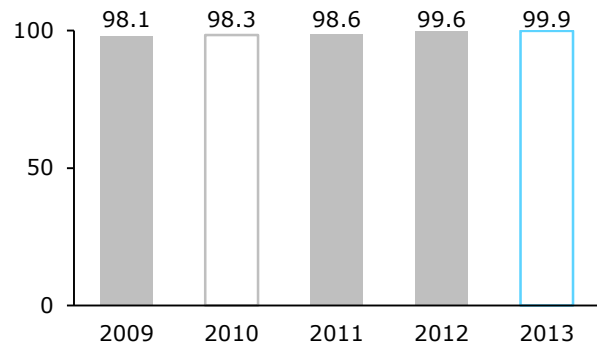|	2009	2010	2011	2012	2013
Participating companies	45	46	50	49	**51**
Validated market share in unit terms	40%	45%	39%	38%	**40%**
Validated product forms	1,571	1,855	1,936	2,035	**2,392**

Actions

Expand panel coverage

Slovak Republic

Precision (%)

Overall precision index improved by 0.3 percentage points in 2013

Large and medium product forms both reached a perfect 100%, small forms reached 99.4%

Forms validated in both years, 2012 and 2013, remained with 100% in 2013 on the same excellent level as in 2012

98.1	98.3	98.6	99.6	99.9
2009	2010	2011	2012	2013

Over/Underestimation (%)

Overall underestimation increased by 0.7 percentage points in 2013

Large product forms were underestimated by 2.0%, medium by 0.1% and small by 0.2%

Overestimation of forms validated in both years, 2012 and 2013, increased slightly by 0.4 percentage points to 0.8% in 2013

0.3	1.0	-0.2	-0.5	-1.2
2009	2010	2011	2012	2013

Participation

	2009	2010	2011	2012	2013
Participating companies	4	7	35	13	**16**
Validated market share in unit terms	21%	6%	49%	12%	**8%**
Validated product forms	391	219	1,049	397	**252**

Actions
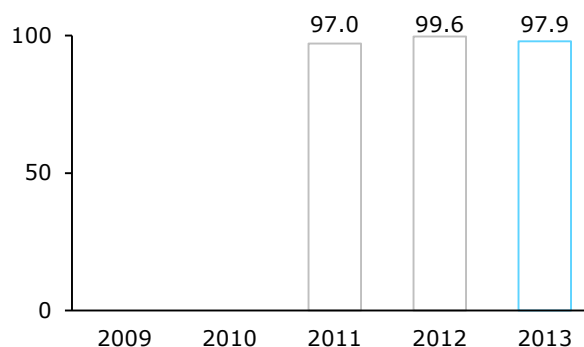
Motivate more companies to participate in the validation study

Slovenia

Precision (%)

Overall precision index declined by 1.7 percentage points in 2013

Due to low participation, a reasonable breakdown into sales volume groups was not possible

Forms validated in both years, 2012 and 2013, declined by 1.5 percentage points to 98.5% in 2013

Over/Underestimation (%)

Overall underestimation marginally increased by 0.1 percentage points in 2013

Due to low participation, a reasonable breakdown into sales volume groups was not possible

Slight overestimation of forms validated in both years, 2012 and 2013, turned from 0.1% in 2012 to a 0.2% underestimation in 2013

Participation

	2009	2010	2011	2012	2013
Participating companies			9	5	**7**
Validated market share in unit terms			8%	6%	**5%**
Validated product forms			255	141	**95**

Actions

Motivate more companies to participate in the validation study
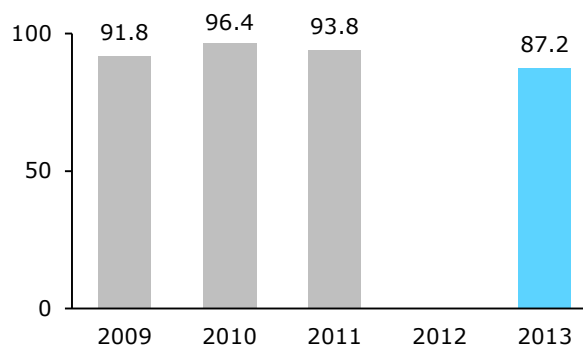
South Africa

Total Private Market Validation Study

Precision (%)

Overall precision index declined by 6.6 percentage points in 2013

Large product forms reached 89.4%, medium 85.2% and small 83.9%

Forms validated in both years, 2011 and 2013, declined by 4.3 percentage points to 88.6% in 2013
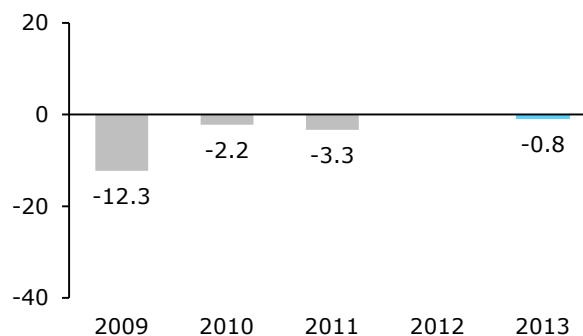
Over/Underestimation (%)

Overall underestimation improved by 2.5 percentage points in 2013

Large product forms were underestimated by 1.4%, medium forms were overestimated by 1.5% and small forms were underestimated by 3.4%

Bias of forms validated in both years, 2011 and 2013, turned from 2.3% underestimation in 2011 to 1.3% overestimation in 2013

Participation

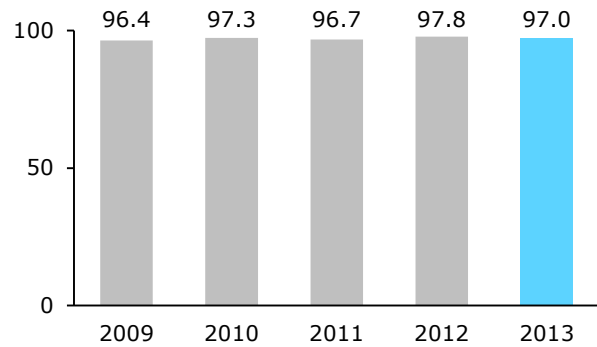|	2009	2010	2011	2012	2013
Participating companies	22	56	63		**29**
Validated market share in unit terms	31%	73%	81%		**13%**
Validated product forms	750	2,186	2,549		**627**

Actions

Investigate quality of input data

Spain

Precision (%)

Overall precision index slightly declined by 0.8 percentage points in 2013

Large product forms reached 98.7%, medium 97.2% and small 90.7%

Forms validated in both years, 2012 and 2013, slightly declined by 1.3 percentage points to 97.1% in 2013

| Year	Value
2009	96.4
2010	97.3
2011	96.7
2012	97.8
2013	97.0

Over/Underestimation (%)

Overall bias improved from 3.4% overestimation in 2012 to a slight 0.9% underestimation in 2013

Large product forms were underestimated by 0.8%, medium by 0.6% and small by 2.0%

Overestimation of forms validated in both years, 2012 and 2013, improved by 2.4 percentage points to 0.9% in 2013

Year	Value
2009	-0.1
2010	1.8
2011	0.4
2012	3.4
2013	-0.9
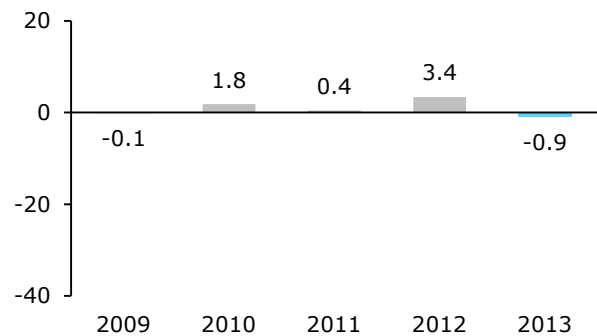
Participation

	2009	2010	2011	2012	2013
Participating companies	29	24	28	24	**15**
Validated market share in unit terms	21%	18%	23%	18%	**14%**
Validated product forms	726	534	745	682	**548**

Actions

No action required from the statistical point of view

Switzerland
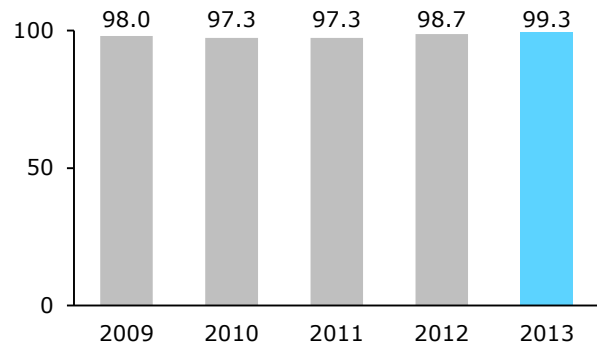
Precision (%)

Overall precision index slightly improved by 0.6 percentage points in 2013

Large product forms reached a perfect 100%, medium forms reached 98.9% and small 97.9%

Forms validated in both years, 2012 and 2013, slightly improved by 0.3 percentage points to 99.3% in 2013

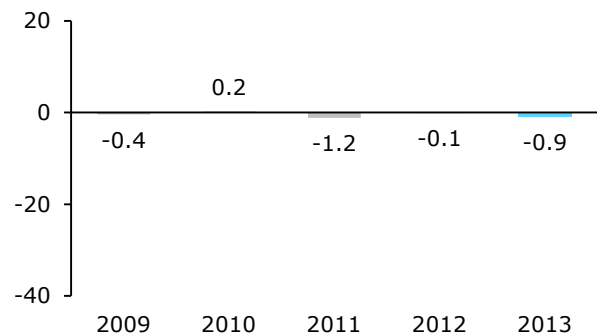|	2009	2010	2011	2012	2013
	98.0	97.3	97.3	98.7	99.3

Over/Underestimation (%)

Overall underestimation slightly increased by 0.8 percentage points in 2013

Large product forms were underestimated by 0.6%, medium by 1.2% and small by 1.9%

Bias of forms validated in both years, 2012 and 2013, turned from 0.5% overestimation in 2012 to 0.7% underestimation in 2013

	2009	2010	2011	2012	2013
	-0.4	0.2	-1.2	-0.1	-0.9

Participation

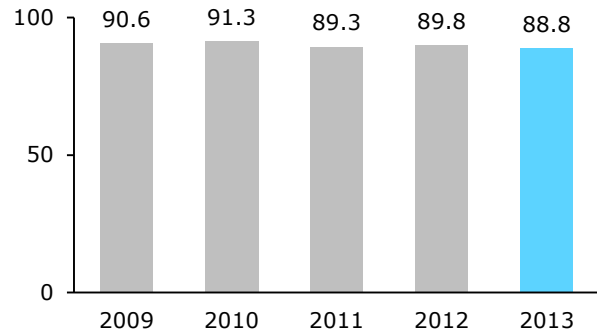|	2009	2010	2011	2012	2013
Participating companies	53	56	54	30	**26**
Validated market share in unit terms	57%	57%	54%	45%	**30%**
Validated product forms	2,156	1,955	1,920	1,489	**955**

Actions

No action required from the statistical point of view

Thailand

Precision (%)

Overall precision index declined by 1.0 percentage point in 2013

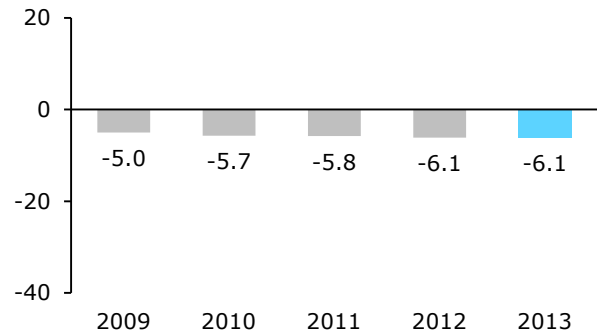Large product forms reached 90.7%, medium 87.4% and small 85.3%

90.6	91.3	89.3	89.8	88.8
2009	2010	2011	2012	2013

Over/Underestimation (%)

Overall underestimation remained stable in 2013

Large product forms were underestimated by 5.5%, medium by 7.0% and small by 6.8%

-5.0	-5.7	-5.8	-6.1	-6.1
2009	2010	2011	2012	2013

Participation

	2009	2010	2011	2012	2013
Participating companies	38	43	44	47	**46**
Validated market share in unit terms	20%	30%	32%	35%	**37%**
Validated product forms	499	942	1,011	999	**1,063**

Actions

Review panel composition
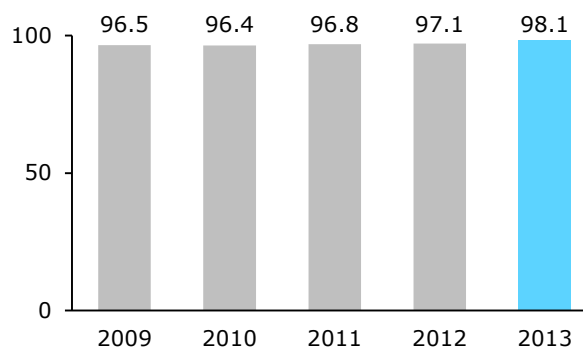
Precision (%)

Overall precision index improved by 1.0 percentage point in 2013

Large product forms reached 97.5%, medium forms reached a perfect 100% and small forms 96.6%

Forms validated in both years, 2012 and 2013, improved by 0.7 percentage points to 98.0% in 2013

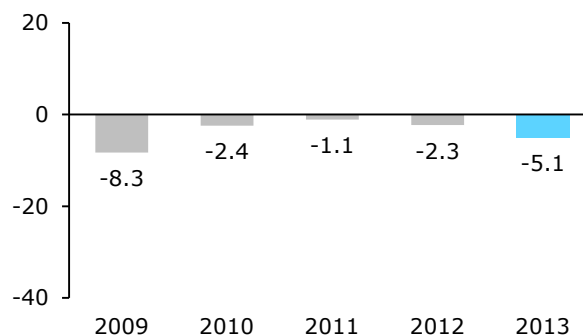| Year	Value
2009	96.5
2010	96.4
2011	96.8
2012	97.1
2013	98.1

Over/Underestimation (%)

Overall underestimation increased by 2.8 percentage points in 2013

Large and medium product forms were both underestimated by 4.9% and small forms by 6.6%

Underestimation of forms validated in both years, 2012 and 2013, increased by 3.8 percentage points to 5.5% in 2013

Year	Value
2009	-8.3
2010	-2.4
2011	-1.1
2012	-2.3
2013	-5.1

Participation

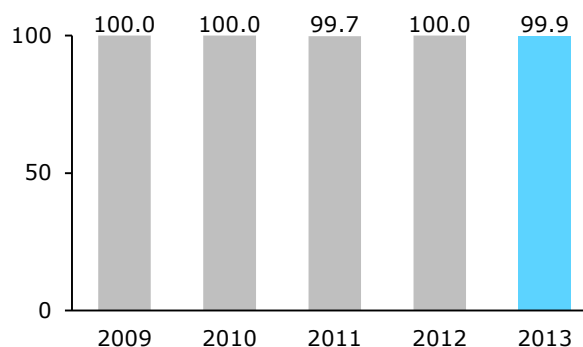|	2009	2010	2011	2012	2013
Participating companies	17	29	27	22	**19**
Validated market share in unit terms	33%	42%	45%	45%	**37%**
Validated product forms	378	524	591	571	**431**

Actions

Continue wholesaler panel expansion

Turkey

Precision (%)

Overall precision index slightly declined by 0.1 percentage points in 2013

Large and medium product forms both reached a perfect 100% and small forms 99.2%

Forms validated in both years, 2012 and 2013, slightly declined by 0.1 percentage points to 99.9% in 2013

| Year	Value
2009	100.0
2010	100.0
2011	99.7
2012	100.0
2013	99.9

Over/Underestimation (%)

Overall bias turned from small underestimation to slight overestimation in 2013

Large product forms were overestimated by 1.5%, medium and small forms were underestimated by 0.4% and 1.1%, respectively

Bias of forms validated in both years, 2012 and 2013, turned from 2.3% underestimation to 0.7% overestimation in 2013
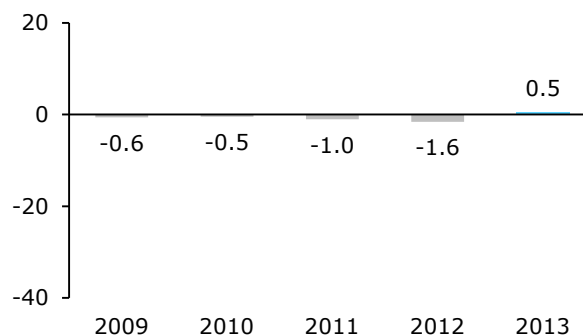
Year	Value
2009	-0.6
2010	-0.5
2011	-1.0
2012	-1.6
2013	0.5

Participation

	2009	2010	2011	2012	2013
Participating companies	55	59	34	54	**42**
Validated market share in unit terms	66%	59%	37%	55%	**35%**
Validated product forms	1,285	1,341	763	1,241	**847**

Actions

No action required from the statistical point of view

United Arab Emirates
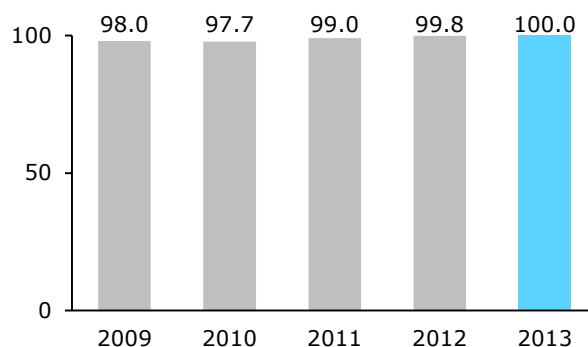
Precision (%)

Overall precision index slightly improved by 0.2 percentage points to a perfect 100% in 2013

All sales volume groups reached a perfect 100%

Forms validated in both years, 2012 and 2013, slightly improved by 0.2 percentage points to 100% in 2013

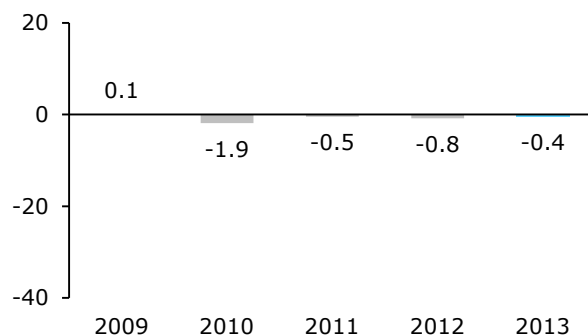|	2009	2010	2011	2012	2013
	98.0	97.7	99.0	99.8	100.0

Over/Underestimation (%)

Overall underestimation improved by 0.4 percentage points in 2013

Large product forms were underestimated by 0.4%, medium by 0.4% and small by 0.2%

Underestimation of forms validated in both years, 2012 and 2013, slightly improved by 0.3 percentage points to 0.4% in 2013

	2009	2010	2011	2012	2013
	0.1	-1.9	-0.5	-0.8	-0.4

Participation

	2009	2010	2011	2012	2013
Participating companies	21	23	30	37	**43**
Validated market share in unit terms	35%	41%	40%	62%	**70%**
Validated product forms	595	510	675	936	**1,019**

Actions

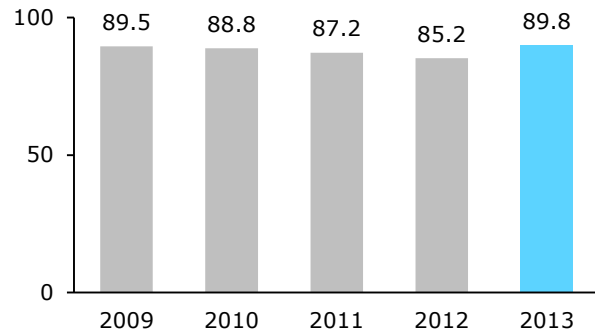No action required from the statistical point of view

United Kingdom

Retail (BPI) Validation Study

Precision (%)

Overall precision index improved by 4.6 percentage points in 2013

Large product forms reached 93.8%, medium 89.2% and small 77.7%

Over/Underestimation (%)

Overall bias improved from 1.5% overestimation in 2012 to 0.5% underestimation in 2013

Large and medium product forms were underestimated by 0.3% and 1.1%, respectively, small forms were overestimated by 0.2%
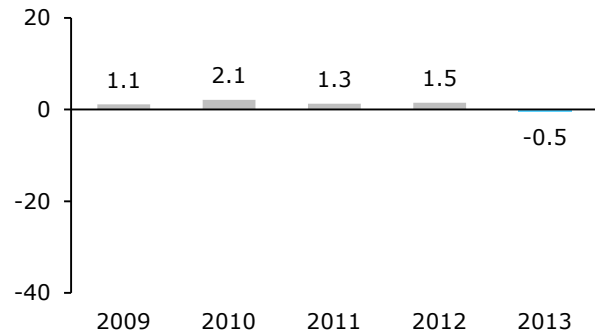
Participation

	2009	2010	2011	2012	2013
Participating companies	89	94	88	84	**82**
Validated market share in value terms	47%	48%	31%	29%	**22%**
Validated product forms	722	726	613	658	**493**

Actions

Review data quality control process

United Kingdom

Precision (%)

Overall precision index improved by 4.0 percentage points in 2013

Large product forms reached 93.0%, medium 92.4% and small 83.6%
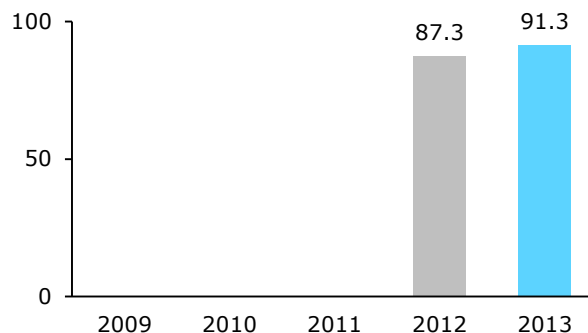
Over/Underestimation (%)

Overall overestimation improved by 2.5 percentage points in 2013

Large product forms were overestimated by 0.4%, medium and small forms were underestimated by 0.1% and 1.2%, respectively

Participation
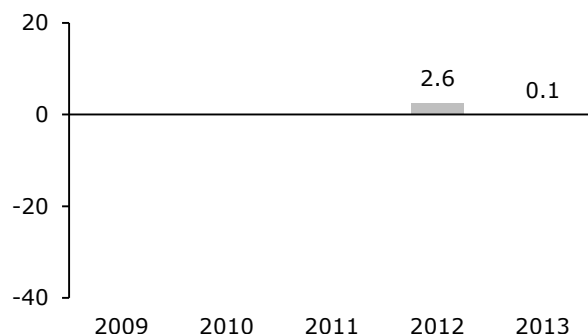
	2009	2010	2011	2012	2013
Participating companies				82	**85**
Validated market share in value terms				29%	**29%**
Validated product forms				665	**638**

Actions

Increase panel

Improve input data quality

Uruguay

Precision (%)

Overall precision index improved by 1.4 percentage points in 2013

Large product forms reached 69.8%, medium 68.5% and small 67.1%

Forms validated in both years, 2012 and 2013, declined slightly by 0.2 percentage points to 69.0% in 2013
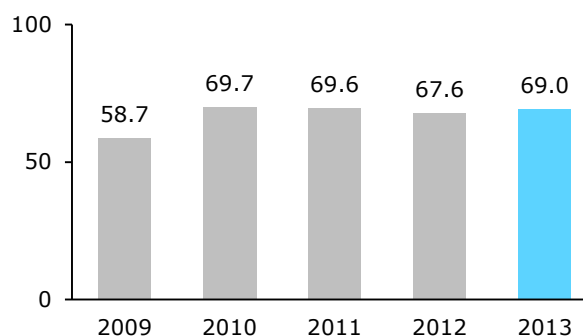
Over/Underestimation (%)

Overall underestimation improved by 0.6 percentage points in 2013

Large product forms were underestimated by 4.5%, medium by 5.7% and small by 8.9%

Underestimation of forms validated in both years, 2012 and 2013, improved by 0.6 percentage points to 5.4% in 2013

Participation

	2009	2010	2011	2012	2013
Participating companies	21	15	19	15	**19**
Validated market share in unit terms	36%	45%	46%	50%	**53%**
Validated product forms	767	990	995	1,156	**1,257**

Actions

Implement new quality control process

USA

Precision (%)

Overall precision index improved by 0.7 percentage points in 2013

Large product forms reached 97.2%, medium 90.8% and small 84.5%

Forms validated in both years, 2012 and 2013, declined by 1.7 percentage points to 93.2% in 2013

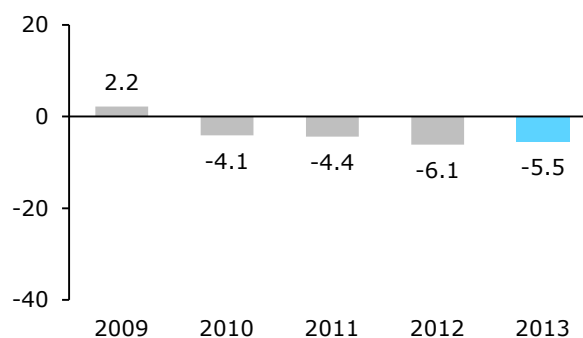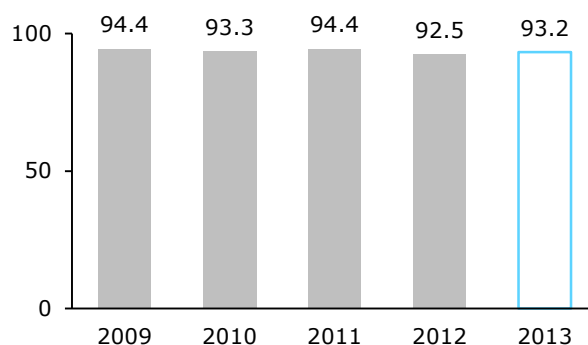|	2009	2010	2011	2012	2013
	94.4	93.3	94.4	92.5	93.2

Over/Underestimation (%)

Overall underestimation increased by 1.6 percentage points in 2013

Large product forms were underestimated by 3.3%, medium by 5.1% and small by 5.4%

Underestimation of forms validated in both years, 2012 and 2013, increased by 1.5 percentage points to 4.3% in 2013
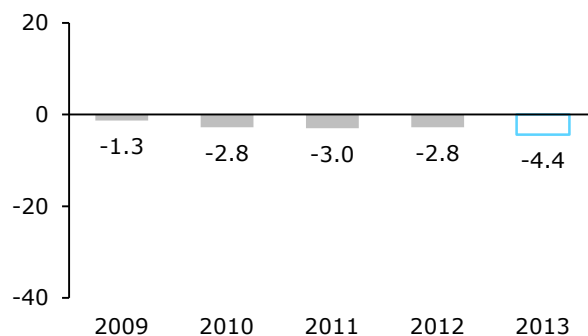
	2009	2010	2011	2012	2013
	-1.3	-2.8	-3.0	-2.8	-4.4

Participation

	2009	2010	2011	2012	2013
Participating companies	68	67	61	58	**60**
Validated market share in unit terms	21%	18%	16%	12%	**9%**
Validated product forms	1,207	1,213	1,188	1,114	**1,099**

Actions

No action required from the statistical point of view:

With the 2013 validation and forward, US sales estimates no longer account for United States federal government locations which are being blocked by their primary wholesaler. This data blockage has an estimated -4.4% national unit impact.

Venezuela

Precision (%)

Overall precision index declined by 2.7 percentage points in 2013

Large product forms reached 94.1%, medium 93.9% and small 92.4%

Forms validated in both years, 2012 and 2013, improved by 1.2 percentage points to 97.5% in 2013

	2009	2010	2011	2012	2013
	94.6	93.6	94.4	96.5	93.8
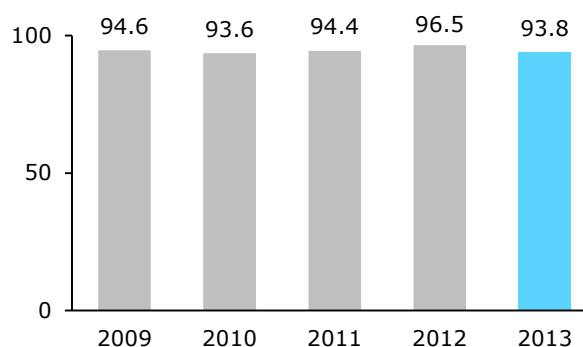
Over/Underestimation (%)

Overall underestimation slightly improved by 0.2 percentage points in 2013

Large product forms were underestimated by 2.4%, medium by 1.7% and small by 3.6%

Bias of forms validated in both years, 2012 and 2013, turned from 0.1% overestimation in 2012 to 2.3% underestimation in 2013
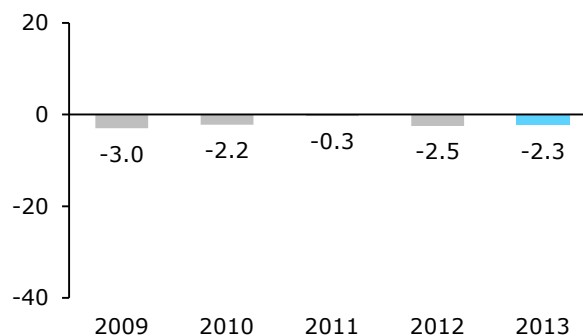
	2009	2010	2011	2012	2013
	-3.0	-2.2	-0.3	-2.5	-2.3

Participation

	2009	2010	2011	2012	2013
Participating companies	73	80	78	45	**48**
Validated market share in unit terms	72%	63%	62%	37%	**57%**
Validated product forms	2,328	1,909	1,866	1,246	**1,504**

Actions

No action required from the statistical point of view

Vietnam

Precision (%)

Overall precision index improved by 7.7 percentage points in 2013

Large product forms reached 70.7%, medium 47.7% and small 57.1%

Forms validated in both years, 2012 and 2013, improved by 5.8 percentage points to 64.0% in 2013
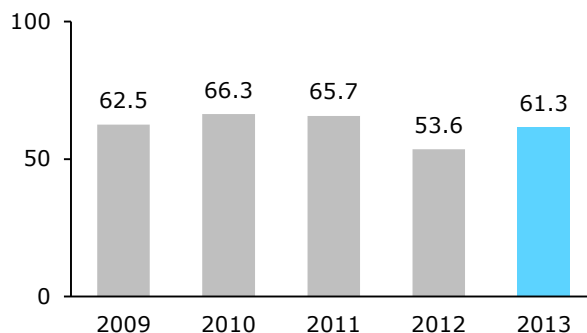

Over/Underestimation (%)

Overall underestimation improved by 3.9 percentage points in 2013

Large product forms were underestimated by 33.8%, medium by 36.0% and small by 28.9%

Underestimation of forms validated in both years, 2012 and 2013, improved slightly by 0.8 percentage points to 33.6% in 2013
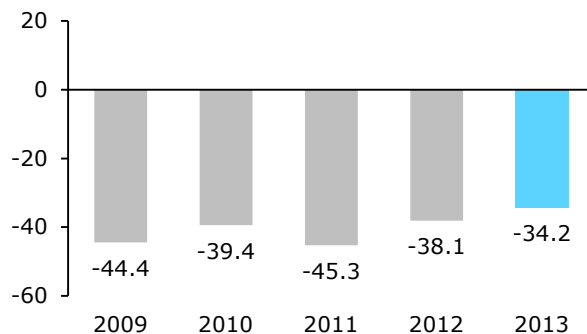
Participation

	2009	2010	2011	2012	2013
Participating companies	58	57	62	59	**53**
Validated market share in unit terms	15%	19%	20%	14%	**11%**
Validated product forms	654	704	757	632	**661**

Actions

Launch drugstore audit

OTC Validation Studies

Given the increasing importance of Over-The-Counter (OTC) markets, IMS regularly evaluates our accuracy measures for OTC products that are sub-groupings of the standard national retail or PharmaTrend services. These "sub-validations" are made possible simply by restricting the national standard validation analysis for a clearly defined subset of products. Due to their small prescription share, these products typically follow distinct distribution routes, and their consumption is more customer-driven than that of prescription-bound products. As a general rule, we find that a higher proportion of these products are sold directly from manufacturer to retail outlet so that IMS retail pharmacy samples have a higher impact on our ultimate audit estimates.

Global OTC Validation Results

While in previous years we focused exclusively on IMS sell-in services as sub-offerings from our retail services portfolio, since last year we are now including also sell-out services in countries where they have become our standard OTC deliverable. For that purpose, five years of data got re-evaluated and summary statistics in this ACTS report are now a mix of metrics originating from either sell-in or sell-out services.

For the 2013 OTC validation studies, 19 countries provided analyzable results. No validation study was necessary in *Norway* because we collect full census data in this country. There, precision results are assumed to be 100 percent. This makes a total of 20 sets of validation results, of which 16 had uninterrupted five-year results. The overall degree of precision in IMS OTC reports is best described by an aggregated precision index for these 16 countries:

OTC Precision Index (%)
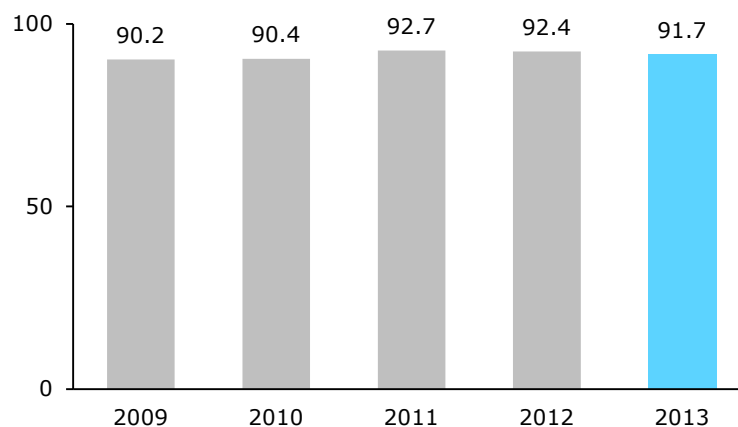
The world-wide OTC precision index showed slight decline, from 92.4% in 2012 to 91.7% in 2013. Despite of this small reduction, it demonstrates high-level stability well above the 90% margin.

Improvement & Deterioration

Country	Improvement	
	Precision 2013 %	Change vs. 2012 %p
Argentina	84.7	+4.7
Italy	91.3	+3.5
Spain	94.5	+2.9

Country	Deterioration	
	Precision 2013 %	Change vs. 2012 %p
Austria	87.7	-5.3
Canada	96.6	-2.4
Germany	91.1	-3.1
Korea	69.1	-3.1
Mexico	86.0	-3.1

Three countries demonstrated significant improvement of more than two percentage points over 2012. Remarkable growth of 4.7 percentage points is reported for *Argentina*. *Italy* improved by 3.5 percentage points and *Spain* by 2.9 percentage points. Five countries declined by more than two percentage points in 2013, most significantly *Austria* by more than 5 percentage points.

OTC Validation Results by Country

The validation studies mentioned on the subsequent country pages refer to the IMS OTC reports.

Argentina

Precision (%)

Overall precision index improved by 4.7 percentage points in 2013

Large product forms reached 87.1%, medium 83.9% and small 78.3%

Forms validated in both years, 2012 and 2013, slightly improved by 0.3 percentage points to 85.3% in 2013

77.4	77.1	78.7	80.0	84.7
2009	2010	2011	2012	2013
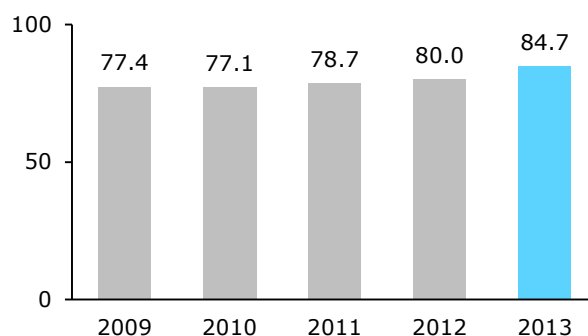
Over/Underestimation (%)

Overall underestimation improved by 4.0 percentage points in 2013

Large product forms were underestimated by 13.3%, medium by 8.7% and small by 7.9%

Underestimation of forms validated in both years, 2012 and 2013, improved by 3.8 percentage points to 11.4% in 2013
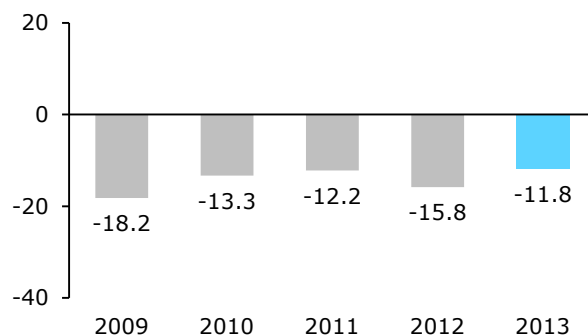
-18.2	-13.3	-12.2	-15.8	-11.8
2009	2010	2011	2012	2013

Participation

	2009	2010	2011	2012	2013
Participating companies	48	42	40	38	**37**
Validated market share in unit terms	57%	66%	51%	48%	**46%**
Validated product forms	465	460	424	405	**360**

## Actions

No action required from the statistical point of view

Austria

Precision (%)

Overall precision index declined by 5.3 percentage points in 2013

Large product forms reached 87.7%, medium 86.6% and small 90.2%

Forms validated in both years, 2012 and 2013, declined by 5.0 percentage points to 88.3% in 2013
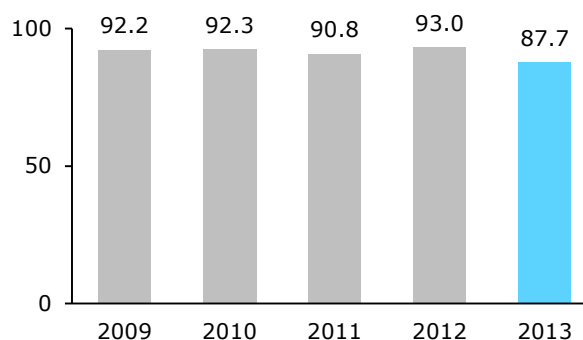
Over/Underestimation (%)

Overall overestimation increased slightly by 1.2 percentage points in 2013

Large and medium product forms were overestimated by 3.4% and 0.5%, respectively, small forms were underestimated by 4.2%

Overestimation of forms validated in both years, 2012 and 2013, increased by 2.5 percentage points to 2.7% in 2013
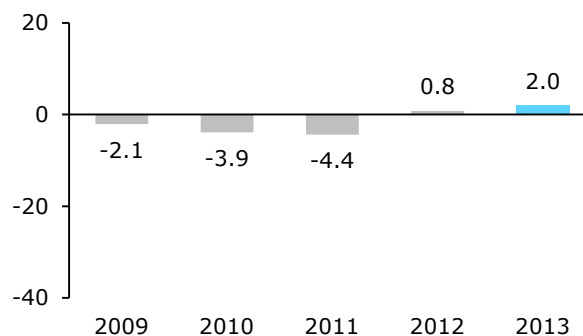
Participation

	2009	2010	2011	2012	2013
Participating companies	108	89	85	84	**86**
Validated market share in unit terms	93%	86%	86%	89%	**92%**
Validated product forms	669	503	481	467	**507**

Actions

Panel has been increased in 2014

Apply new projection method in 2015

Belgium

Precision (%)

Overall precision index improved by 1.5 percentage points in 2013

Medium product forms reached 97.0% and small 92.3%. A minor number of large product forms was grouped into the medium class for analysis

Forms validated in both years, 2012 and 2013, remained at a perfect 100% in 2013
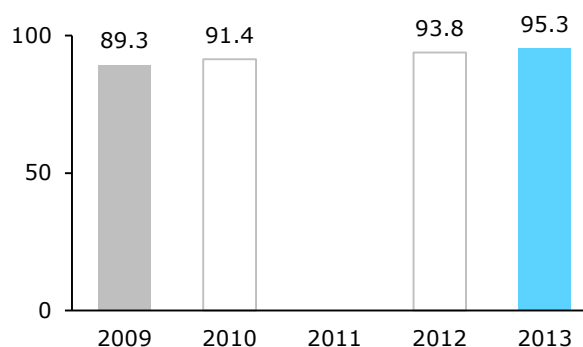
Over/Underestimation (%)

Overall underestimation improved by 5.0 percentage points in 2013

Medium product forms were underestimated by 1.1% and small by 6.2%. A minor number of large product forms was grouped into the medium class for analysis

Underestimation of forms validated in both years, 2012 and 2013, improved by 1.0 percentage point to 1.0% in 2013

Participation

	2009	2010	2011	2012	2013
Participating companies	10	9		4	**12**
Validated market share in unit terms	13%	9%		4%	**12%**
Validated product forms	116	70		48	**93**

Actions

Review methodology for direct sales

Precision (%)

Overall precision index slightly improved by 0.2 percentage points in 2013

Large product forms reached 96.6%, medium 90.6% and small 89.0%

Forms validated in both years, 2012 and 2013, declined slightly by 1.2 percentage points to 93.8% in 2013

	2009	2010	2011	2012	2013
	92.9	97.4	93.0	93.3	93.5
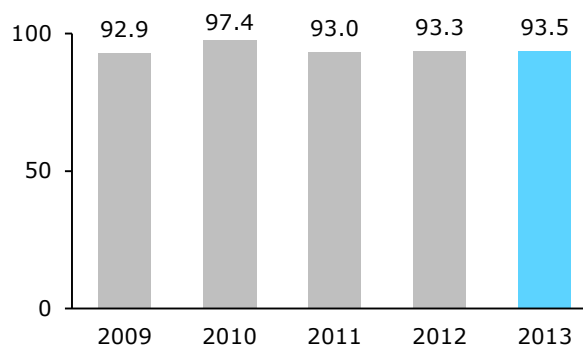
Over/Underestimation (%)

Overall underestimation improved by 7.1 percentage points in 2013

Large product forms were underestimated by 0.3%, medium by 3.8% and small by 6.3%

Underestimation of forms validated in both years, 2012 and 2013, improved by 4.2 percentage points to 1.6% in 2013
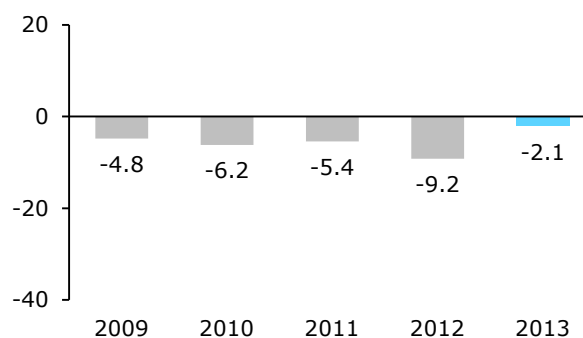
	2009	2010	2011	2012	2013
	-4.8	-6.2	-5.4	-9.2	-2.1

Participation

	2009	2010	2011	2012	2013
Participating companies	16	13	21	19	**26**
Validated market share in unit terms	16%	11%	13%	17%	**20%**
Validated product forms	250	190	243	319	**432**

Actions

Evaluate options for segmented consumer health and PMB projections

Bulgaria

Precision (%)

Overall precision index improved by 2.2 percentage points in 2013

Large and medium product forms both reached 97.2% and small forms 91.7%

Forms validated in both years, 2012 and 2013, significantly improved by 5.4 percentage points to 96.0% in 2013
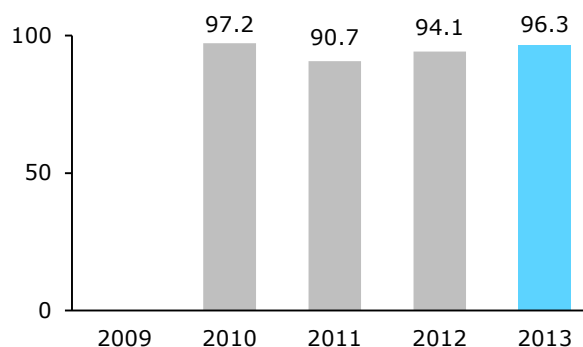
Year	Value
2010	97.2
2011	90.7
2012	94.1
2013	96.3

Over/Underestimation (%)

Overall overestimation increased by 1.4 percentage points in 2013

Large and medium product forms were overestimated by 3.6% and 3.4%, respectively, small forms were underestimated by 0.2%

Overestimation of forms validated in both years, 2012 and 2013, increased by 1.7 percentage points to 3.7% in 2013

Year	Value
2010	-5.6
2011	-1.0
2012	2.0
2013	3.4

Participation

	2009	2010	2011	2012	2013
Participating companies		32	25	29	**31**
Validated market share in unit terms		57%	43%	54%	**56%**
Validated product forms		160	120	156	**155**

Actions

Control atypical sales patterns

Canada

Precision (%)

Overall precision index declined by 2.4 percentage points in 2013

Large product forms reached 96.3%, medium 98.3% and small 94.2%

Forms validated in both years, 2012 and 2013, declined by 2.1 percentage points to 96.7% in 2013
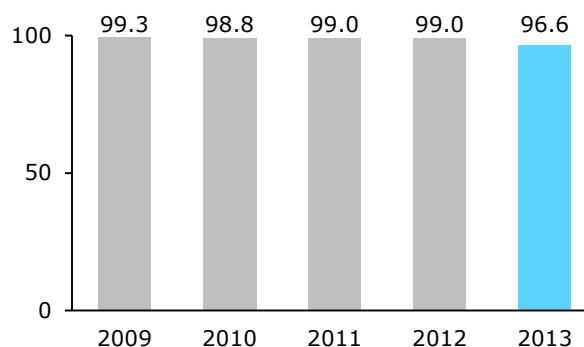
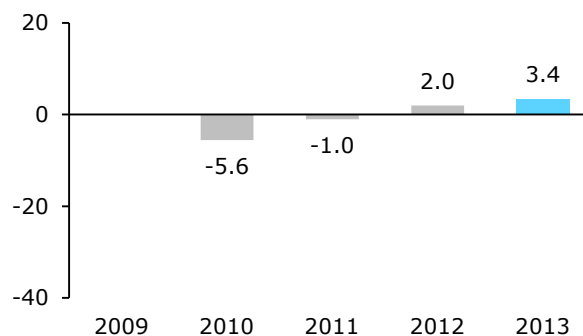|	2009	2010	2011	2012	2013
	99.3	98.8	99.0	99.0	96.6

Over/Underestimation (%)

Overall underestimation improved by 0.6 percentage points in 2013

Large product forms were overestimated by 0.6%, medium by 1.2% and small by 1.2%

Overestimation of forms validated in both years, 2012 and 2013, improved by 0.6 percentage points to 0.9% in 2013

	2009	2010	2011	2012	2013
	1.0	0.8	0.6	1.5	0.9

Participation

	2009	2010	2011	2012	2013
Participating companies	45	47	50	51	**53**
Validated market share in unit terms	95%	95%	95%	95%	**95%**
Validated product forms	974	994	987	911	**909**

Actions

Evaluate options to enhance projection methodology

Czech Republic

Precision (%)

Overall precision index declined by 1.8 percentage points in 2013

Large product forms reached 95.9%, medium 95.8% and small 90.9%

Forms validated in both years, 2012 and 2013, improved by 1.2 percentage points to 98.5% in 2013

Year	Value
2009	87.5
2010	89.8
2011	95.6
2012	96.9
2013	95.1

Over/Underestimation (%)

Overall bias turned from 0.6% underestimation in 2012 to 5.6% overestimation in 2013

Large product forms were overestimated by 6.0%, medium by 4.4% and small by 3.0%

Bias of forms validated in both years, 2012 and 2013, turned from 1.0% underestimation in 2012 to 5.2% overestimation in 2013
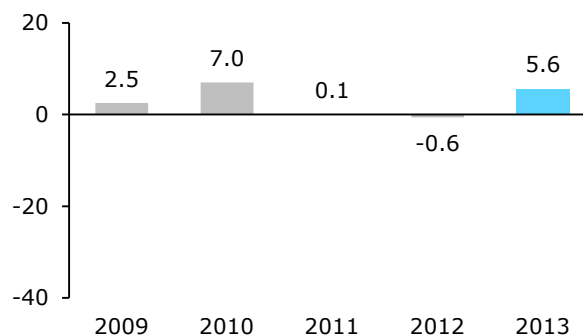
Year	Value
2009	2.5
2010	7.0
2011	0.1
2012	-0.6
2013	5.6

Participation

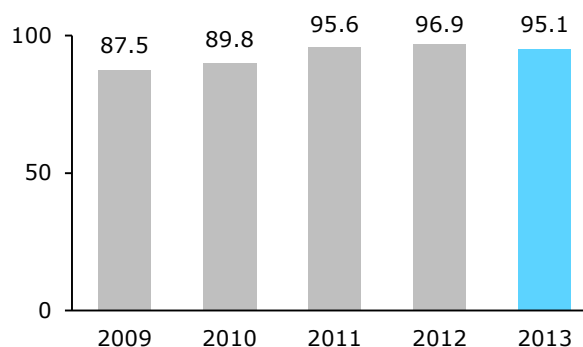|	2009	2010	2011	2012	2013
Participating companies	13	20	19	21	**15**
Validated market share in unit terms	51%	58%	48%	52%	**51%**
Validated product forms	186	212	186	217	**213**

Actions

Review projection level

Finland

Precision (%)

Overall precision index declined by 0.9 percentage points in 2013

Large product forms reached 95.4%, medium 95.9% and small 88.3%

Forms validated in both years, 2012 and 2013, declined by 1.1 percentage points to 94.4% in 2013

	2009	2010	2011	2012	2013
	70.6	74.8	96.4	95.3	94.4

Over/Underestimation (%)

Overall underestimation improved by 2.8 percentage points in 2013

Large product forms were underestimated by 2.9%, medium by 6.7% and small by 11.1%

Underestimation of forms validated in both years, 2012 and 2013, improved by 2.6 percentage points to 4.8% in 2013
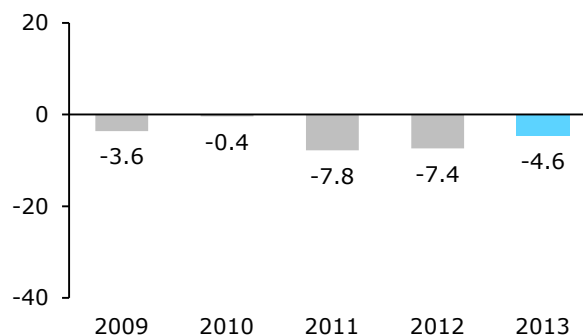
	2009	2010	2011	2012	2013
	-3.6	-0.4	-7.8	-7.4	-4.6

Participation

	2009	2010	2011	2012	2013
Participating companies	100	93	53	52	**52**
Validated market share in unit terms	90%	89%	85%	89%	**92%**
Validated product forms	873	916	440	455	**458**

Actions

Analyze sample stratification

Germany

Precision (%)

Overall precision index declined by 3.1 percentage points in 2013

Large product forms reached 93.8%, medium 89.5% and small 85.5%

Forms validated in both years, 2012 and 2013, slightly declined by 0.4 percentage points to 95.0% in 2013
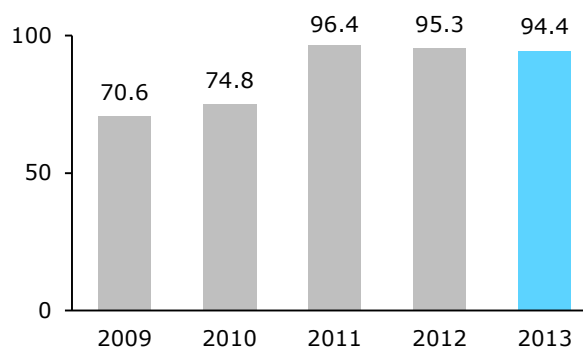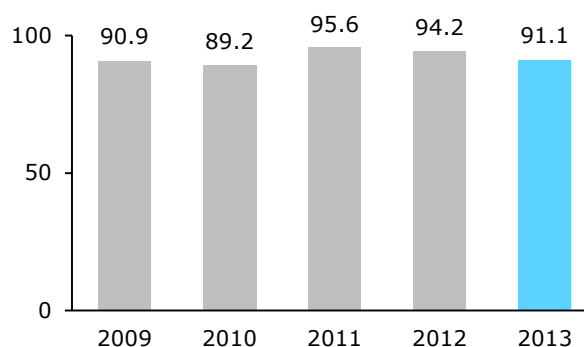

Over/Underestimation (%)

Overall bias turned from 2.3% underestimation in 2012 to 0.2% overestimation in 2013

Large product forms were overestimated by 0.9%, medium and small forms were underestimated by 2.0% and 5.5%, respectively

Underestimation of forms validated in both years, 2012 and 2013, improved by 1.0 percentage point to 1.3% in 2013

Participation

Participation	2009	2010	2011	2012	2013
Participating companies	30	28	25	30	**23**
Validated market share in unit terms	27%	32%	26%	32%	**33%**
Validated product forms	866	644	595	710	**684**

Actions

Analyze client-specific validation results

Greece

Precision (%)

Overall precision index declined by 1.4 percentage points in 2013

Due to small availability of product forms, a reasonable breakdown into sales volume groups was not possible

Forms validated in both years, 2012 and 2013, improved by 1.5 percentage points to 89.2% in 2013
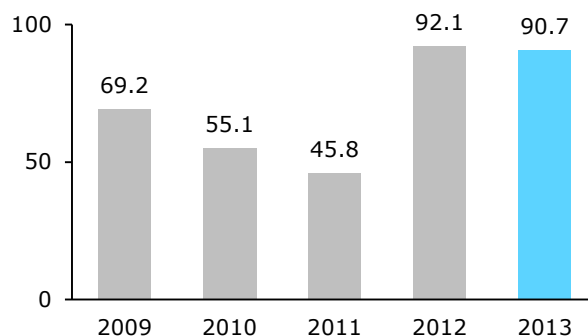
Over/Underestimation (%)

Overall underestimation increased by 1.9 percentage points in 2013

Due to small availability of product forms, a reasonable breakdown into sales volume groups was not possible

Underestimation of forms validated in both years, 2012 and 2013, increased by 1.1 percentage points to 10.5% in 2013
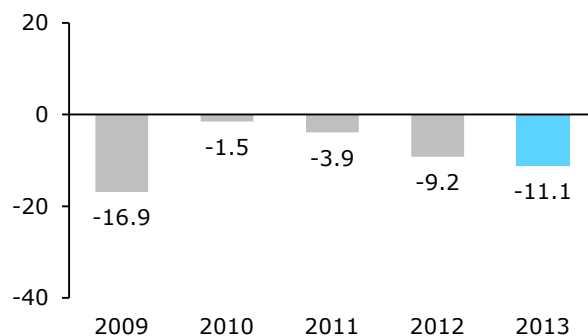
Participation

	2009	2010	2011	2012	2013
Participating companies	46	45	34	31	**27**
Validated market share in unit terms	61%	66%	56%	52%	**47%**
Validated product forms	193	171	123	101	**75**

Actions

Review quality of incoming data

Hungary

Precision (%)

Overall precision index slightly improved by 0.8 percentage points in 2013

Large product forms reached 96.9%, medium 95.6% and small 89.0%

Forms validated in both years, 2012 and 2013, slightly improved by 1.1 percentage points to 96.1% in 2013
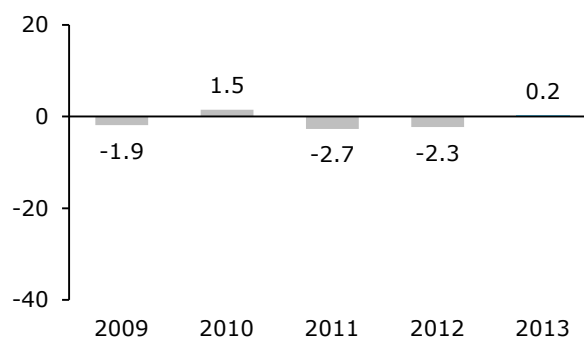
	2009	2010	2011	2012	2013
	97.3	96.2	97.0	94.4	95.2
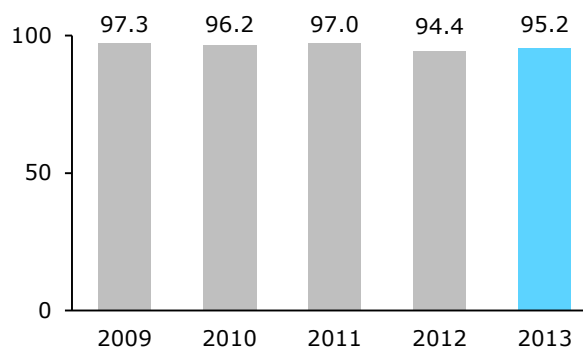
Over/Underestimation (%)

Overall underestimation improved by 2.3 percentage points in 2013

Large product forms were underestimated by 1.3%, medium by 0.7% and small forms were overestimated by 0.3%

Underestimation of forms validated in both years, 2012 and 2013, improved by 1.8 percentage points to 1.5% in 2013

	2009	2010	2011	2012	2013
	-0.3	-6.0	-8.1	-3.3	-1.0

Participation

	2009	2010	2011	2012	2013
Participating companies	26	41	41	41	**42**
Validated market share in unit terms	43%	75%	71%	67%	**69%**
Validated product forms	168	269	270	262	**308**

Actions

No action required from the statistical point of view

Italy

Precision (%)

Overall precision index improved by 3.5 percentage points in 2013

Medium product forms reached 89.2% and small 94.9%. A minor number of large product forms was grouped into the medium class for analysis

Forms validated in both years, 2012 and 2013, improved by 1.5 percentage points to 90.9% in 2013

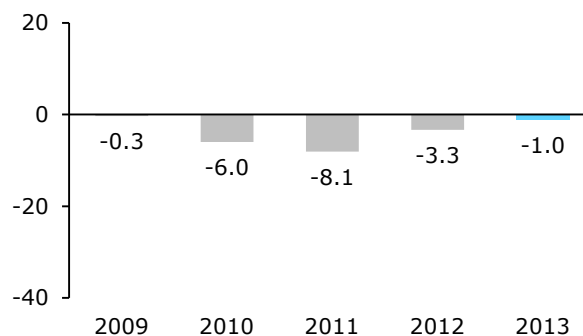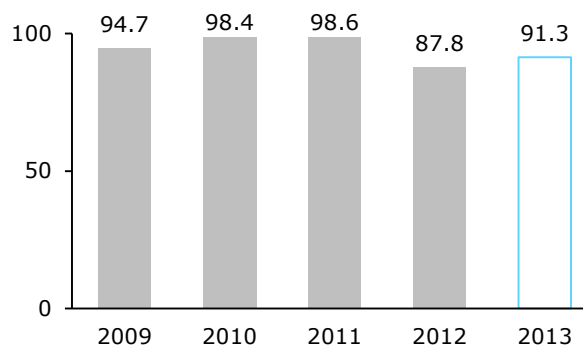|	2009	2010	2011	2012	2013
Precision	94.7	98.4	98.6	87.8	91.3

Over/Underestimation (%)

Overall underestimation slightly improved by 0.7 percentage points in 2013

Medium product forms were underestimated by 7.9% and small by 8.5%. A minor number of large product forms was grouped into the medium class for analysis

Underestimation of forms validated in both years, 2012 and 2013, improved by 3.0 percentage points to 7.4% in 2013
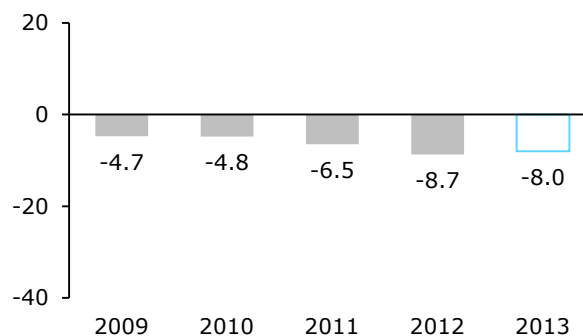
	2009	2010	2011	2012	2013
Over/Underestimation	-4.7	-4.8	-6.5	-8.7	-8.0

Participation

	2009	2010	2011	2012	2013
Participating companies	13	13	13	16	**14**
Validated market share in unit terms	12%	10%	10%	22%	**9%**
Validated product forms	76	61	67	131	**76**

Actions

Increase pharmacy sample

Review projection frame

Precision (%)

Overall precision index declined by 3.1 percentage points in 2013

Medium product forms reached 71.4% and small 65.1%. A minor number of large product forms was grouped into the medium class for analysis

Forms validated in both years, 2012 and 2013, declined by 5.8 percentage points to 72.6% in 2013

	2009	2010	2011	2012	2013
				72.2	69.1
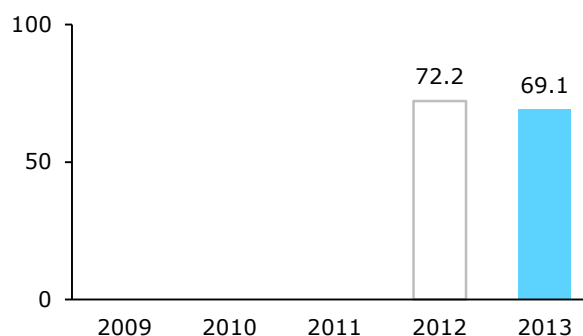
Over/Underestimation (%)

Overall underestimation increased by 3.2 percentage points in 2013

Medium product forms were underestimated by 16.1% and small by 17.2%. A minor number of large product forms was grouped into the medium class for analysis

Underestimation of forms validated in both years, 2012 and 2013, improved by 1.7 percentage points to 7.3% in 2013

	2009	2010	2011	2012	2013
				-13.0	-16.2

Participation

	2009	2010	2011	2012	2013
Participating companies				11	**8**
Validated market share in unit terms				6%	**17%**
Validated product forms				144	**204**

Actions

Launch sell-out OTC report based on different panel

Mexico

Precision (%)

Overall precision index declined by 3.1 percentage points in 2013

Large product forms reached 86.7%, medium 83.0% and small 89.8%

Forms validated in both years, 2012 and 2013, declined by 0.6 percentage points to 88.0% in 2013

	2009	2010	2011	2012	2013
	82.0	73.5	88.1	89.1	86.0
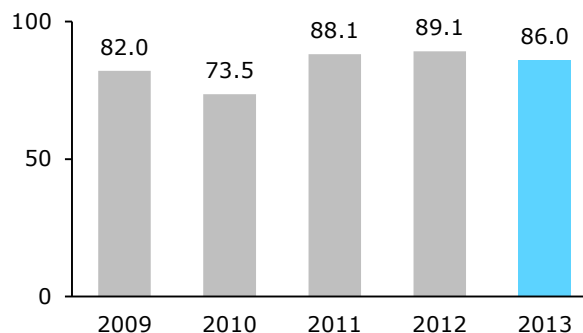
Over/Underestimation (%)

Overall overestimation increased by 7.5 percentage points in 2013

Large product forms were overestimated by 10.4%, medium by 3.4% and small by 5.0%

Overestimation of forms validated in both years, 2012 and 2013, increased by 8.2 percentage points to 10.7% in 2013
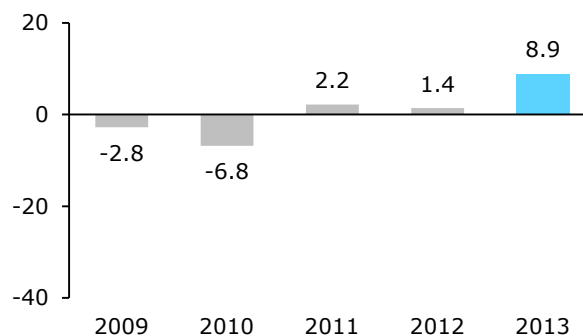
	2009	2010	2011	2012	2013
	-2.8	-6.8	2.2	1.4	8.9

Participation

	2009	2010	2011	2012	2013
Participating companies	24	22	19	13	**12**
Validated market share in unit terms	28%	30%	28%	36%	**27%**
Validated product forms	303	304	286	352	**254**

Actions

Evaluate options for segmented consumer health and PMM projections

Poland

Precision (%)

Overall precision index slightly improved by 0.6 percentage points in 2013

Large product forms reached 87.2%, medium 62.0% and small 69.6%

Forms validated in both years, 2012 and 2013, slightly improved by 0.7 percentage points to 69.8% in 2013
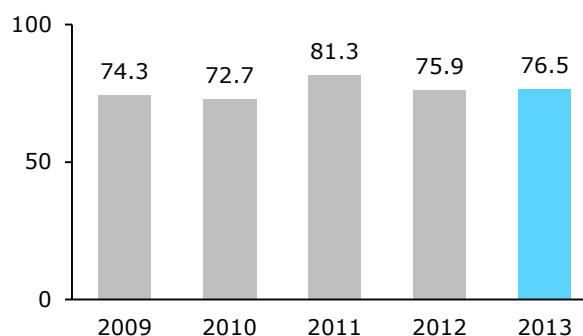
| Year	Value
2009	74.3
2010	72.7
2011	81.3
2012	75.9
2013	76.5

Over/Underestimation (%)

Overall underestimation increased by 2.5 percentage points in 2013

Large product forms were underestimated by 3.3%, medium by 6.3% and small by 12.8%

Underestimation of forms validated in both years, 2012 and 2013, increased by 2.5 percentage points to 4.7% in 2013
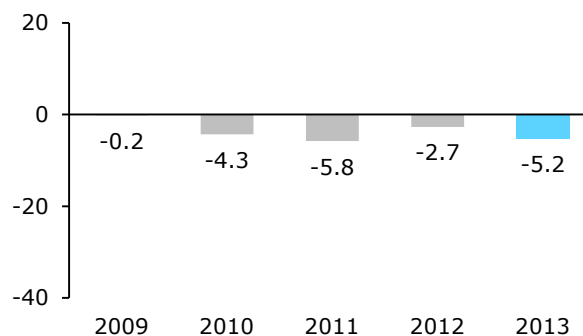
Year	Value
2009	-0.2
2010	-4.3
2011	-5.8
2012	-2.7
2013	-5.2

Participation

	2009	2010	2011	2012	2013
Participating companies	23	35	47	53	**40**
Validated market share in unit terms	24%	14%	42%	27%	**21%**
Validated product forms	216	150	331	289	**231**

Actions

Review projection level

South Africa

Precision (%)

Overall precision index declined by 7.8 percentage points in 2013

Medium product forms reached 85.3% and small 80.6%. A minor number of large product forms was grouped into the medium class for analysis

Forms validated in both years, 2011 and 2013, slightly declined by 0.3 percentage points to 86.0% in 2013
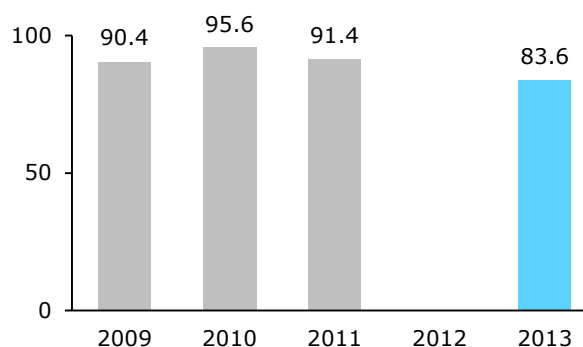
## Over/Underestimation (%)

Overall underestimation improved by 1.5 percentage points in 2013

Medium product forms were underestimated by 3.3% and small by 2.3%. A minor number of large product forms was grouped into the medium class for analysis

Underestimation of forms validated in both years, 2011 and 2013, slightly improved by 0.6 percentage points to 1.4% in 2013
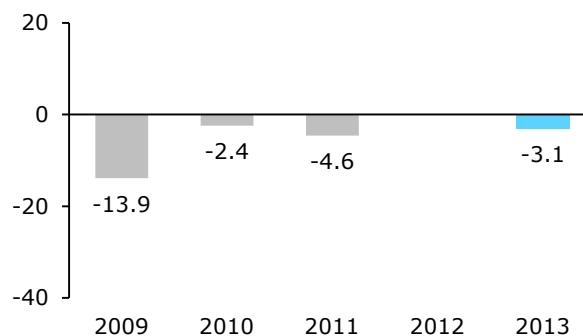
Participation

	2009	2010	2011	2012	2013
Participating companies	19	43	49		21
Validated market share in unit terms	29%	51%	77%		11%
Validated product forms	289	584	859		193

Actions

Investigate quality of input data

Spain

Precision (%)

Overall precision index improved by 2.9 percentage points in 2013

Due to small availability of product forms, a reasonable breakdown into sales volume groups was not possible

Forms validated in both years, 2012 and 2013, slightly improved by 0.8 percentage points to 95.9% in 2013
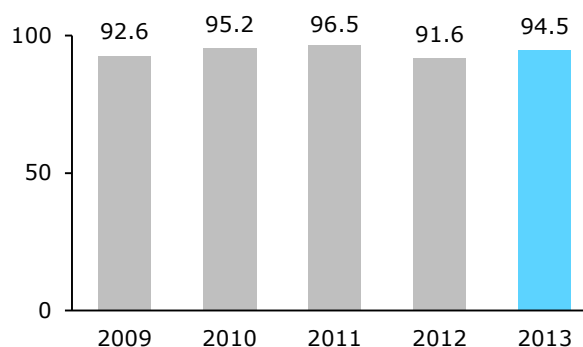
Over/Underestimation (%)

Overall bias turned from 0.8% overestimation in 2012 to 6.6% underestimation in 2013

Due to small availability of product forms, a reasonable breakdown into sales volume groups was not possible

Bias of forms validated in both years, 2012 and 2013, turned from 0.1% overestimation in 2012 to 5.3% underestimation in 2013
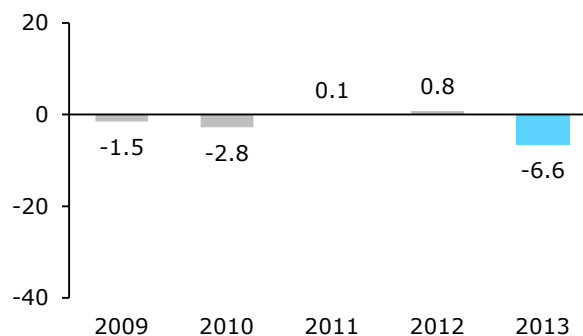
Participation

	2009	2010	2011	2012	2013
Participating companies	17	11	16	10	**8**
Validated market share in unit terms	12%	10%	27%	23%	**15%**
Validated product forms	81	42	77	69	**55**

Actions

Review projection level

Switzerland

Precision (%)

Overall precision index negligibly declined by 0.1 percentage points in 2013

Large product forms reached 94.2%, medium 91.9% and small 92.2%

Forms validated in both years, 2012 and 2013, slightly declined by 0.4 percentage points to 93.5% in 2013

	2009	2010	2011	2012	2013
	92.0	92.7	91.8	93.3	93.2

Over/Underestimation (%)

Overall underestimation slightly increased by 0.4 percentage points in 2013

Large product forms were underestimated by 0.9%, medium by 0.1% and small by 0.5%

Underestimation of forms validated in both years, 2012 and 2013, slightly increased by 0.2 percentage points to 0.5% in 2013
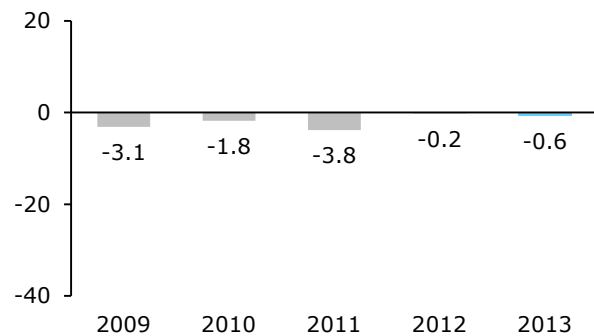
	2009	2010	2011	2012	2013
	-3.1	-1.8	-3.8	-0.2	-0.6

Participation

	2009	2010	2011	2012	2013
Participating companies	152	138	134	128	**124**
Validated market share in unit terms	68%	82%	82%	83%	**83%**
Validated product forms	1,331	1,257	1,253	1,208	**1,236**

Actions

No action required from the statistical point of view

Venezuela

Precision (%)

Overall precision index slightly declined by 0.5 percentage points in 2013

Large product forms reached 95.7%, medium 93.9% and small 89.6%

Forms validated in both years, 2012 and 2013, declined by 1.4 percentage points to 94.8% in 2013
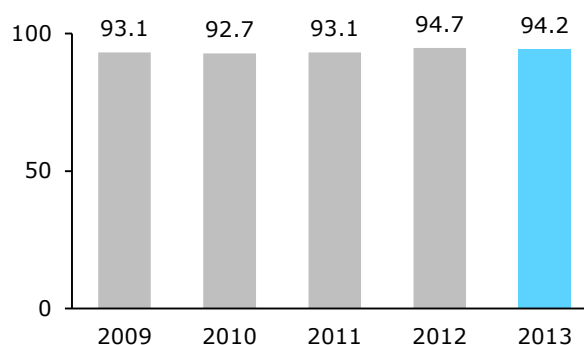
Over/Underestimation (%)

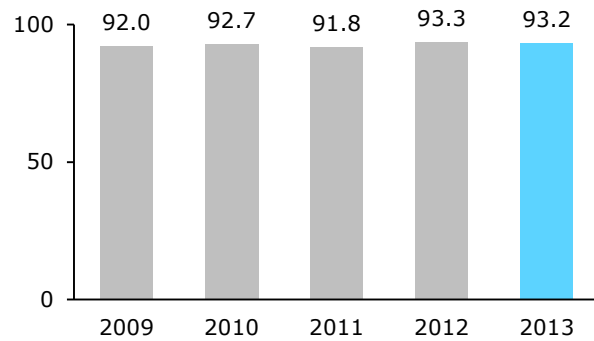Overall underestimation improved by 0.7 percentage points in 2013

Large product forms were underestimated by 1.9%, medium forms were overestimated by 0.2% and small forms were underestimated by 1.2%

Bias of forms validated in both years, 2012 and 2013, turned from 0.6% overestimation in 2012 to 1.4% underestimation in 2013
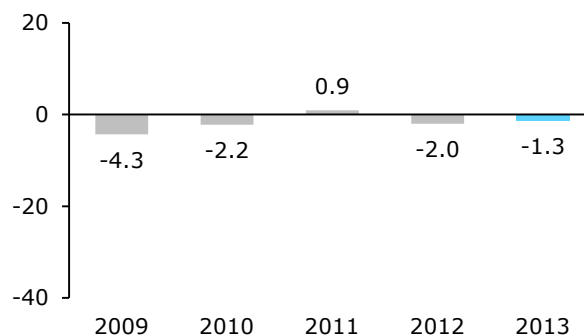
Participation

	2009	2010	2011	2012	2013
Participating companies	55	54	55	34	**37**
Validated market share in unit terms	60%	62%	58%	39%	**55%**
Validated product forms	605	496	470	278	**376**

Actions

Evaluate alternative projection method for consumer health products

PharmaTrend Validation Studies

Unlike OTC audits for which only direct sales information is taken from pharmacy panels, *PharmaTrend* studies (PTR) are derived from a panel of computerized pharmacies that report not only on sales, but also on purchases and stock inventory. These panels are used in multiple ways:

- Providing direct sales information to national and regional pharmaceutical reports
- Monitoring of new product launches weekly
- Tracking patient care and personal care products
- Estimating OTC *vs*. prescription shares

- Conducting stock and pipeline studies
- Performing sell-out studies

In most countries, we are in a position to validate PTR estimates against real data provided by IMS customers in the standard annual validation process. Thus we are consistently using the same underlying methodology, and the results are comparable. All ethical and OTC pharmaceutical items, excluding patient care and personal care products, are subject to this validation. As a logical future enhancement to the service, we are looking into validating the excluded product groups through a separate initiative.

Overall Results

For the 2013 PharmaTrend validation studies, 10 countries provided analyzable data, of which 9 had uninterrupted 5-year results. We must exclude the *Netherlands* and the *United Kingdom* because the data are incompatible with the national retail audit. The overall degree of precision in IMS PharmaTrend reports is best described by an aggregated precision index for these nine countries:

PharmaTrend Precision Index (%)
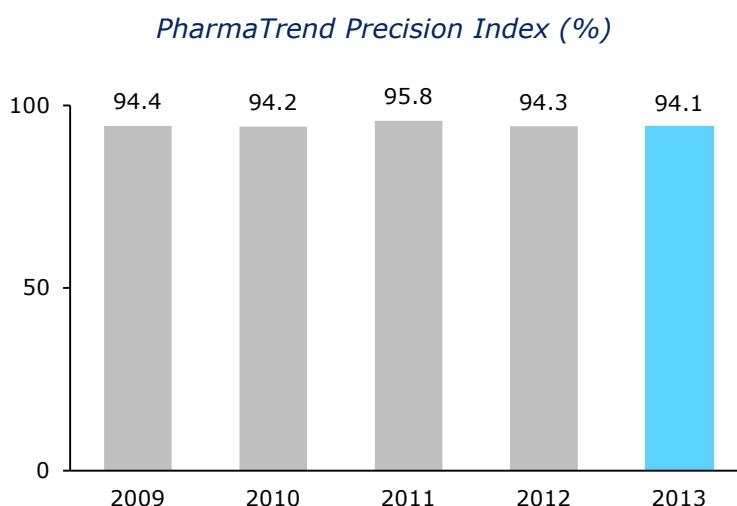
The 2013 index showed marginal decline of 0.2 percentage points over 2012, ending at 94.1% precision for PharmaTrend reports on average.

Improvement & Deterioration

Country	Improvement	
	Precision 2013 %	Change vs. 2012 %p
Hungary	95.4	+2.7
Poland	91.2	+3.7

Two countries turned out with significant improvement (more than 2 percentage points) over 2012. The biggest gain in precision was recorded for Poland that grew by 3.7 percentage points. No country showed significant deterioration of more than two percentage points.

PharmaTrend Validation Results by Country

The validation studies mentioned on the subsequent country pages refer to the IMS PharmaTrend reports.

Austria

Precision (%)

Overall precision index declined by 0.8 percentage points in 2013

Large product forms reached 93.7%, medium 93.9% and small 88.2%

Forms validated in both years, 2012 and 2013, declined by 0.9 percentage points to 93.1% in 2013

	2009	2010	2011	2012	2013
	95.7	95.8	94.1	93.7	92.9
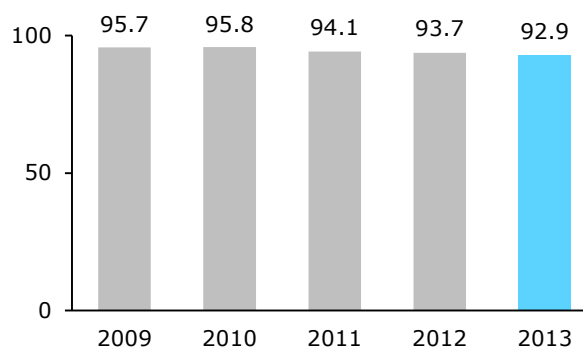
Over/Underestimation (%)

Overall overestimation improved by 1.0 percentage point in 2013

Large product forms were overestimated by 1.4%, medium and small forms were underestimated by 0.1% and 2.1%, respectively

Overestimation of forms validated in both years, 2012 and 2013, improved by 0.9 percentage points to 0.6% in 2013
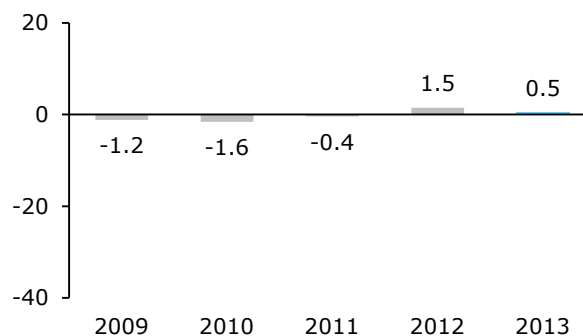
	2009	2010	2011	2012	2013
	-1.2	-1.6	-0.4	1.5	0.5

Participation

	2009	2010	2011	2012	2013
Participating companies	208	179	180	210	**209**
Validated market share in unit terms	82%	76%	78%	71%	**72%**
Validated product forms	2,723	1,933	1,939	2,528	**2,754**

Actions

Panel has been increased in 2014

Apply new projection method in 2015

Belgium

Precision (%)

Overall precision index slightly improved by 0.7 percentage points in 2013

Large product forms reached 98.6%, medium 94.0% and small 95.0%

Forms validated in both years, 2012 and 2013, improved slightly by 0.9 percentage points to 98.8% in 2013

Over/Underestimation (%)

Overall underestimation improved by 1.7 percentage points in 2013

Large product forms were underestimated by 1.6%, medium by 1.7% and small by 3.7%

Underestimation of forms validated in both years, 2012 and 2013, slightly improved by 0.1 percentage points to 2.4% in 2013
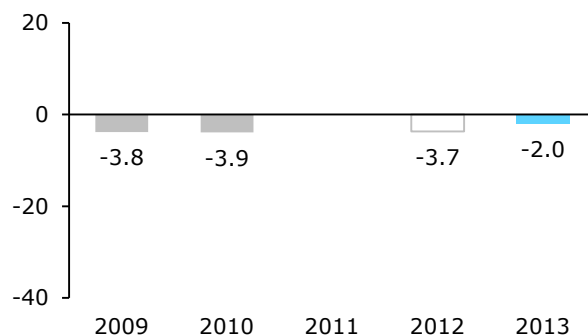
Participation	2009	2010	2011	2012	2013
Participating companies	16	13		8	**17**
Validated market share in unit terms	19%	15%		8%	**21%**
Validated product forms	506	414		203	**590**

Actions

Review methodology for direct sales

Czech Republic

Precision (%)

Overall precision index slightly improved by 0.2 percentage points in 2013

Large product forms reached 98.3%, medium 95.5% and small 84.7%

Forms validated in both years, 2012 and 2013, improved by 1.1 percentage points to 96.9% in 2013

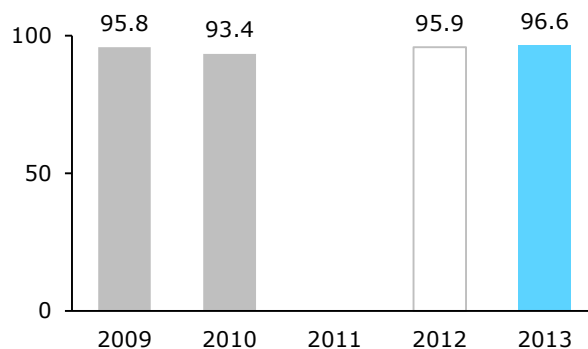| Year	Value
2009	94.5
2010	91.9
2011	95.5
2012	95.1
2013	95.3

Over/Underestimation (%)

Overall underestimation improved by 2.4 percentage points in 2013

Large product forms were overestimated by 0.9%, medium and small forms were underestimated by 0.8% and 4.6%, respectively

Underestimation of forms validated in both years, 2012 and 2013, improved by 2.2 percentage points to 0.2% in 2013

Year	Value
2009	-5.4
2010	-1.5
2011	-7.4
2012	-2.5
2013	-0.1

Participation

	2009	2010	2011	2012	2013
Participating companies	18	26	24	29	**21**
Validated market share in unit terms	31%	44%	37%	33%	**30%**
Validated product forms	694	794	718	828	**857**

Actions

No action required from the statistical point of view

Finland

Precision (%)

Overall precision index declined by 0.7 percentage points in 2013

Large product forms reached 96.8%, medium 96.7% and small 85.4%

Forms validated in both years, 2012 and 2013, declined by 0.6 percentage points to 95.1% in 2013

| Year	Value
2009	84.8
2010	87.5
2011	96.3
2012	95.7
2013	95.0
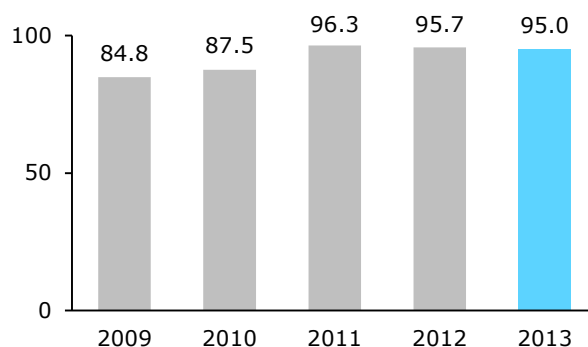
Over/Underestimation (%)

Overall underestimation improved by 3.8 percentage points in 2013

Large product forms were underestimated by 0.6%, medium by 2.9% and small by 3.7%

Underestimation of forms validated in both years, 2012 and 2013, improved by 3.8 percentage points to 1.8% in 2013
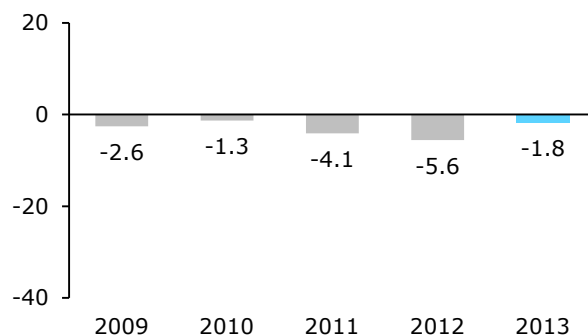
Year	Value
2009	-2.6
2010	-1.3
2011	-4.1
2012	-5.6
2013	-1.8

Participation

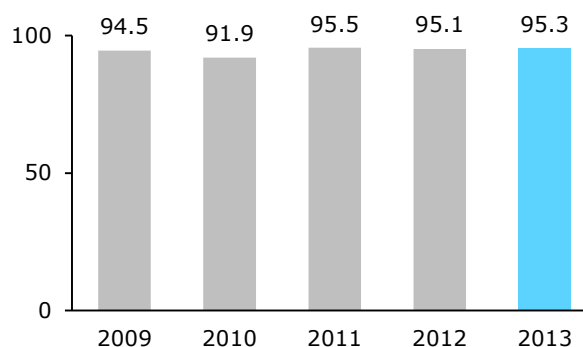|	2009	2010	2011	2012	2013
Participating companies	152	152	120	120	**126**
Validated market share in unit terms	88%	90%	84%	76%	**76%**
Validated product forms	2,628	2,706	1,951	1,933	**1,969**

Actions

No action required from the statistical point of view

Germany

Precision (%)

Overall precision index slightly declined by 0.8 percentage points in 2013

Large product forms reached 94.4%, medium 91.8% and small 85.2%

Forms validated in both years, 2012 and 2013, slightly declined by 0.6 percentage points to 93.0% in 2013

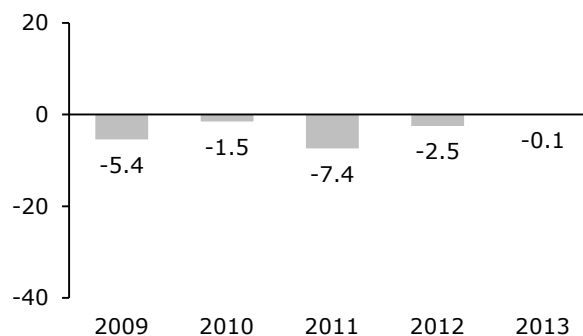|	2009	2010	2011	2012	2013
	93.4	93.2	95.4	92.9	92.1
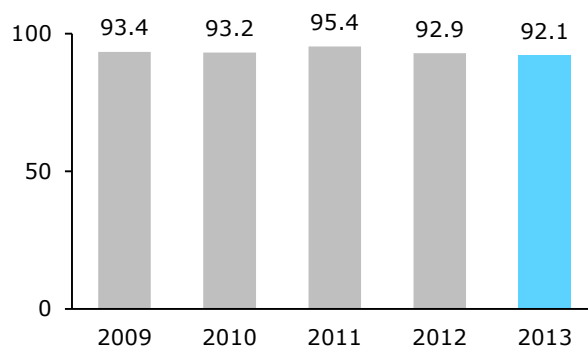
Over/Underestimation (%)

Overall underestimation improved by 1.4 percentage points in 2013

Large product forms were underestimated by 2.1%, medium by 3.7% and small by 3.4%

Underestimation of forms validated in both years, 2012 and 2013, improved by 1.1 percentage points to 3.4% in 2013

	2009	2010	2011	2012	2013
	3.8	-1.3	1.9	-4.1	-2.7

Participation

	2009	2010	2011	2012	2013
Participating companies	38	42	39	48	**39**
Validated market share in unit terms	27%	30%	29%	31%	**31%**
Validated product forms	3,860	3,482	3,630	3,831	**3,489**

Actions

No action required from the statistical point of view

Hungary

Precision (%)

Overall precision index improved by 2.7 percentage points in 2013

Large product forms reached 97.8%, medium 96.0% and small 86.0%

Forms validated in both years, 2012 and 2013, improved by 2.4 percentage points to 96.0% in 2013

Year	Value
2009	97.2
2010	95.7
2011	95.9
2012	92.7
2013	95.4

Over/Underestimation (%)

Overall underestimation marginally increased by 0.1 percentage points in 2013

Large product forms were underestimated by 3.2%, medium by 2.5% and small by 3.9%

Underestimation of forms validated in both years, 2012 and 2013, marginally increased by 0.1 percentage points to 3.2% in 2013

Year	Value
2009	0.6
2010	-3.5
2011	-5.3
2012	-3.0
2013	-3.1

Participation

	2009	2010	2011	2012	2013
Participating companies	44	85	86	79	**80**
Validated market share in unit terms	38%	72%	70%	44%	**40%**
Validated product forms	804	1,284	1,381	1,390	**1,376**

Actions

No action required from the statistical point of view

Italy

Precision (%)

Overall precision index marginally declined by 0.1 percentage points in 2013

Large product forms reached 97.6%, medium 96.2% and small 93.2%

Forms validated in both years, 2012 and 2013, declined by 1.2 percentage points to 96.3% in 2013

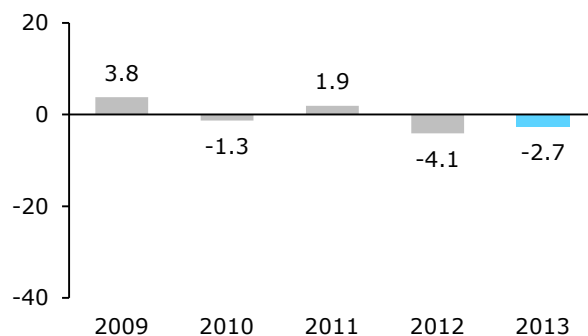|	2009	2010	2011	2012	2013
	96.3	96.3	98.5	96.6	96.5
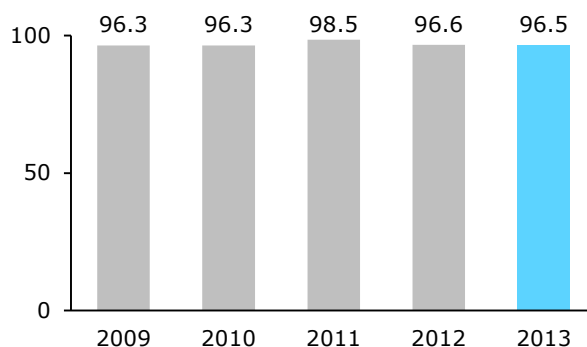
Over/Underestimation (%)

Overall underestimation improved by 1.2 percentage points in 2013

Large product forms were underestimated by 2.6%, medium by 3.5% and small by 5.4%

Underestimation of forms validated in both years, 2012 and 2013, improved by 1.6 percentage points to 3.2% in 2013

	2009	2010	2011	2012	2013
	-1.6	-1.9	-3.1	-4.4	-3.2

Participation

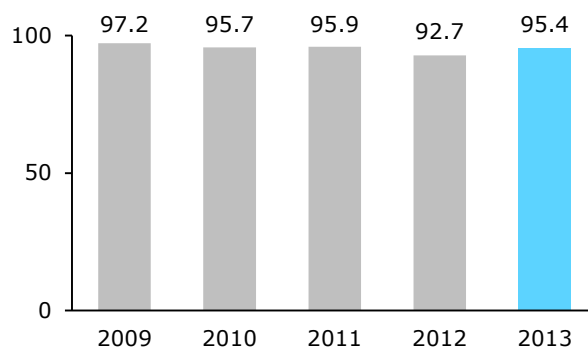|	2009	2010	2011	2012	2013
Participating companies	26	32	27	29	**31**
Validated market share in unit terms	28%	27%	33%	29%	**25%**
Validated product forms	859	808	979	1,057	**971**

Actions

No action required from the statistical point of view

Poland

Precision (%)

Overall precision index improved by 3.7 percentage points in 2013

Large product forms reached 95.7%, medium 87.1% and small 84.3%

Forms validated in both years, 2012 and 2013, improved by 3.1 percentage points to 91.9% in 2013

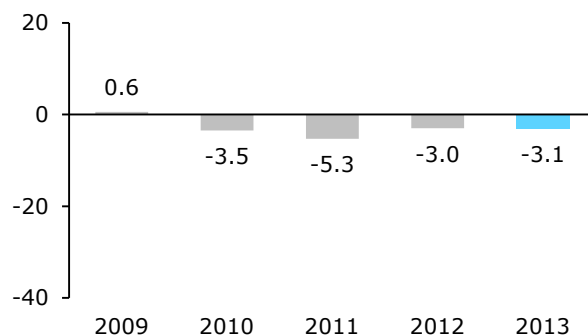|	2009	2010	2011	2012	2013
	86.0	84.6	89.3	87.5	91.2
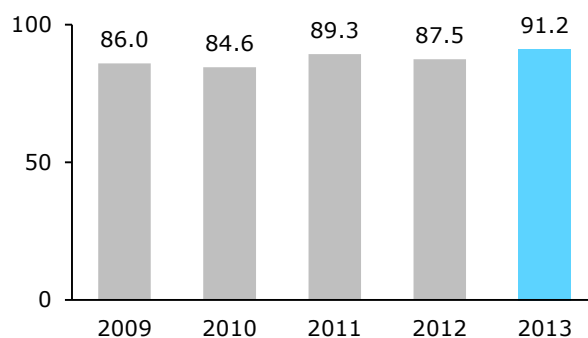
Over/Underestimation (%)

Overall underestimation increased by 1.5 percentage points in 2013

Large product forms were underestimated by 4.8%, medium by 6.1% and small by 6.7%

Underestimation of forms validated in both years, 2012 and 2013, increased by 0.3 percentage points to 4.5% in 2013
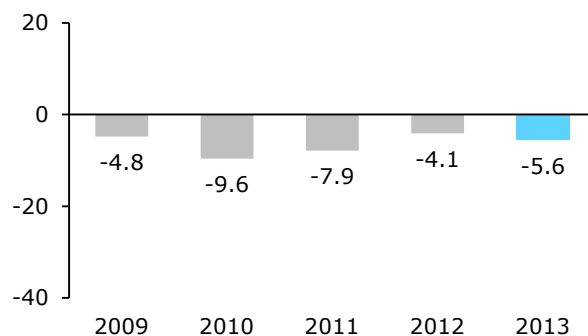
	2009	2010	2011	2012	2013
	-4.8	-9.6	-7.9	-4.1	-5.6

Participation

	2009	2010	2011	2012	2013
Participating companies	47	60	78	82	**69**
Validated market share in unit terms	19%	26%	45%	26%	**20%**
Validated product forms	808	948	1,407	1,185	**994**

Actions

Review projection level

Spain

Precision (%)

Overall precision index slightly declined by 0.3 percentage points in 2013

Large product forms reached 98.7%, medium 97.6% and small 93.1%

Forms validated in both years, 2012 and 2013, slightly improved by 0.2 percentage points to 98.3% in 2013

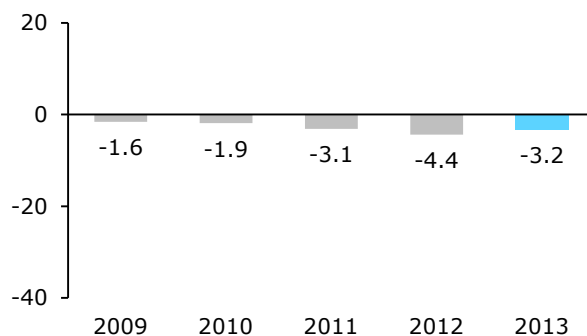|	2009	2010	2011	2012	2013
	97.8	98.2	97.2	97.8	97.5
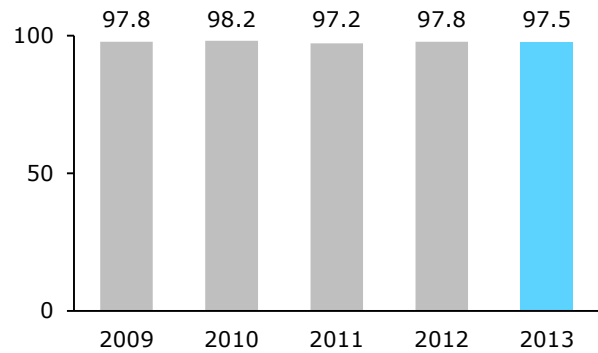
Over/Underestimation (%)

Overall underestimation increased slightly by 1.2 percentage points in 2013

Large product forms were underestimated by 1.4%, medium by 1.3% and small by 1.6%

Bias of forms validated in both years, 2012 and 2013, turned from 0.1% overestimation in 2012 to 1.7% underestimation in 2013
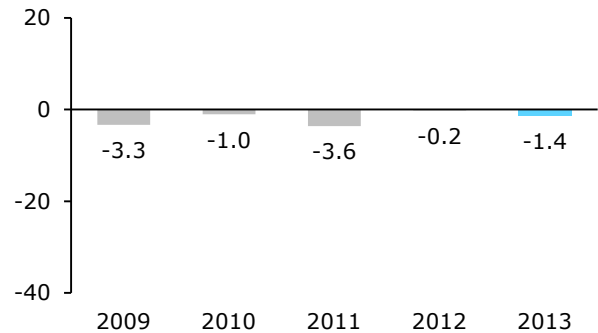
	2009	2010	2011	2012	2013
	-3.3	-1.0	-3.6	-0.2	-1.4

Participation

	2009	2010	2011	2012	2013
Participating companies	29	24	28	24	**15**
Validated market share in unit terms	20%	18%	22%	13%	**11%**
Validated product forms	696	513	701	670	**536**

Actions

No action required from the statistical point of view

Precision (%)

Overall precision index slightly improved by 0.1 percentage points in 2013

Large product forms reached 96.5%, medium 95.9% and small 95.6%

Forms validated in both years, 2012 and 2013, slightly improved by 0.1 percentage points to 96.4% in 2013

| Year	Value
2009	95.6
2010	95.3
2011	94.8
2012	96.1
2013	96.2
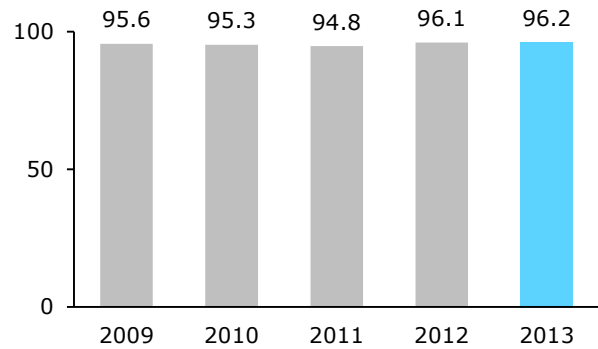
Over/Underestimation (%)

Overall underestimation improved by 1.1 percentage points in 2013

Large product forms were underestimated by 2.0%, medium by 1.8% and small by 2.4%

Underestimation of forms validated in both years, 2012 and 2013, improved by 1.1 percentage points to 2.0% in 2013
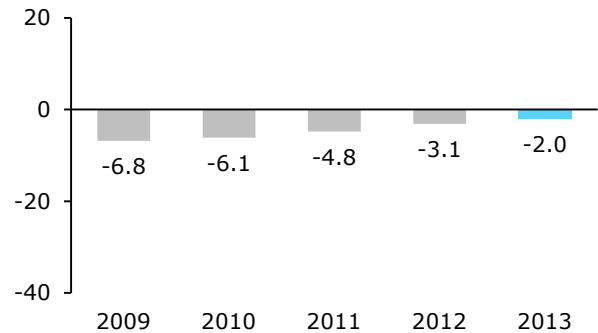
Year	Value
2009	-6.8
2010	-6.1
2011	-4.8
2012	-3.1
2013	-2.0

Participation

	2009	2010	2011	2012	2013
Participating companies	216	210	206	191	**188**
Validated market share in unit terms	53%	67%	66%	87%	**88%**
Validated product forms	2,928	3,184	3,177	3,074	**3,163**

Actions

No action required from the statistical point of view

Hospital Validation Studies

IMS offers two types of hospital audits: purchase-based and consumption-based audits. Although both types target the national hospital market segment, the data collection methodology may produce values that are not directly comparable with the industry's internal sales figures. Several factors lead to this incompatibility, and thus to a failure of the traditional validation process. Examples are:

- Indirect sales through secondary distribution entities (wholesalers, sub-distributors etc.) are not separable.
- Consumption often does not give an indication of the original pack dispensation.

- Generic products cannot be assigned to individual manufacturers.

Hospital consumption audits measure deliveries from hospital pharmacies to hospital departments. These measures are not fully compatible with manufacturer sales into pharmacies. Large gaps or inconsistencies in the points of measurement between the two tracking systems result in lower precision values. Therefore, when interpreting the validation results, we less focus on their absolute value, but more on changes from one year to another.

Global Hospital Validation Results

For the 2013 validation studies, 26 countries provided analyzable results. No validation study was necessary in *Denmark*, *Finland*, *New Zealand*, the *Netherlands*, *Norway* and *Sweden* because we collect full census data in these countries and we suppose a 100 percent precision in these six markets. This makes a total of 32 sets of validation results, of which 24 had uninterrupted five-year results. The overall degree of precision in IMS hospital reports is best described by an aggregated precision index for these 24 countries:

Hospital Precision Index (%)

Year	Index
2009	90.8
2010	90.1
2011	91.3
2012	90.0
2013	92.3
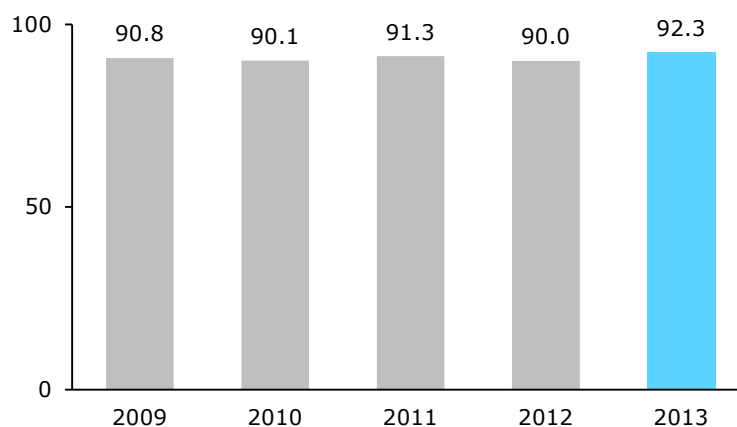
The world-wide precision index of hospital reports improved by 2.3 percentage points, from 90.0% in 2012 to 92.3% in 2013, owing to the fact that many reports have significantly improved their previous year's results.

Improvement & Deterioration

Country	Improvement	
	Precision 2013 %	Change vs. 2012 %p
Australia	99.9	+3.8
Austria	90.1	+2.2
Belgium	87.3	+4.7
Bulgaria	90.4	+2.8
China	95.4	+5.3
India	85.8	+4.0
Italy	87.8	+2.6
Korea	61.7	+5.9
Serbia	90.1	+6.1
Spain	59.7	+5.0
Switzerland	100.0	+3.2
Vietnam	61.3	+7.7

Country	Deterioration	
	Precision 2013 %	Change vs. 2012 %p
United Kingdom	94.7	-3.2

Twelve countries showed significant improvement (more than 2 percentage points) over 2012. The biggest growth of 7.7 percentage points is reported for *Vietnam*, followed by *Serbia* with 6.1 percentage points. The remaining ten countries improved their previous year's precision index by 2.2 to 5.9 percentage points in 2013. Only the United Kingdom was facing significant decline of more than 2 percentage points.

Hospital Validation Results by Country

From the 26 countries with analyzable results, 13 were validated jointly with their equivalent retail audits (*Australia, Croatia, Czech Republic, Hungary, India, Japan, Poland, Russia, Serbia, Slovak Republic, Slovenia, USA and Vietnam*). The detailed results for these countries can be found in the retail section of this Accuracy part. The remaining 13 countries with pure hospital validation results are presented on the subsequent pages.

Austria

Precision (%)

Overall precision index improved by 2.2 percentage points in 2013

Large product forms reached 98.1%, medium 85.4% and small 72.8%

Forms validated in both years, 2012 and 2013, improved by 2.5 percentage points to 91.3% in 2013

Over/Underestimation (%)

Overall underestimation increased by 1.8 percentage points in 2013

Large product forms were overestimated by 0.7%, medium and small forms were underestimated by 8.0% and 6.5%, respectively

Bias of forms validated in both years, 2012 and 2013, turned from 0.9% underestimation in 2012 to 0.2% overestimation in 2013
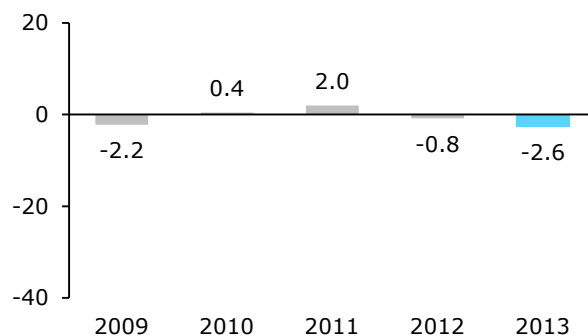
Participation

	2009	2010	2011	2012	2013
Participating companies	5	8	9	11	**10**
Validated market share in unit terms	19%	16%	21%	24%	**23%**
Validated product forms	335	259	347	380	**417**

Actions

Review data quality control system

Belgium

Precision (%)

Overall precision index improved by 4.7 percentage points in 2013

Large product forms reached 94.7%, medium 82.2% and small 72.8%

Forms validated in both years, 2012 and 2013, declined by 4.6 percentage points to 80.0% in 2013
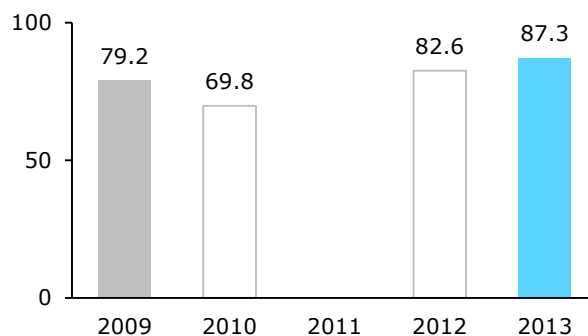
Over/Underestimation (%)

Overall underestimation improved by 0.5 percentage points in 2013

Large product forms were underestimated by 5.0%, medium by 8.4% and small by 5.3%

Underestimation of forms validated in both years, 2012 and 2013, slightly improved by 0.2 percentage points to 6.3% in 2013
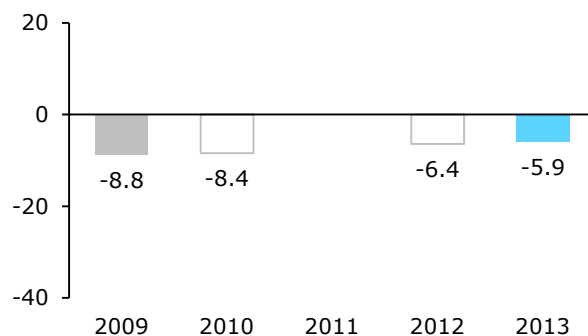
Participation

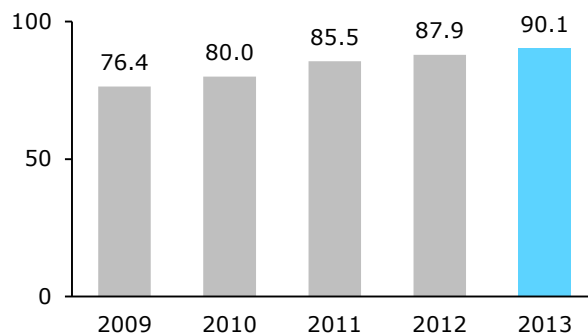|	2009	2010	2011	2012	2013
Participating companies	9	7		4	**14**
Validated market share in unit terms	14%	6%		9%	**19%**
Validated product forms	289	109		91	**301**

Actions

Review validation process

Bulgaria

Precision (%)

Overall precision index improved by 2.8 percentage points in 2013

Large product forms reached 95.5%, medium 84.5% and small 85.1%

Forms validated in both years, 2012 and 2013, improved by 4.7 percentage points to 93.0% in 2013

	2009	2010	2011	2012	2013
	90.7	97.2	91.3	87.6	90.4
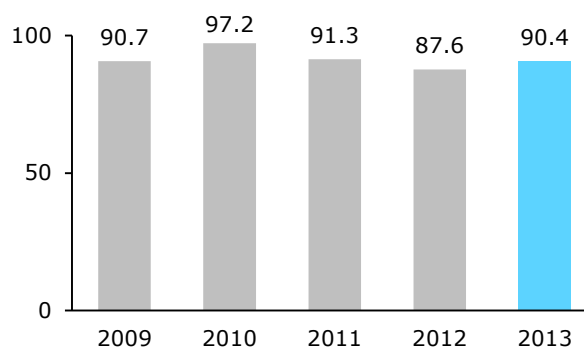
Over/Underestimation (%)

Overall bias turned from small overestimation to slight underestimation in 2013

Large product forms were underestimated by 0.7%, medium by 2.5% and small by 4.1%

Bias of forms validated in both years, 2012 and 2013, turned from 0.3% overestimation in 2012 to 0.9% underestimation in 2013

	2009	2010	2011	2012	2013
	-0.7	1.9	2.8	0.7	-1.1

Participation

	2009	2010	2011	2012	2013
Participating companies	26	35	24	29	**34**
Validated market share in unit terms	28%	52%	62%	53%	**55%**
Validated product forms	113	168	153	153	**149**

Actions

Expand coverage of direct sales to hospitals

Canada

Precision (%)

Overall precision index improved by 1.1 percentage points in 2013

Large and medium product forms reached a perfect 100%, small forms 98.0%

Forms validated in both years, 2012 and 2013, improved by 0.9 percentage points to 99.5% in 2013
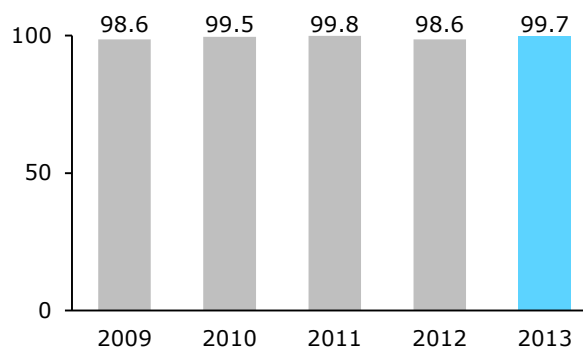
Over/Underestimation (%)

Overall overestimation increased by 0.4 percentage points in 2013

Large product forms were overestimated by 0.9%, medium by 1.4% and small by 1.3%

Overestimation of forms validated in both years, 2012 and 2013, increased by 0.4 percentage points to 1.1% in 2013
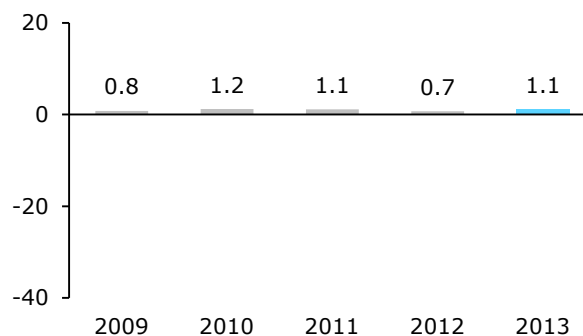
Participation

	2009	2010	2011	2012	2013
Participating companies	60	61	56	60	**59**
Validated market share in unit terms	95%	95%	95%	95%	**95%**
Validated product forms	904	902	870	873	**865**

Actions

No action required from the statistical point of view

China

Precision (%)

Overall precision index improved by 5.3 percentage points in 2013

Forms validated in both years, 2012 and 2013, improved by 7.9 percentage points to 90.0% in 2013
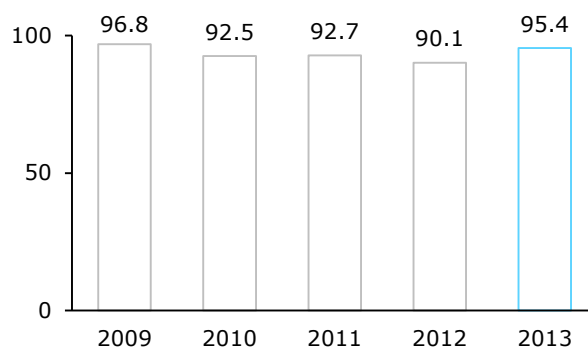

Over/Underestimation (%)

Overall underestimation improved by 3.0 percentage points in 2013

Large product forms were underestimated by 17.9%, medium by 9.8% and small by 3.4%

Underestimation of forms validated in both years, 2012 and 2013, improved by 4.3 percentage points to 14.4% in 2013

Participation

	2009	2010	2011	2012	2013
Participating companies	21	33	35	39	**44**
Validated market share in unit terms	3%	3%	4%	4%	**5%**
Validated product forms	151	227	248	273	**330**

Actions

Universe upgraded and panel enhanced in 2014

Germany

Precision (%)

Overall precision index improved by 1.5 percentage points in 2013

Large product forms reached 91.3%, medium 77.0% and small 54.6%

Forms validated in both years, 2012 and 2013, improved by 2.1 percentage points to 83.9% in 2013
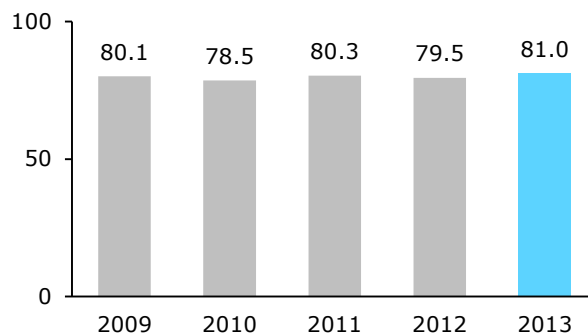
Over/Underestimation (%)

Overall overestimation improved by 1.9 percentage points in 2013

Large product forms were overestimated by 4.1%, medium by 4.5% and small by 7.7%

Overestimation of forms validated in both years, 2012 and 2013, improved by 3.2 percentage points to 6.5% in 2013
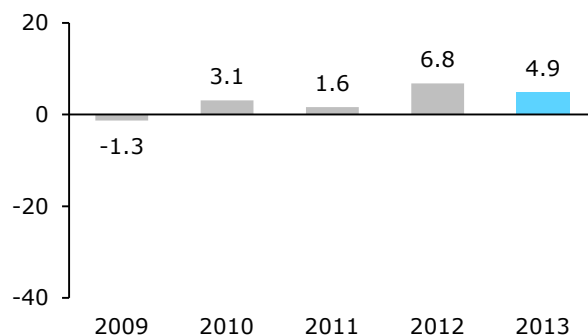
Participation

	2009	2010	2011	2012	2013
Participating companies	22	26	21	19	**21**
Validated market share in unit terms	28%	27%	26%	21%	**19%**
Validated product forms	1,065	1,064	952	805	**820**

Actions

Evaluate hospital supply chain

Precision (%)

Overall precision index improved by 2.6 percentage points in 2013

Medium product forms reached 90.9% and small 82.4%. A minor number of large product forms was grouped into the medium class for analysis

Forms validated in both years, 2012 and 2013, improved by 6.3 percentage points to 85.8% in 2013
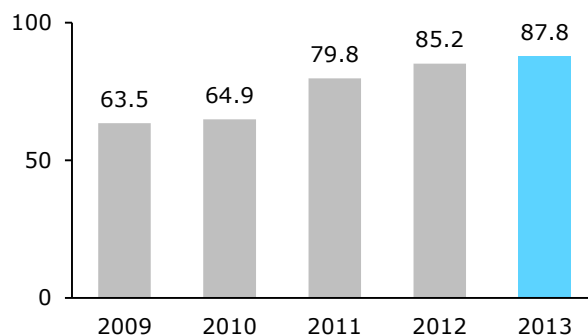
Year	Value
2009	63.5
2010	64.9
2011	79.8
2012	85.2
2013	87.8

## Over/Underestimation (%)

Overall underestimation increased by 0.4 percentage points in 2013

Medium product forms were underestimated by 10.6% and small by 10.8%. A minor number of large product forms was grouped into the medium class for analysis

Underestimation of forms validated in both years, 2012 and 2013, improved by 1.3 percentage points to 7.6% in 2013

Year	Value
2009	-28.7
2010	-25.1
2011	-16.1
2012	-10.2
2013	-10.6

Participation

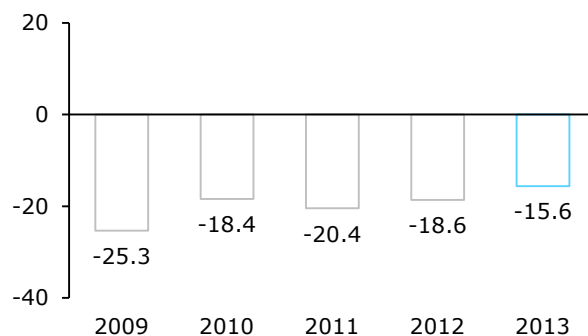|	2009	2010	2011	2012	2013
Participating companies	11	10	11	13	**13**
Validated market share in unit terms	18%	14%	18%	16%	**15%**
Validated product forms	318	219	187	207	**184**

Actions

Upgrade quality control system

Korea

Precision (%)

Overall precision index improved by 5.9 percentage points in 2013

Due to low participation, a reasonable breakdown into sales volume groups was not possible

Forms validated in both years, 2012 and 2013, declined by 1.7 percentage points to 60.7% in 2013

Chart: Precision (%)
- 2009: 52.2
- 2010: 60.3
- 2011: 60.5
- 2012: 55.8
- 2013: 61.7

Over/Underestimation (%)

Overall underestimation significantly improved by 16.8 percentage points in 2013

Due to low participation, a reasonable breakdown into sales volume groups was not possible

Underestimation of forms validated in both years, 2012 and 2013, improved by 0.8 percentage points to 4.3% in 2013
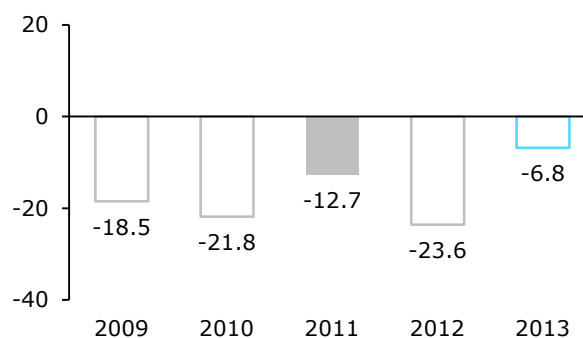
Chart: Over/Underestimation (%)
- 2009: -18.5
- 2010: -21.8
- 2011: -12.7
- 2012: -23.6
- 2013: -6.8

Participation

	2009	2010	2011	2012	2013
Participating companies	23	22	18	15	**12**
Validated market share in unit terms	8%	8%	34%	9%	**7%**
Validated product forms	184	235	348	264	**175**

Actions

Review projection level and panel composition

Philippines

Precision (%)

Overall precision index improved by 1.3 percentage points to a perfect 100% in 2013

Medium and small product forms both reached a perfect 100%. A minor number of large product forms was grouped into the medium class for analysis

Forms validated in both years, 2012 and 2013, improved by 0.5 percentage points to 100% in 2013

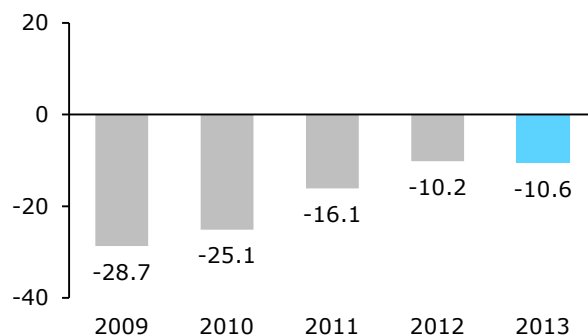|	2009	2010	2011	2012	2013
	99.0	99.6	99.8	98.7	100.0
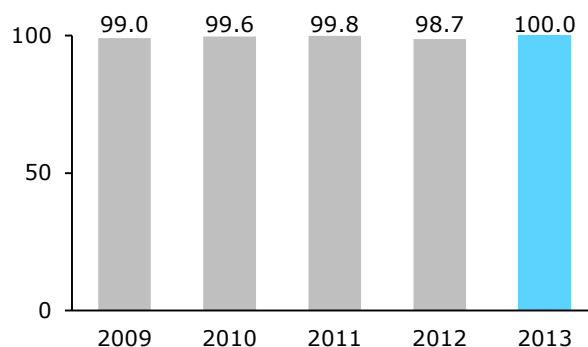
Over/Underestimation (%)

Overall overestimation increased by 0.5 percentage points in 2013

Medium product forms were overestimated by 1.6% and small by 3.0%. A minor number of large product forms was grouped into the medium class for analysis

Overestimation of forms validated in both years, 2012 and 2013, increased by 1.2 percentage points to 2.3% in 2013
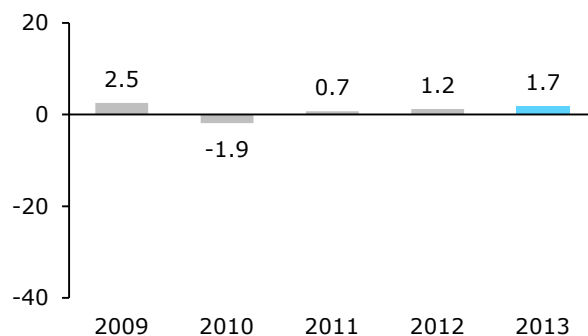
	2009	2010	2011	2012	2013
	2.5	-1.9	0.7	1.2	1.7

Participation

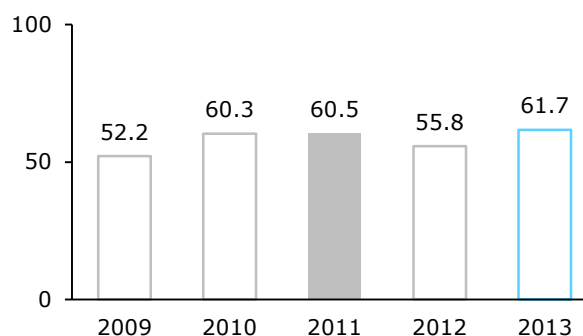|	2009	2010	2011	2012	2013
Participating companies	22	22	21	16	**15**
Validated market share in unit terms	27%	30%	23%	21%	**21%**
Validated product forms	368	446	330	272	**254**

Actions

No action required from the statistical point of view

Spain

Precision (%)

Overall precision index improved by 5.0 percentage points in 2013

Due to low participation, a reasonable breakdown into sales volume groups as well as analysis of forms validated in both years, 2012 and 2013, was not possible

Year	Value
2009	70.1
2010	72.3
2011	66.6
2012	54.7
2013	59.7
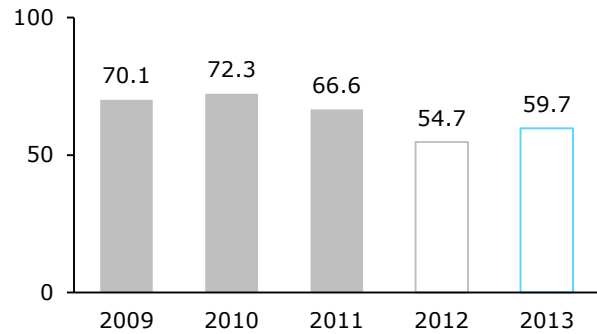
Over/Underestimation (%)

Overall bias turned from 2.4% overestimation in 2012 to 11.4% underestimation in 2013

Due to low participation, a reasonable breakdown into sales volume groups as well as analysis of forms validated in both years, 2012 and 2013, was not possible

Year	Value
2009	2.8
2010	0.6
2011	6.8
2012	2.4
2013	-11.4
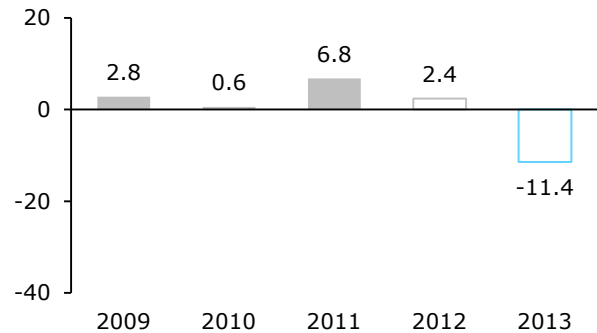
Participation

	2009	2010	2011	2012	2013
Participating companies	14	13	13	7	**8**
Validated market share in unit terms	19%	13%	11%	9%	**2%**
Validated product forms	601	518	470	106	**72**

Actions

Motivate more companies to participate in the validation study

Switzerland

Precision (%)

Overall precision index improved by 3.2 percentage points to a perfect 100% in 2013

Medium and small product forms both reached 100%. A minor number of large product forms was grouped into the medium class for analysis

Forms validated in both years, 2012 and 2013, improved by 1.7 percentage points to 100% in 2013

	2009	2010	2011	2012	2013
	99.3	98.5	94.7	96.8	100.0
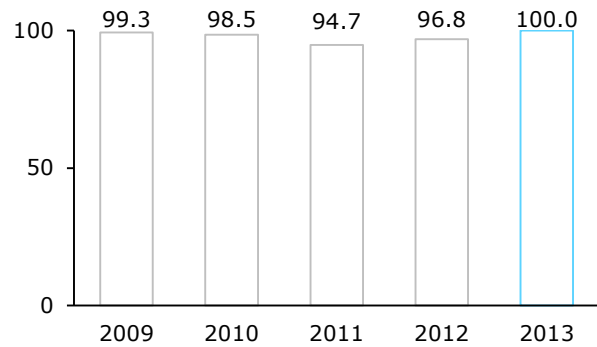
Over/Underestimation (%)

Overall underestimation improved by 1.2 percentage points in 2013

Medium product forms were underestimated by 0.9% and small by 2.9%. A minor number of large product forms was grouped into the medium class for analysis

Underestimation of forms validated in both years, 2012 and 2013, remained stable at 0.8% in 2013
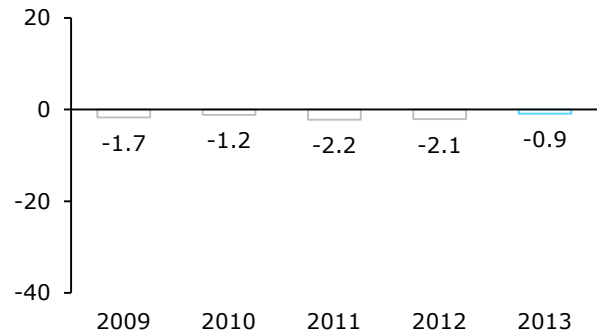
	2009	2010	2011	2012	2013
	-1.7	-1.2	-2.2	-2.1	-0.9

Participation

	2009	2010	2011	2012	2013
Participating companies	30	25	25	19	**11**
Validated market share in unit terms	9%	7%	8%	5%	**5%**
Validated product forms	203	161	173	124	**88**

Actions

Motivate more companies to participate in the validation study

Taiwan

Precision (%)

Overall precision index improved by 8.3 percentage points in 2013

Large product forms reached 82.4%, medium 64.5% and small 53.8%
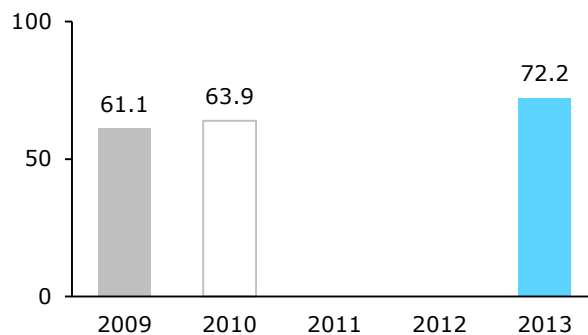
Over/Underestimation (%)

Overall underestimation increased by 2.5 percentage points in 2013

Large product forms were underestimated by 10.2%, medium by 18.8% and small by 19.8%
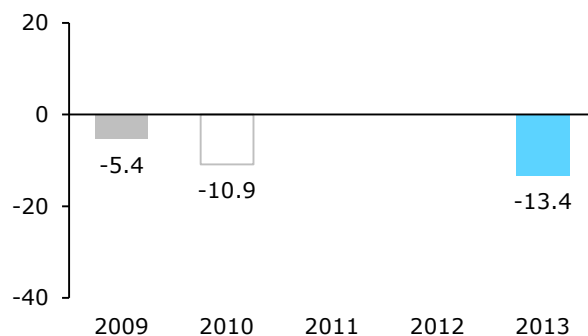
Participation

	2009	2010	2011	2012	2013
Participating companies	9	6			**8**
Validated market share in unit terms	13%	5%			**15%**
Validated product forms	151	127			**242**

Actions

Motivate more companies to participate in the validation study

United Kingdom

Precision (%)

Overall precision index declined by 3.2 percentage points in 2013

Large product forms reached 93.5%, medium 98.0 and small 92.4%
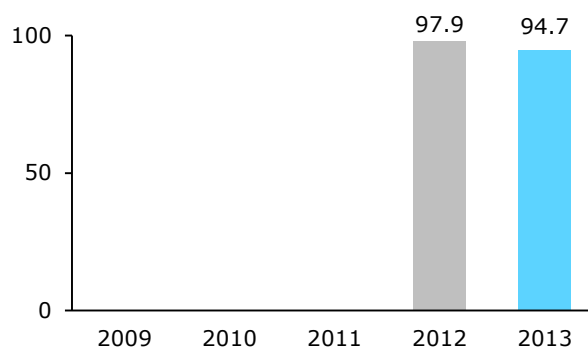
Over/Underestimation (%)

Overall overestimation improved by 5.3 percentage points in 2013

Large product forms were overestimated by 0.6%, medium by 4.8% and small by 2.5%
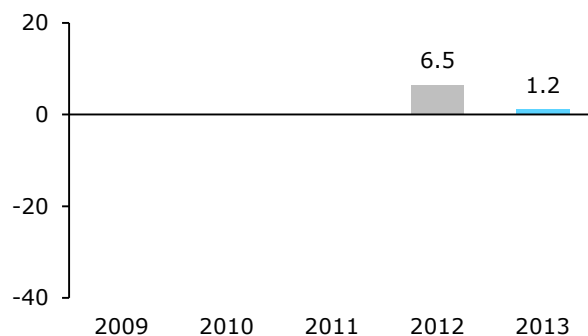
Participation

	2009	2010	2011	2012	2013
Participating companies				8	**9**
Validated market share in unit terms				21%	**16%**
Validated product forms				402	**410**

Actions

Analyze panel performance and quality control process

Specialty Markets Validation Results

Given the increasing importance of specialty pharmaceutical markets, IMS has calculated separate accuracy measures for sub-groups of specialty products captured within our standard national retail and hospital services. These "sub-validations" are derived by filtering out the following four product groups from the standard services:

- Anti-TNF, specific anti-rheumatic agents and immunosuppressants
- Hepatitis B & HIV
- Oncology
- Others

Others includes e.g., interferons, immunoglobulins, and drugs for the treatment of acromegaly, Alzheimer's disease, anemia, hemophilia, oste-oporosis and metabolic diseases.

From a statistical perspective, specialty products typically occur in small quantities across multiple distribution channels and thus produce highly variable results in any statistical survey. However, due to their importance to the pharmaceutical industry in value terms, we conducted more detailed analyses on their overall validity.

Global Specialty Markets Validation Results

In order to ensure that our analysis was based on fairly solid samples, we've calculated results only for groups that contain a minimum of 20 product forms in the corresponding validation study. The aggregated bias and precision indices below are provided only for groups that met this criterion in both 2012 *and* 2013. The group *Anti-TNF, specific anti-rheumatic agents and immunosuppressants* represents 4 reports, *Hepatitis B & HIV*

contains 2 reports, *Oncology* has 13 reports, *Others* represents 14 reports and *All Specialty Groups* contains 35 reports.

As seen in the graph below, the total underestimation improved from 5.3% in 2012 to 3.8% in 2013. The *Hepatitis B & HIV* group slightly increased by 0.7 percentage points, while the other individual groups showed improvement of 0.1 to 3.5 percentage points.

Specialty Markets Bias (%)
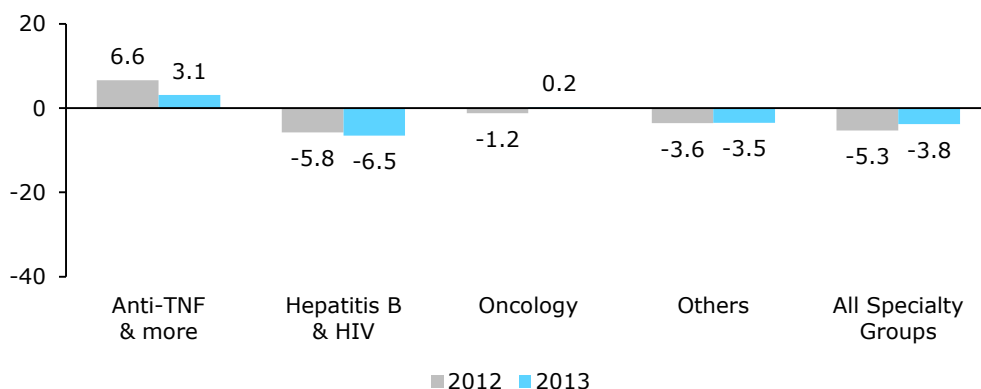
The precision index registered overall decline, with the *All Specialty Groups* category falling from 91.5% in 2012 to 87.6% in 2013. The *Anti-TNF & more* group had the strongest deterioration, with a drop of 7.1 percentage points to 92.2%. *Oncology* and *Others* improved by 2.9 and 2.3 percentage points, respectively, while *Hepatitis B & HIV* stabilized at 96.1%.

Specialty Markets Precision Index (%)
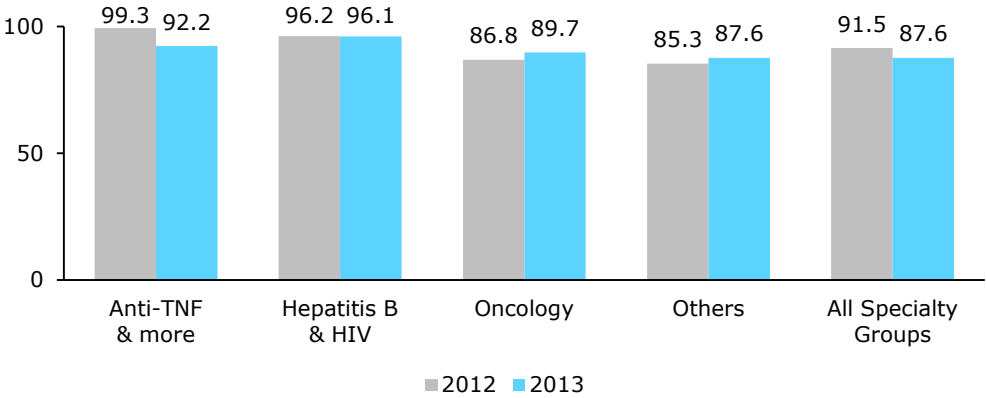
As one action we will carefully analyze the constituents of these summarized results on an audit/country basis which helps us to identify specific factors having contributed to the declines. These may either be systematic, calling for advanced statistical methodology or non-systematic just triggered by market events or distribution changes.

Validating IMS Forecasting Services

IMS Global Forecasting & Opportunity Assessment produces market forecasts at country levels to help our clients in their strategic planning. Clearly, the forecast is only one element of the planning process, but it does offer guidance on strategic decisions and business development.

For this purpose, *IMS Market Prognosis* – this year providing five-year forecasts on 32 countries and one-year forecasts on 37 countries and covering about 90 percent of the total world market – uses a combination of quantitative and qualitative techniques.

Market Prognosis uses an econometric model to derive baseline forecasts. These are then integrated along with qualitative input by means of an event-driven forecasting technique, which al-

lows the forecasting team to finalize the forecasts.

The validation process was designed as a twofold measurement of forecast validity, one step for the five-year forecast and another for the latest one-year forecast:

1) Compare the five-year forecasts published in the base year with the actual results ultimately attained. In this report we have compared forecasts for 2009–2013 with actual data for the same years.

2) Compare the published forecast for the most recent year (generated in the preceding year) with the real market sales for the same year. In this case we have compared forecasts for 2013, produced in 2012, with real 2013 results.

Validity of Annual Forecasts – All Countries

Forecasting Bias (%) based on 32 Countries
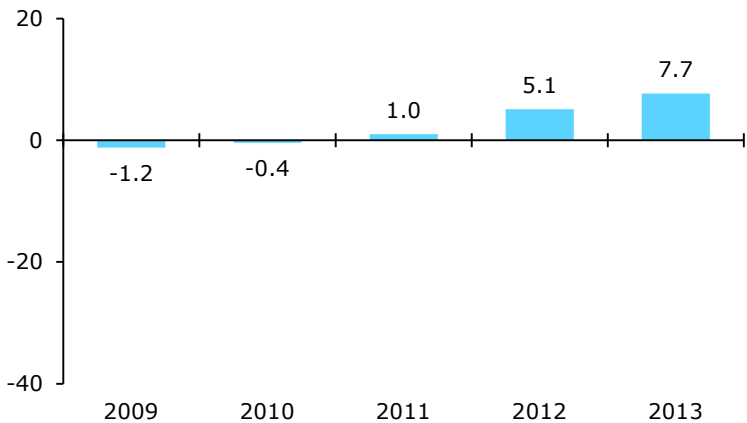
The overall market prognosis for the 32 countries validated this year shows a forecasting bias ranging between -1.2% and +7.7%. Lower deviations were achieved for the first three years of the five-year span, which points at good quality of the baseline forecasting model. The overestimation in the fourth and fifth year to a great extent originates from economic and unpredictable challenges in the Euro zone.

The one-year forecast for 2013 turned out at an average -1.5 percent bias for 37 validated countries.

For the entire five-year period, the results by region are as follows:

Region	Average Bias (%)	
	2008..2012	2009..2013
Europe	+7.8	+6.2
North America	+4.4	-2.3
Latin America	-5.5	-7.8
AsiaPacific & Japan	-1.3	+2.2
Total	**+2.5**	**+2.5**

The total bias remained at +2.5%. *Europe* improved by 1.6 and *North America* by 2.1 percentage points. *Latin America* faced a bias growth of 2.3 percentage points and the *AsiaPacific & Japan* region turned from 1.3% underestimation to 2.2% overestimation.

The regional one-year forecast for 2013 provided bias results ranging between -3.0% for *North America* and -0.7% for *AsiaPacific & Japan*.

Validity of Annual Forecasts – The Ten Leading Markets

The forecast results of the ten leading markets (USA, Japan, China, Germany, France, Italy, Brazil, United Kingdom, Canada and Spain) are presented in descending economic order in the subsequent graph:

Forecasting Bias by Country (%)

5 Years (2009..2013)

Country	Value
USA	-9.9
Japan	-2.5
China	
Germany	-0.6
France	2.6
Italy	-7.3
Brazil	-19.6
United Kingdom	-5.0
Canada	5.4
Spain	

1 Year (2013)

Country	Value
USA	-3.5
Japan	1.9
China	
Germany	-3.5
France	0.3
Italy	-3.0
Brazil	-1.8
United Kingdom	-2.5
Canada	-2.4
Spain	-6.7
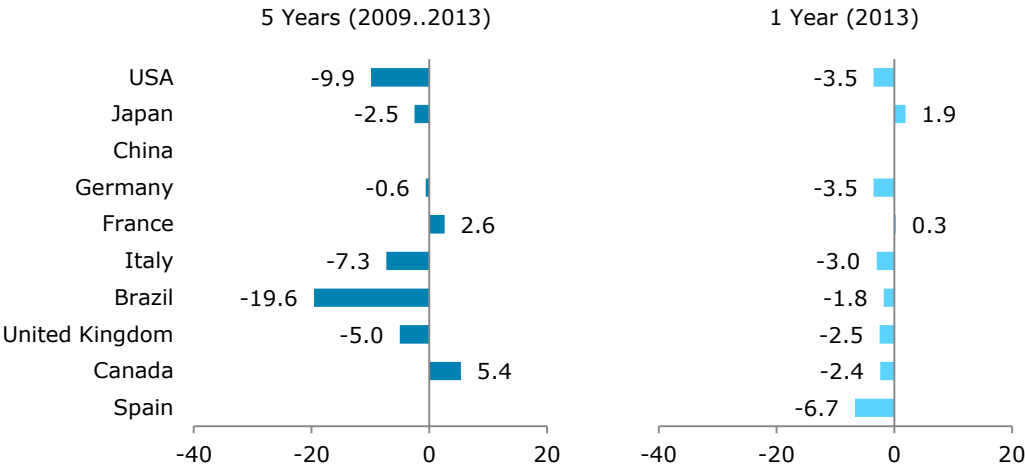
The 5-year forecasts showed accentuated bias for Brazil (-19.6%) and USA (-9.9%). The remaining markets had clearly more accurate prognoses. No results were available for China and Spain. The one-year forecasts – again without results for China – achieved excellent outcomes in nearly all countries.

Measures to Maintain and Increase Accuracy

As discussed earlier in this report, it is relatively difficult to register major improvements in accuracy without the full-scale renovation of technologies and processes. New access to large volumes of wholesale data would, for example, be the equivalent of a large-scale sample increase and usually would induce just such a leap forward.

But in the absence of such advances, maintaining – much less improving upon – high quality results is like swimming upstream. A framework of processes, quality controls, and alert mechanisms is in place to avoid deterioration or to detect it early enough to trigger action for amelioration. Continuous measurement is crucial to ensuring that IMS services remain a useful and accepted reference for pharmaceutical market research and performance measurement.

As we obtain data from samples of wholesalers, pharmacies, and doctors or hospitals, it is of utmost importance that we carefully monitor these market players and react quickly to any changes that could affect the underlying sampling process. To ensure the accuracy of the market estimates we derive, it is essential that we conduct sales channel analyses regularly as well as update the universe and sample distribution routinely.

Universe Updates

IMS' commitment to quality dictates that we update universe information in regular cycles – either annually or, in geographic areas with a less effective statistical infrastructure, in biennial cycles.

The IMS Global Statistical Services department supervises the Company's compliance with these targets for updating universe information:

Region	Update Target
Europe, North America, parts of Pacific	Annual
All other regions	Biennial

In 2014, we monitored a total of 159 universe updates world-wide. Eleven databases did not comply with the respective target cycles. The overall update index, therefore, is 93.1%, a slight decline of 1.2 percentage points over last year's 94.3%.

By universe type, the 2014 update indices are shown on the next page.

Universe Update Monitor 2014 (%)

All Types	93.1
Pharmacies	90.9
Doctors	95.0
Hospitals	95.2

The update index for pharmacy universes declined from 93.4% in 2013 to 90.9% in 2014. Medical universes decreased by 2.5 percentage points to 95.0%. Hospital universes improved by 2.3 percentage points, from 92.9% in 2013 to 95.2% in 2014.

Wholesaler & Distributor Data

Statistical theory holds that a massive improvement in data accuracy can only be achieved by increasing the underlying sample, and even that works only up to a point. Beyond that point, any additional gains in accuracy from a larger sample are marginal. Still, larger sampling volumes are required to properly track smaller products and to assure acceptable levels of confidence even in geographical sub-areas.

Naturally, there are limitations with pharmacy panels, and samples cannot be increased at will. Even when pharmacies do become part of the panel, a huge technical effort is required for them to report data in a reasonable timeframe.

For that reason, IMS decided to supplement pharmacy panel results by recruiting wholesalers, distributors, and in some cases, pharmaceutical manufacturers to supply data. Meanwhile, in some countries, these alternative sources have become the sole source of data and have brought about significant jumps in precision.

In most countries today, we pursue multi-sampling approaches in which pharmacies are used to capture direct sales and wholesalers are used to capture indirect sales to pharmacies and hospitals. Pharmacy samples in turn have grown considerably in many places in order sustain the high quality standards set by the inclusion of near-census information.

By the end of the third quarter 2014, most of the IMS countries were using wholesaler or distributor data as their major data source, either exclusively or in addition to other sample components.

74% of the countries have a sampling ratio of at least 70 percent, representing strong retail market coverage.

In seven countries (China, Dominican Republic, Hong Kong, Latvia, Lebanon, Malaysia and USA) we made significant progress of 5 to 38 percentage points by including new wholesalers into our panels. Please, see the subsequent page for more details.

IMS Data Capture in % of Pharmaceutical Market

Country	%		Country	%
Algeria	70		Lithuania	93
Argentina	94		Luxembourg	96
Australia	97		Malaysia	82
Austria	85		Mexico	99
Bangladesh	2		Morocco	84
Belgium	100		Netherlands	100
Brazil	100		New Zealand	96
Bulgaria	100		Norway	100
Canada	55		Pakistan	89
Central America (6)	97		Paraguay	65
Chile	100		Peru	100
China	54		Philippines	82
Colombia	82		Poland	99
Croatia	100		Portugal	100
Czech Republic	100		Puerto Rico	96
Dominican Republic	53		Romania	95
Ecuador	99		Russia	33
Egypt	96		Saudi Arabia	98
Estonia	40		Serbia	89
Finland	100		Singapore	76
France	58		Slovak Republic	100
French W. Africa (12)	94		Slovenia	100
Germany	100		South Africa	100
Greece	18		Spain	90
Hong Kong	84		Sri Lanka	11
Hungary	100		Switzerland	100
India	37		Taiwan	5
Indonesia	62		Thailand	37
Ireland	100		Tunisia	48
Italy	100		Turkey	100
Japan	99		United Arab Emirates	97
Jordan	14		United Kingdom	100
Korea	55		Uruguay	82
Kuwait	97		USA	89
Latvia	57		Venezuela	99
Lebanon	80		Vietnam	6

Timeliness

Besides a critical need for highest accuracy, we acknowledge our clients' desire for quick access to the data and analyses. This calls for a continuous drive for efficiency and upgrading of the product generation process. Streamlining these processes which includes process analytics, problem solving, and re-engineering is not an overnight task that yields immediate returns; it is a multi-year process that may shave off small increments of time each year. Although continuous reductions are a great achievement, we are fully aware that there is a limit to the amount of time we can trim from our production cycle, given that we also strive for the highest levels of accuracy. We are approaching this limit now in many countries, and further acceleration of delivery is hardly feasible.

Up to September 2014, the average delivery time of all reports world-wide increased by 0.2 days to 24.7 days. Although this number is still tentative for the entire year 2014 with three months missing, we consider the results of the past years significant enough to trigger further internal action.

Elapsed Days after Reporting Period (Average)
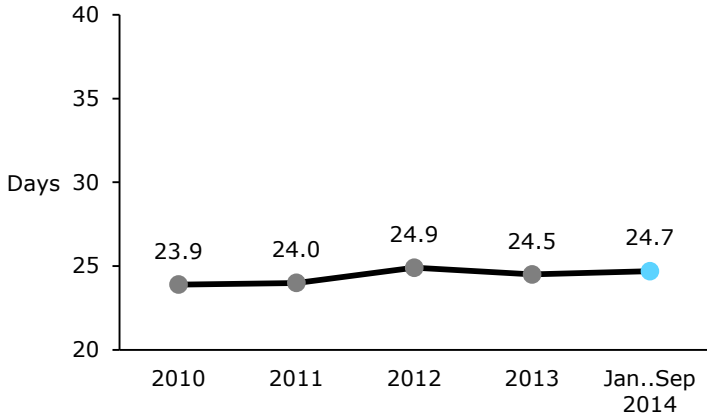
We have further reduced our internal targets for data delivery over time. These targets are set independent from local contractual due dates and reflect an IMS internal standard to stimulate further improvements in delivery time. Since 2005, our official delivery targets are:

Period	Weekly Services	Monthly Services	Quarterly Services
1986..1999		50 days	60 days
2000..2004		35 days	50 days
Since 2005	15 days	30 days	45 days

Applying the 2005 targets of 15/30/45 days to the more than 29,000 deliveries we made world-wide between January 2010 and September 2014, yields "On-Target Fulfillment" percentages of:

Percentage On-Target

	2010	2011	2012	2013	Jan..Sep 2014
%	83.9	84.5	81.0	83.2	82.0
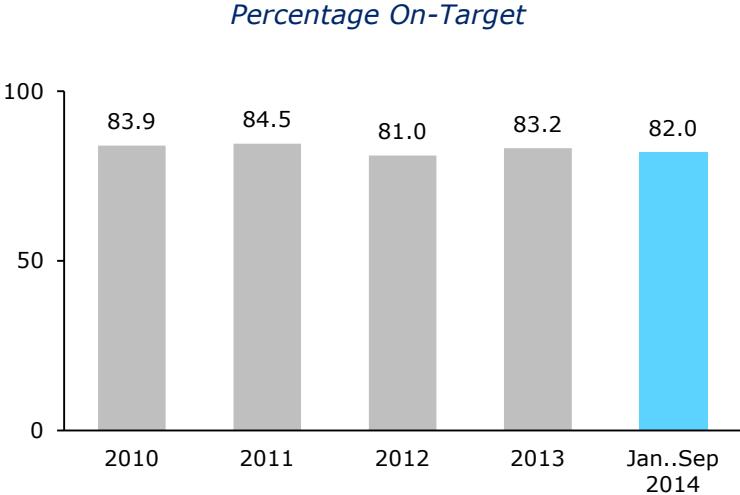
The average on-target percentage of all reports declined by 1.2 percentage points, from 83.2% in 2013 to 82.0% up to the third quarter 2014.

Delivery Performance in Detail

(1) Data Delivery Mode

The following electronic data delivery systems are offered by IMS:

MIDAS	Multi-national database – quarterly data, off-site
Monthly MIDAS	Multi-national database – monthly data, off-site
NDB	National database system, off-site
DataView, IMS+, Sales Analyzer	National/sub-national databases, on-site

As of last year's report, we do not separately analyze the delivery of printed editions due to the general decline of clients using print media. Furthermore we are now collapsing the results for National Database updates as well as Monthly and Quarterly MIDAS deliveries to one single number 'MIDAS'.

For MIDAS deliveries, the on-target performance has increased over the last two years, now ending at 80%. The databases were compliant with our internal completion targets at 84% for the first three quarters of 2014. The graph on the subsequent page illustrates this development.

Percentage On-Target

(chart: Percentage On-Target, MIDAS and Databases)

Year	MIDAS	Databases
2010	84	84
2011	82	87
2012	76	85
2013	79	86
Jan..Sep 2014	80	84

■ MIDAS   ■ Databases
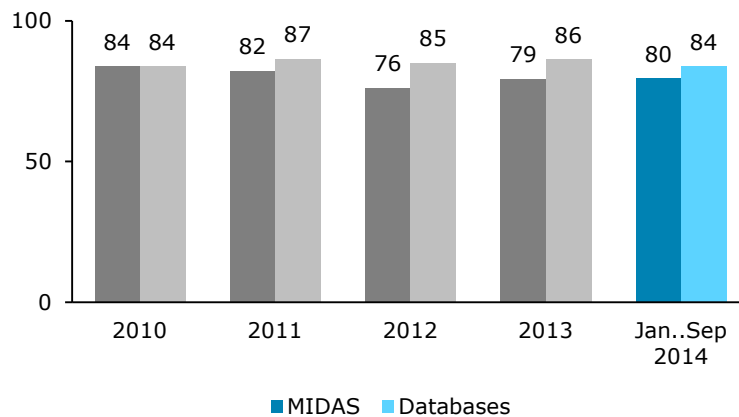
(2) Report Types

Delivery by Report Type

Report	Elapsed Days of Delivery			Percentage On-Target *	
	2013 Jan..Dec	2014 Jan..Sep	Earlier (-) Later (+)	2013 Jan..Dec	2014 Jan..Sep
Pharmaceutical	22.8	23.3	+0.5	87%	87%
Sales Territory	20.9	20.6	-0.3	84%	85%
Medical	34.2	34.6	+0.4	81%	80%
Hospital	27.5	27.7	+0.2	78%	74%
Promotion	32.7	32.3	-0.4	66%	66%
OTC	20.8	20.7	-0.1	95%	91%
PharmaTrend	14.3	14.6	+0.3	91%	90%
Xponent	20.2	20.0	-0.2	87%	88%

* measured against delivery targets of 15/30/45 days for weekly/monthly/quarterly services

Analysis of the delivery times revealed no significant changes from 2013 up to the first three quarters of 2014. Four out of the eight core IMS services have improved by 0.1 to 0.4 days on average. The remaining four services have become slower by 0.2 to 0.5 days.

Looking at the on-target performance, four out of the eight services have maintained or improved their previous year's results, while four services have turned out with less on-target compliance, most significantly *Hospital* and *OTC* reports with a four percentage point decrease. Clear improvement is required for *Promotion* reports as less than two third were delivered on time.

(3) IMS Regions

Delivery by Region

IMS Area	Elapsed Days of Delivery			Percentage On-Target *	
	2013 Jan..Dec	2014 Jan..Sep	Earlier (-) Later (+)	2013 Jan..Dec	2014 Jan..Sep
North America	22.4	22.5	+0.1	93%	90%
Latin America	28.5	29.0	+0.5	73%	71%
N. Europe & Africa	22.3	22.5	+0.2	88%	87%
Central Europe	20.6	20.0	-0.6	87%	90%
East Europe	19.3	19.6	+0.3	93%	91%
S. Eur. & M. East	24.7	24.5	-0.2	80%	80%
AsiaPacific	30.7	30.0	-0.7	70%	76%
Japan	21.9	21.8	-0.1	100%	100%
China	30.3	30.7	+0.4	77%	66%

* measured against delivery targets of 15/30/45 days for weekly/monthly/quarterly services

In terms of delivery days, four IMS regions have been successful in reducing their delivery time, most significantly *AsiaPacific* by 0.7 days, followed by *Central Europe* with 0.6 days acceleration. The remaining five regions have all faced slightly increased delivery times of 0.1 to 0.5 days on average.

Measuring on-target delivery, four regions have managed to maintain or improve their 2013 delivery performance in the first three quarters of 2014, most significantly *AsiaPacific* from 70% to 76%. The remaining five regions declined by 1 to 11 percentage points. *Japan* continued to hold the lead with a perfect score of 100% on-target delivery of their services.

After a general improvement reported for 2013, we had to face a slight reduction of our delivery performance in the first three quarters of 2014. In 2015 we will continue to incorporate measures for creating higher visibility of the ongoing production processes which shall allow early interaction and improvement.

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www.imshealth.com

ABOUT IMS HEALTH

IMS Health is the leading provider of information services for the healthcare industry around the world. The company draws on its global technology infrastructure and unique combination of in-depth, sophisticated analytics, on-shore and off-shore commercial services, and consulting platforms to help clients better understand the performance and value of medicines. With a presence in 100+ countries and more than 55 years of industry experience, IMS Health serves leading decision makers in healthcare, including pharmaceutical manufacturers and distributors, providers, payers, government agencies, policymakers, researchers and the financial community. Additional information is available at www.imshealth.com.