# 2.4 The ifo Business Survey Trade 

Sabine Rumscheidt, Raffaela Seitz

### 2.4.1 Beginnings and Development of the Panel

In 1950, one year after the launch of the ifo Business Survey in the manufacturing industry, the ifo Institute extended the survey to the retailing sector. Data on current developments in this sector can, amongst other things, provide valuable information on private consumption in Germany. In 1951, the wholesale sector was included. Companies from this sector provide trade goods to the retail sector as well as to manufacturing and construction companies and are therefore closely linked to general economic development. The results of the ifo Business Survey trade are incorporated into the calculation of the ifo Business Climate Index for Germany. Since 1991, i.e., after reunification, survey results of the trade sector have been available for Germany as a whole, as well as for some federal states with a sufficient number of participating trade companies, such as Bavaria, Baden-Wurttemberg, and Saxony.

### 2.4.2 Descriptive Statistics

As in the other surveyed sectors, companies from all over Germany take part in the ifo Business Survey trade. However, persuading trade companies to participate in the voluntary survey tends to be more difficult compared to other economic sectors, e.g., the manufacturing industry. This may be because many companies in this sector operate in markets with narrow regional boundaries and are therefore less interested in the overall nationwide results. Nevertheless, the number of participants has increased continuously over the years. In 2021, questionnaires were sent out monthly to an average of around 2,550 companies in the trade sector. The response rate was approximately $65 \%$ which resulted in an average of 1,650 completed questionnaires per month. The number of companies is nearly equally divided between the wholesale and retail sector.

### 2.4.3 Questionnaire

Apart from an additional quarterly question on customer traffic in retail, the questionnaires for wholesale and retail do not differ. As in other sectors, the questionnaire is divided in monthly standard questions and special questions with quarterly, semi-annual, or annual rhythms as well as one-off supplementary questions.

The standard questions cover the current situation and developments in the previous month as well as expectations and plans for the near future. In total, the questionnaire for the trade sector includes nine standard questions (Figure 2.15). On a quarterly basis, in January, April, July, and October, the survey questionnaire contains additional questions around constraints
for the companies' sales activity. Moreover, in March, June, September, and December, the participants are asked about loan negotiations with banks (Section 4.6. Twice a year, in March and November, participants are asked about their investment activity. The investment question is subdivided into different areas, e.g. buildings and equipment (Section 4.7). At the end of the chapter Figures 2.16 and 2.17 show the exact wording of all questions. Over time, there have been only slight changes in the content and wording of the questionnaires. These changes mainly resulted from the harmonization of the surveys at the European level, as suggested by the EU.

In addition to the regularly recurring questions, one-off supplementary questions can also be asked. These supplementary questions mainly deal with current economic policy issues or cover variables that are interesting for research projects. Supplementary questions can be cross-sectoral (i.e. they are simultaneously asked in manufacturing, construction and the service sector) or only relate to trade-specific issues (e.g. questions on online trade). The results are usually presented in research papers or as a summary in the ifo Schnelldienst. For more information on supplementary questions see Section 4.13.

### 2.4.4 Methodology and Aggregation

The procedure of the monthly Business Survey trade follows the processes as described in Section 2.2. The surveyed trade areas are based on the Statistical classification of economic activities by the Federal Statistical Office Federal Statistical Office (2009). The trade sector can be found in Section $G$ (Trade). Specific digits are used for further subdivision of the trade sector. Each additional digit that is not zero indicates that the level is a subordinate level (for example, G47.00 is retail trade, G47.50 is retail trade with household equipment, G47.51 is retail trade with textiles).

Each participating company is assigned to a trade area from the official classification of economic activities. If a company sells different products or product groups, it is assigned to the product group that generates the highest sales. Alternatively, companies can answer several questionnaires that are explicitly assigned to different product groups.

All relevant areas of the retail and wholesale trade sector are covered in the ifo Business Survey trade. Only maintenance and repair of motor vehicles (G45.2) and wholesale on a fee or contract basis (G46.1) are excluded. Table 2.15 lists all areas covered (3-digit) in the survey with the respective percentage weight. Due to the large number of products, the individual product groups that are more detailed than the 3-digit range cannot all be listed here. A detailed list can be found in the official economic branch classification, see Federal Statistical Office (2009).

Results are calculated for all trade areas with a sufficient number of participants (also for trade areas more detailed than the 3-digit level). In addition to the trade areas from the official classification, results are also calculated according to functional trade aspects Table 2.16.

Table 2.15: Covered trade areas

| 2-Digit | 3-Digit | Description |
| :--- | :--- | :--- |
| G46 |  | Wholesale trade (including motor vehicles and motorcycles) |
|  | G46.2 | Wholesale of agricultural raw materials and live animals |
|  | G46.3 | Wholesale of food, beverages and tobacco |
|  | G46.4 | Wholesale of household goods |
|  | G46.5 | Wholesale of information and communication equipment |
|  | G46.6 | Wholesale of other machinery, equipment and supplies |
|  | G46.7 | Other specialised wholesale |
|  | G45.1 | Wholesale trade of motor vehicles, motorcycles, and parts |
|  |  | Retail trade (including motor vehicles and motorcycles) |
|  | G47.1 | Retail sale in non-specialised stores |
|  | G47.2 | Retail sale of food, beverages and tobacco in specialised stores |
|  | G47.3 | Retail sale of food, beverages and tobacco in specialised stores |
|  | G47.4 | Retail sale of food, beverages and tobacco in specialised stores |
|  | G47.5 | Retail sale of other household equipment in specialised stores |
|  | G47.6 | Retail sale of cultural and recreation goods in specialised stores |
| G47.7 | Retail sale of other goods in specialised stores |  |
|  | G47.9 | Retail trade not in stores, stalls or markets |
|  | G45.2 | Retail trade of motor vehicles, motorcycles, and parts |
|  |  |  |

For the aggregation, each company first receives an individual weight based on their annual turnover. Therefore, the companies are asked to classify themselves into predefined turnover size classes when they first join the survey and once a year thereafter. Table 2.17 shows the relationship between the turnover size classes and the weighting factor. The weighting points increase disproportionately to the weighting characteristic (sales) to mitigate the oversubscription of results by large companies.

Subsequently, the bottom-up aggregation of the companies' answers is carried out along the aggregation hierarchy that represents Group $G$ of the official classification of economic activities. The answers from the lowest level of the hierarchy (product level) go into the next

Table 2.16: Functional trade areas

| Wholesaling | Retailing |
| :--- | :--- |
| Production related trade | Durable consumer goods |
| - Intermediate goods | Non-durable consumer goods |
| - Capital goods | Food and beverages |
| Consumer goods |  |
| - Durable consumer goods |  |
| - Non-durable consumer goods |  |
| - Food and beverages |  |

Table 2.17: Company weights in the trade sector based on turnover

| Turnover/year (in million $€$ ) | Weighting factor |  |
| :---: | :---: | :---: |
|  | $<0.25$ | 1 |
| 0.25 | $<$ | 0.5 |
| 0.5 | $<$ | 1.0 |
| 2 | 3 |  |
| 1.0 | $<$ | 2.5 |
| 2.5 | $<$ | 5.0 |
| 5.0 | $<$ | 12.5 |
| 12.5 | $<$ | 25.0 |
| 25.0 | $<$ | 50.0 |
|  | $<$ | 6 |
| 50.0 |  | 1,000 |
|  |  | 7,000 |

higher group until the 2-digit level (wholesale and retail). Finally wholesale trade (61\%) and retail trade (39\%) are weighted together to form results for the whole trade sector.

### 2.4.5 Results

The first results of the ifo Business Survey trade were published in 1950 (retail trade) and 1951 (wholesale trade) and have been of widespread interest ever since. The results are published monthly in graphic and tabular form in the "ifo Konjunkturperspektiven" and in a press release. Sector specific graphic and tabular reports are also provided for all participating companies as well as for economic decision-makers, the press, and other interested institutions or persons.

Figure 2.10a shows the balances for the current business situation, business expectations, and business climate in wholesale trade from 2000 to December 2021. Until around 2005, the participating companies rated their business situation and business expectations more often as "bad" or "less favourable" than "good" or "more favourable". As of 2005, an increase in positive assessments can be seen: Between 2006 and 2007, all the presented indicators reached a positive value. The economic crisis of 2008/2009 is clearly visible. In particular, business expectations declined with a time lead: A negative value was already reached in November 2007, while the balance of the current business situation remained positive until autumn 2008. In early 2010, the business climate turned positive again and the responses settled at a higher level overall. During the following decade the indicators settled at this higher level, bar some fluctuations, for example during the euro crisis in 2013. In 2019, Brexit and trade conflicts had a negative impact. The outbreak of the Covid pandemic and the resulting lock-downs and restrictions had a widely negative impact on the economy, which was also clearly visible in the business climate for the wholesale sector.

As shown in Figure2.10bfor retail trade, the results show a very similar development compared

## 2 The ifo Business Survey

Figure 2.10: ifo Business Climate and its sub-indicators
(a) Wholesale


Source: ifo Business Survey.
(b) Retail

to wholesale trade. Here, after the financial and economic crisis, the results also remained at a significantly higher level. Strikingly, following this turning point, the current situation was consistently rated better than the business expectations in both retail trade and in wholesale trade; before the 2008/2009 crisis, the opposite was the case.

### 2.4.6 Relationship between the Standard Questions

Figures 2.11a and 2.11b show the development of the following indicators for wholesale and retail trade: stock assessment, price expectations, order plans and employment plans. The indicators employment plans and order plans show a similar development. According to the results of the ifo Business Survey, inventory levels tend to be considered "too high" when respondents expect sales prices to fall. Similarly, the propensity to order and the willingness to hire employees tends to decrease when stock levels are considered "too high" and vice versa. In wholesale and retail trade the price expectations started to rise in Spring 2021. They then settled at a higher level and eventually reached their historic record level.

Table 2.18shows the cross-correlation between the main indicators of the ifo Business Survey in wholesale and retail trade. There is a very strong correlation between most indicators. In wholesale trade, there are especially strong correlations between the business climate, the business situation, the order expectations and the employee plans. The same is true for the retail trade.

### 2.4.7 Special Evaluations and Analyses

The results of the ifo Business Survey are regularly summarized and analyzed in the journal "ifo Schnelldienst". The series ifo "Branchen im Fokus" deals with the development of individual trade sectors (e.g. Demmelhuber 2021) or with all kinds of questions posed in the ifo Business Survey (Demmelhuber et al. 2022).

Rumscheidt (2017) compared the indicators of the ifo Business Survey in wholesale trade with the official monthly statistics of the Federal Statistical Office, in order to examine whether the data collected by the ifo Institute could reflect the real development in wholesale trade. A correlation analysis was carried out to determine the extent to which the ifo indicators correspond to the official monthly statistics. As the great advantage of the ifo data is the prompt publication of the results at the end of each month, the indicators from the ifo Business Survey in wholesale trade were also tested for their forecasting characteristics and suitability as early indicators. The time series were therefore shifted in time to determine when the correlation was stronger, one question being, for example, whether it could be assumed that the ifo time series is one to three months ahead of the official data.

The analysis showed that the quality of the ifo indicators for wholesale trade is high and that they reflect the real economic development well. As can be seen in Figures 2.12, 2.13, and 2.14, many indicators collected by the ifo Institute in the wholesale sector show a similar

## 2 The ifo Business Survey

Figure 2.11: Stock assessment, price, employee and ordering expectations in trade
(a) Wholesale


Source: ifo Business Survey.
© ifo Institute
(b) Retail


Table 2.18: Cross-correlation between the main indicators of the ifo Business Survey in the trade sector

| Wholesale |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | BC | BS | BE | ST | PD | TO | PE | EP | OE |
| BC | 1.000 |  |  |  |  |  |  |  |  |
| BS | 0.950 | 1.000 |  |  |  |  |  |  |  |
| BE | 0.873 | 0.677 | 1.000 |  |  |  |  |  |  |
| ST | -0.612 | -0.593 | -0.523 | 1.000 |  |  |  |  |  |
| PD | 0.589 | 0.597 | 0.462 | -0.770 | 1.000 |  |  |  |  |
| TO | 0.848 | 0.851 | 0.674 | -0.658 | 0.693 | 1.000 |  |  |  |
| PE | 0.588 | 0.558 | 0.520 | -0.773 | 0.944 | 0.671 | 1.000 |  |  |
| EP | 0.933 | 0.967 | 0.689 | -0.585 | 0.546 | 0.783 | 0.518 | 1.000 |  |
| OE | 0.949 | 0.903 | 0.830 | -0.773 | 0.721 | 0.856 | 0.722 | 0.890 | 1.000 |
| Retail |  |  |  |  |  |  |  |  |  |
|  | BC | BS | BE | ST | PD | TO | PE | EP | OE |
| BC | 1.000 |  |  |  |  |  |  |  |  |
| BS | 0.949 | 1.000 |  |  |  |  |  |  |  |
| BE | 0.831 | 0.612 | 1.000 |  |  |  |  |  |  |
| ST | -0.603 | -0.647 | -0.369 | 1.000 |  |  |  |  |  |
| PD | 0.465 | 0.477 | 0.324 | -0.452 | 1.000 |  |  |  |  |
| TO | 0.838 | 0.880 | 0.546 | -0.571 | 0.426 | 1.000 |  |  |  |
| PE | 0.512 | 0.512 | 0.380 | -0.491 | 0.892 | 0.458 | 1.000 |  |  |
| EP | 0.923 | 0.928 | 0.672 | -0.636 | 0.576 | 0.804 | 0.598 | 1.000 |  |
| OE | 0.915 | 0.886 | 0.734 | -0.689 | 0.615 | 0.781 | 0.653 | 0.876 | 1.000 |

$\overline{\mathrm{BC}: ~ B u s i n e s s ~ c l i m a t e, ~ B S: ~ B u s i n e s s ~ s i t u a t i o n, ~ B E: ~ B u s i n e s s ~ e x p e c t a t i o n s, ~ S T: ~ S t o c k s, ~ P D: ~ P r i c e ~ d e v e l o p m e n t, ~ T O: ~}$ Turnover, PE: Price expectations, EP: Employment plans, OE: Order expectations.
Source: ifo Business Survey; calculations of the ifo Institute.
trend to the official monthly wholesale statistics, such as the number employed Figure 2.12, sales prices (Figure 2.13), and turnover (Figure 2.14). Tables 2.19, 2.20, and 2.21 show the correlation measures calculated in each case. Table 2.21 shows the results by branch. As can be seen, in some cases, very strong correlations were found between the data collected by the ifo Institute and the official statistics.

Figure 2.12: Employee development in wholesale trade vs. the corresponding ifo time series


Table 2.19: Cross-correlation between employees in wholesale trade and the corresponding time series from the ifo survey

| lead/lags | -6 | -5 | -4 | -3 | -2 | -1 | 0 | 1 | 2 |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| BC | 0.814 | $\mathbf{0 . 8 1 7}$ | 0.810 | 0.797 | 0.780 | 0.760 | 0.733 | 0.763 | 0.785 |
| BS | 0.818 | 0.826 | $\mathbf{0 . 8 2 9}$ | 0.826 | 0.821 | 0.813 | 0.800 | 0.815 | 0.823 |
| BE | $\mathbf{0 . 6 4 5}$ | 0.639 | 0.619 | 0.592 | 0.559 | 0.523 | 0.477 | 0.524 | 0.563 |
| ST | $\mathbf{- 0 . 5 6 7}$ | -0.535 | -0.503 | -0.467 | -0.423 | -0.379 | -0.334 | -0.385 | -0.431 |
| TO | 0.660 | 0.660 | $\mathbf{0 . 6 6 5}$ | 0.652 | 0.647 | 0.636 | 0.612 | 0.639 | 0.652 |
| EP | 0.835 | 0.844 | 0.852 | 0.854 | 0.853 | 0.842 | 0.824 | 0.843 | $\mathbf{0 . 8 5 5}$ |
| OE | $\mathbf{0 . 7 9 3}$ | 0.790 | 0.783 | 0.768 | 0.747 | 0.722 | 0.685 | 0.726 | 0.753 |

Highest value in bold.
BC: Business climate, BS: Business situation, BE: Business expectations, ST: Stocks, TO: Turnover, EP: Employment plans, OE: Order expectations.
Source: Federal Statistical Office; ifo Business Survey; calculations by the ifo Institute.

Figure 2.13: Sales prices in wholesale trade vs. the corresponding ifo time series

a ifo Institute. ${ }^{\text {b }}$ Official numbers.
Source: Federal Statistical Office; ifo Business Survey; calculations by the ifo Institute.

Figure 2.14: Turnover in wholesale trade


Table 2.20: Cross-correlation between wholesale sales prices and the corresponding time series from ifo Business Survey

| lead/lags | -6 | -5 | -4 | -3 | -2 | -1 | 0 | 1 | 2 |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| BC | 0.291 | 0.330 | 0.358 | 0.371 | $\mathbf{0 . 3 8 0}$ | 0.377 | 0.362 | 0.372 | 0.371 |
| BS | 0.181 | 0.229 | 0.268 | 0.294 | 0.319 | 0.338 | $\mathbf{0 . 3 4 8}$ | 0.344 | 0.333 |
| BE | 0.404 | 0.426 | $\mathbf{0 . 4 3 1}$ | 0.421 | 0.404 | 0.369 | 0.316 | 0.346 | 0.362 |
| ST | -0.641 | -0.672 | -0.684 | -0.672 | -0.657 | -0.630 | -0.593 | -0.647 | $\mathbf{- 0 . 6 8 8}$ |
| PD | 0.562 | 0.637 | 0.696 | 0.738 | 0.767 | 0.789 | 0.788 | $\mathbf{0 . 7 9 7}$ | 0.785 |
| TO | 0.258 | 0.328 | 0.379 | 0.408 | 0.448 | 0.478 | $\mathbf{0 . 5 0 1}$ | 0.483 | 0.459 |
| PE | 0.585 | 0.649 | 0.704 | 0.747 | 0.783 | 0.799 | 0.793 | $\mathbf{0 . 8 0 4}$ | 0.797 |
| OE | 0.414 | 0.464 | 0.499 | 0.517 | 0.530 | 0.532 | 0.517 | 0.535 | $\mathbf{0 . 5 3 9}$ |

Highest value in bold.
BC: Business climate, BS: Business situation, BE: Business expectations, ST: Stocks, PD: Price development, TO: Turnover, PE: Price expectation, OE: Order expectations.
Source: Federal Statistical Office; ifo Business Survey; calculations by the ifo Institute.

Table 2.21: Cross-correlation between turnover in wholesale trade the corresponding time series from the ifo Business Survey

| lead/lags | -6 | -5 | -4 | -3 | -2 | -1 | 0 | 1 | 2 |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| BC 46 | 0.353 | 0.406 | 0.452 | 0.486 | 0.539 | 0.575 | $\mathbf{0 . 5 9 4}$ | 0.586 | 0.540 |
| BC 46.3 | 0.199 | 0.191 | 0.239 | 0.217 | 0.240 | 0.247 | 0.218 | $\mathbf{0 . 3 0 9}$ | 0.222 |
| BC 46.42 | 0.079 | 0.082 | 0.094 | 0.082 | 0.133 | 0.202 | 0.288 | $\mathbf{0 . 3 2 1}$ | 0.288 |
| BC 46.43 | 0.320 | 0.374 | 0.424 | 0.446 | 0.485 | 0.549 | 0.603 | $\mathbf{0 . 6 3 9}$ | 0.573 |
| BC 46.44 | -0.026 | -0.050 | -0.023 | -0.008 | 0.001 | 0.043 | 0.015 | 0.048 | $\mathbf{0 . 0 6 0}$ |
| BC 46.46 | $\mathbf{- 0 . 3 5 4}$ | -0.250 | -0.177 | -0.160 | -0.162 | -0.052 | -0.063 | -0.061 | -0.065 |
| BC 46.47 | 0.114 | 0.103 | 0.123 | 0.082 | 0.133 | 0.231 | 0.300 | $\mathbf{0 . 3 6 9}$ | 0.338 |
| BC 46.62 | 0.283 | 0.385 | 0.452 | 0.488 | 0.568 | 0.623 | 0.638 | $\mathbf{0 . 6 8 0}$ | 0.672 |
| BC 46.72 | 0.229 | 0.287 | 0.339 | 0.392 | 0.441 | 0.486 | 0.501 | $\mathbf{0 . 5 1 9}$ | 0.518 |
| BC 46.73 | 0.291 | 0.331 | 0.380 | 0.445 | 0.496 | 0.549 | 0.637 | $\mathbf{0 . 6 8 4}$ | 0.619 |
| BC 46.75 | 0.328 | 0.423 | 0.490 | 0.538 | 0.601 | $\mathbf{0 . 6 1 1}$ | 0.596 | 0.578 | 0.526 |

Highest value in bold.
BC : Business climate, the numbers afterwards are WZ08-digits.
46: Wholesale trade, 46.3: Wholesale of food, beverages and tobacco, 46.42: Wholesale of clothing and footwear, 46.43: Wholesale of electrical household appliances, 46.44: Wholesale of china and glassware and cleaning materials, 46.46: 'Wholesale of pharmaceutical goods, 46.47: Wholesale of furniture, carpets and lighting equipment, 46.62: Wholesale of machine tools, 46.72: Wholesale of metals and metal ores, 46.73: Wholesale of wood, construction materials and sanitary equipment, 46.75: Wholesale of chemical products.
Source: Federal Statistical Office; ifo Business Survey; calculations by the ifo Institute.

Figure 2.15: Standard questions in trade
ifo - Business survey for retail / wholesale sector ifo Institute - Center for Macroeconomics and Surveys Please respond by ...

Your current information status November 2021
Please base responses only on domestic locations and disregarding purely seasonal fluctuations.
Sector: 123456 Retail or wholesale with $\operatorname{xxxx}$

## CURRENT SITUATION

1. We characterize our current business situation as
$\qquad$
$\square$ satisfactory
$\square$ poor
2. We characterize our inventories as
$\square$ too low
$\square$ sufficient
$\square$ too high
O warehousing not customary

## review - trends in OCTOBER

3. Compared to October 2020, our sales in October 2021
$\square$ rose
$\square$ remained the same
$\square$ fell
4. Compared to September, our sales prices have
$\square$ risen
$\square$ not changed
$\square$ fallen
5. Compared to September, our workforce has
$\square$ increased
$\square$ remained roughly the same
$\square$ decreased
PLANS AND EXPECTATIONS FOR THE NEXT 3 MONTHS
6. We expect our sales prices to
$\square$ rise
$\square$ remain roughly the same
$\square$ fall
7. We expect our order intake to
$\square$ increase
$\square$ remain unchanged
$\square$ decrease
8. We expect our workforce to
$\square$ increase
$\square$ remain roughly the same
$\square$ decrease

## iffo INSTITUT

Leibniz-Institut für Wirtschaftsforschung an der Universität München e.V.

Postbox 860460
81631 Munich

ID No. 6123456-12.34/12-1234
9. We expect our business situation to
$\square$ become more favorable
$\square$ remain roughly the same
$\square$ become less favorable
10. The future development of our business situation is currently
$\square$ easy to predict
$\square$ moderately easy to predict
$\square$ moderately difficult to predict
$\square$ difficult to predict

## 2 The ifo Business Survey

Figure 2.16: Special questions in trade, part 1

Ifo - Business survey for retail / wholesale sector ifo Institute - Center for Macroeconomics and Surveys Please respond by ...

## ifo INSTITUT

Leibniz-Institut für Wirtschaftsforschung an der Universität München e.V.

Postbox 860460
81631 Munich

Your current information status 2021
ID No. 6123456-12.34/12-1234
Please base responses only on domestic locations and disregarding purely seasonal fluctuations.
Sector: 123456 Retail or wholesale with xxxx


Figure 2.17: Special questions in trade, part 2
ifo - Business survey for retail / wholesale sector ifo Institute - Center for Macroeconomics and Surveys Please respond by ...
ifo Institut
Leibniz-Institut für Wirtschaftsforschung an der Universität München e.V.

Postbox 860460
81631 Munich

Your current information status 2021
ID No. 6123456-12.34/12-1234
Please base responses only on domestic locations and disregarding purely seasonal fluctuations.
Sector: 123456 Retail or wholesale with $\operatorname{xxxx}$

| SPECIAL QUESTIONS |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ANNUALLY |  |  |  |  |  |  |  |
| NOVEMBER |  |  |  |  |  |  |  |
| A1) Our investments in the current year (2021 compared to 2020) are | A2) We expect our investments in the coming year (2022 compared to 2021) to |  |  |  |  |  |  |
| 2021 | + | $=$ | - | 2022 | + | = | - |
| overall investment | $\square$ | $\square$ | $\square$ | overall investment | $\square$ | $\square$ | $\square$ |
| - buildings | $\square$ | $\square$ | $\square$ | - buildings | $\square$ | $\square$ | $\square$ |
| - equipment | $\square$ | $\square$ | $\square$ | - equipment | $\square$ | $\square$ | $\square$ |
| - software / databases | $\square$ | $\square$ | $\square$ | - software / databases | $\square$ | $\square$ | $\square$ |
| - research / development | $\square$ | $\square$ | $\square$ | - research / development | $\square$ | $\square$ | $\square$ |

