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DISCUSSION PAPER

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Data Resource Profile: The ZEW FMS Dataset

Leibniz Association

ZEW

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Abstract

The ZEW Financial Market Survey is a monthly panel survey among financial market experts that was launched in December 1991. The survey focuses on the experts' expectations about international financial markets and macroeconomic developments. We describe the ZEW Financial Market Survey and the resulting research dataset, which 1) is available for free for academic researchers, 2) is large and includes long individual time series (99,001 responses by 2,002 respondents, as of September 2021), and 3) contains rich information on the financial market experts collected over the years and which can be combined with the data on expectations. We give a detailed overview of the academic publications based on ZEW FMS data and provide information on how to access the dataset.

Keywords: research dataset, financial market experts, financial market expectations

JEL codes: C8, D84, G17, G4

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1 Introduction

The aim of this paper is to describe the ZEW Financial Market Survey (ZEW FMS) research dataset. The research dataset results from the ZEW Financial Market Survey, which is a monthly panel survey among financial market experts. The survey focuses on the experts' expectations about international financial markets and macroeconomic developments. It was launched in December 1991 and has been conducted every month since then.

The primary goal of the survey is to build a high-quality empirical basis for academic research on expectation formation. Since the launch of the ZEW FMS, ZEW Mannheim has therefore systematically collected the survey responses and has offered the continuously growing database to academic researchers. The ZEW FMS dataset has been well received in academic research. As of September 2021, we are aware of 52 academic studies that make use of the ZEW FMS data, where the first study was Marnet (1996). Of these 52 academic studies, 23 study how financial market experts form their expectations, 17 use the data in forecasting exercises and the remaining papers study various other research questions.

Over the past 30 years, the ZEW FMS research dataset has evolved into a valuable resource for those who study how macroeconomic and financial expectations are formed. With 99,001 responses by 2,002 participants as of September 2021, the research dataset is large and includes long individual time series. Many interesting events fall into the survey period, whose effects on expectations can be studied. For example, the survey period includes the creation of the Euro area and the introduction of the Euro, the Dot-com crisis, the Great Financial Crisis, the European Sovereign Debt Crisis, and the COVID-19 crisis. The dataset also contains rich individual information on the professional and demographic background of the financial market experts, which has been collected over the years and which can be combined with the data on expectations.

A secondary goal of the ZEW FMS is the provision of economic and financial indicators to the public. ZEW Mannheim regularly publishes the aggregate results of the survey and communicates the key results to the public. The most important indicator arising from the ZEW FMS is the ZEW Indicator of Economic Sentiment (ZEW-Konjunkturerwartungen), which measures the participants' expectation for economic growth over the coming six months. After early analyses of the forecasting power of this index for industrial production in Germany (see Hüfner and Schröder, 2002a,b), the ZEW Indicator of Economic Sentiment has gained public attention and became one of the leading business cycle indicators for the German economy.

The paper proceeds as follows. Section 2 provides more details on the ZEW FMS. It explains how the survey has been conducted, and provides statistics on the participants' response behavior and the composition of the panel. Section 3 lays out the types of questions used in the questionnaire and how the different questions are formulated. Section 4 gives an overview of the academic research publications which have made use of ZEW FMS data. All publications that we are aware of are covered, describing their main research topics as well as the specific ZEW FMS data used. Finally, Section 5 gives information on how to get access to the dataset.

2 The ZEW Financial Market Survey

The ZEW FMS data are collected in an ongoing panel survey among financial market experts. The target group for the ZEW FMS panel encompasses professionals working in financial institutions or financial divisions of non-financial firms. Moreover, the professionals have to hold positions in which they have to deal with macroeconomic as well as financial developments. Examples are economists working in macroeconomic research departments of banks and portfolio or fund managers working at asset management or investment firms.

ZEW Mannheim identifies and recruits panel members using publicly available information about financial market experts. The information sources for the identification of potential candidates are firm websites and professional networking platforms. When potential candidates are identified, ZEW Mannheim sends them an invitation to join the ZEW FMS panel. In earlier years, invitations were sent via regular mail. In recent years, invitations are sent via e-mail or – very recently – via a direct message on professional social network platforms. Currently, each invitation contains a short description of the survey, the latest questionnaire, the latest ZEW Financial Market Report[1], and the link to an online form, which interested financial market experts can use to register for the ZEW FMS. If a panel member exits, the aim is to find a successor from the same department, or, if not possible, from the same firm.

The ZEW FMS has been conducted every month since December 1991. As of September 2021, the ZEW FMS dataset includes a total of 99,001 responses by 2,002 financial market experts. Between December 1991 and November 2002, ZEW Mannheim conducted the FMS only via mail and fax. Paper questionnaires were sent out by mail or fax, and the respondents either mailed or faxed them back with their answers. Starting from December 2002, ZEW Mannheim introduced the possibility to participate via an online questionnaire. Online participation has reached a share of 100 percent in 2021.

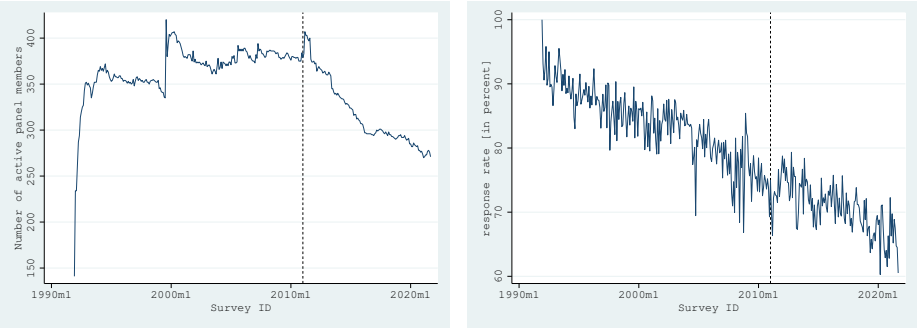
2.1 Historical response behavior

Figure 1 provides details about the size of the ZEW FMS panel and the historical response behavior over the lifetime of the ZEW FMS. Whether panel members are active or have left the panel is not documented for survey waves before 2011. For these survey waves, we thus estimate the status of panel members with the help of response data. We assume that these panel members were active in the periods between their first responses and their last responses. Note that the resulting values are only rough approximations of the actual number of active panel members. For example, if panel members first participated after the month they entered the panel, the estimated number of active panel members is understated for all periods between the month they entered and the month of their first participation.

Figure 1a shows the number of active members of the ZEW FMS panel since December 1991. The time series reveals two phases of rapid panel expansion. The first phase took place in the first year of the survey's existence, in which the number of active participants increased from 141 in December 1991 to around 350. The second phase took place in August 1998, when the number of active

[1]The ZEW Financial Market Report is a monthly publication of ZEW Mannheim, which contains an analysis of the results of the ZEW FMS.

Figure 1: Panel size and response behavior



(a) Number of active panel members by survey wave

(b) Response rate by survey wave

Notes: These figures show the size of the panel and historical response behavior over the lifetime of the ZEW FMS. The vertical dashed lines in Figures 1a and 1b separate the periods for which the number of active panel members is documented and for which it is not. The values for number of active panel members and the response rate before 2011 are approximated from response data.

panel members increased to 420 from 335 in September 1998. With an average of 380, the size of the ZEW FMS panel was relatively stable in the 2000s. The local maximum of 407 panel members in March 2011 marks the start of a downward trend. In September 2021, the ZEW FMS panel had 271 active panel members and the total number of panel members since the start of the survey was 2,002. Figure 1b reveals that the response rate of the ZEW FMS has been trending down since the start of the ZEW FMS and is highly volatile. In the survey's first year, the estimated response rate fluctuated around about 90 percent. Between September 2020 and September 2021, the response rate was on average 65.7 percent and fluctuated between 60.5 and 72.3 percent.

The cumulative distribution of the number of participations by panel member depicted in Figure 2 reveals that the ZEW FMS dataset features long individual time series. The number of responses by ZEW FMS panel members ranges from 1 to 350 with an average of 49.45. While about 20 percent answered only 1 or 2 times, about 30 percent of the respondents participated more than 50 times, and about 20 percent more than a 100 times. Half of the panel members responded more than 18 times.

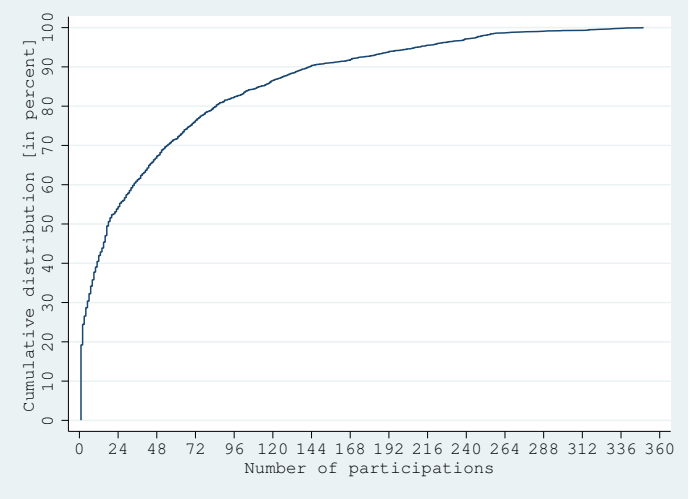
2.2 Panel composition

The ZEW FMS research dataset also includes information about the members of the ZEW FMS panel.[2] It includes personal information, and information about the panel member's employers. ZEW Mannheim collects these data when new financial experts enter the panel, and irregularly via additional questions during the monthly survey.

With respect to personal information, the variables are gender (*gender*), birth year (*birthyear*), career entry year (*careerentry*), language (*lang*), the respondents' main occupation (*occupation*), and whether or not they possess

[2]This section draws heavily from Section 3.1 of Brückbauer (2020).

Figure 2: The distribution of the number of participations by panel member



professional experience in stock market forecasting (*profdax*). The information about panel members' employers include the country in which the firm is headquartered (*emplcountry*), and a sector classification (*emplsector*).

Table 1: Panel member variables in the ZEW FMS research dataset

Variable	Description	Included in entry questionnaire	Collected in survey wave
gender	gender	yes	-
lang	language	yes	-
birthyear	birth year	yes (since June 2010)	September 2003, October 2006
careerentry	career entry year	yes (since June 2010)	September 2003, October 2006
occupation	main occupation	yes (since April 2020)	March 2011, January 2020, February 2020
profdax	prof. experience in stock market forecasting	-	June 2013, January 2020, February 2020
emplcountry	Country in which the employer is headquartered	yes	-
emplsector	Sector classification of employer	no (classification made by ZEW Mannheim)	-

Table 1 provides an overview of all variables specific to panel members and details on the frequency of their collection. With exception of *profdax*, all variables are included in the current entry questionnaire. The entry questionnaire was amended in June 2010 (*birthyear* and *careerentry*) and April 2020 (*occupation*). Before their inclusion in the entry questionnaire, *birthyear* and *careerentry* were collected in September 2003 and October 2006.[3] The variables

[3]The respondents were asked about their current age and the number of years of working experience. We converted these values to a birth year and career entry year.

occupation and *profdax* were collected in 2011 (*occupation*), 2013 (*profdax*) and 2020 (*occupation* and *profdax*), respectively. While *emplcountry* is collected via the entry questionnaire, the sector classification of the panel member's employer is done by ZEW Mannheim.

Unfortunately, the data on panel members are not available for all panel members and all survey waves. For example, data on panel members who left the panel before 2007 are not available. Variables specific to the employers of the panel members are only available starting from 2011. Finally, since the financial market experts are free to answer the questions regarding their person, some choose to not answer all questions.

Figures 3 to 5 show the composition of the ZEW FMS panel in terms of the variables listed in Table 1. While the figures on the left show the current composition, i.e. the composition as of September 2021, the figures on the right show how the composition of the panel varies by survey wave. All reported percentages are relative to the number of non-missing observations. The share of missing values by survey wave is reported in the figures on the right.

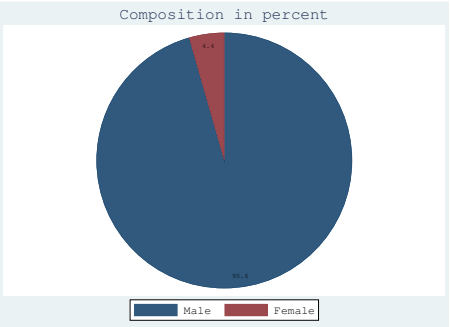
In order to calculate the composition of the ZEW FMS panel with respect to a variable that is observed only occasionally and whose values might change over time (e.g. *occupation* and *profdax*) for the full sample period, we made the following assumptions.[4] First, we assume that observations of the variable are valid until we observe a new value in a later survey wave, i.e. new observations replace the older ones. In the example of *profdax*, for a panel member who provided differing occupation information for 2011 and 2020, the occupation status provided in 2011 is valid from 2011 to 2020, and the occupations status provided in 2020 is valid from 2020 on. Second, if there is no earlier observation of the variable, we assume that the occupation status observed in survey wave t is valid for all survey waves earlier than t.

Figures 3a and 3b reveal that the financial market experts in the ZEW FMS have predominantly been male over the survey period. The share of male panel members currently stands at about 96 percent and has also fluctuated around this number in the past. The variable *gender* is available for all active panel members starting in 2011. Figures 3c to 3f show the distributions of *birthyear* and *careerentry*. Currently, median birth and career entry years are 1967 and 1992, respectively, and are available for about 60 percent of panel members. As one would expect, older panel members have gradually been replaced by younger panel members, leading to an upward trend in *birthyear* and *careerentry* for the full sample period (see Figures 3d and 3f).

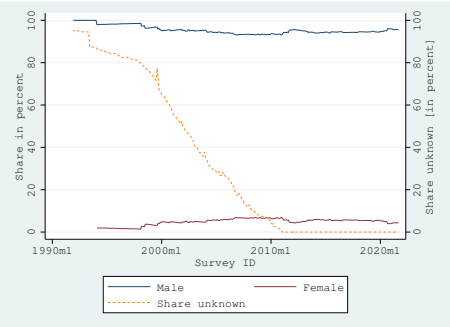
Figures 4a and 4b show the composition of the ZEW FMS panel in terms of *occupation*. Occupation data were collected on several occasions (see Table 1) and with two different questions, where the first version was asked in March 2011, and the second version from January 2020 on. In March 2011, respondents could choose from the following nine options: "Economic Research", "Trading", "Financing", "Management", "Security Research", "Fund Management", "Investment Advice", "Wealth Management", and "Other". The option "Risk Management" was added in January 2020. While respondents could only choose one professional activity in March 2011, they have been able to choose multiple activities in later surveys. Furthermore, starting from January 2020,

[4]These assumptions are only used to construct Figures 3 to 5 and do not apply to the research dataset.

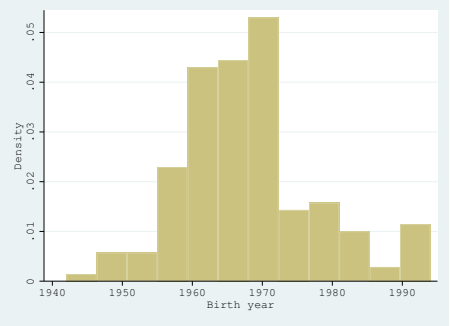
Figure 3: Panel composition: gender, birth year, and career entry year



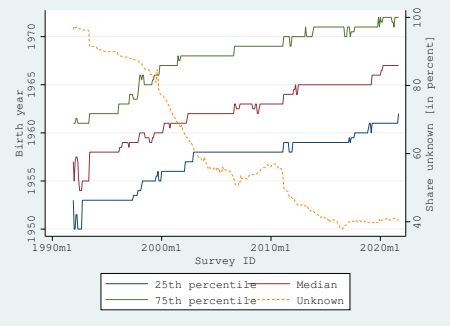
(a) Current composition by gender



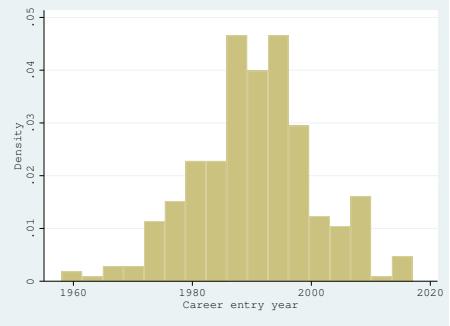
(b) Gender over survey waves



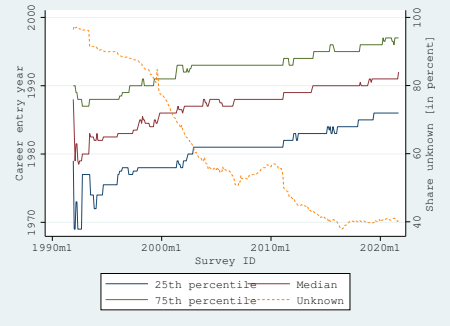
(c) Current composition by birth year



(d) Birth year over survey waves



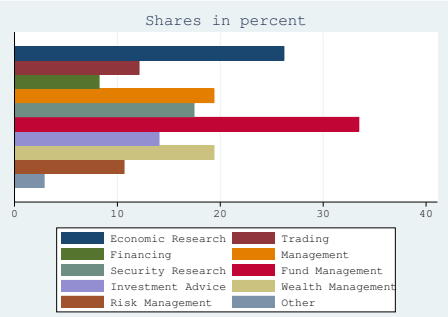
(e) Current composition by career entry year



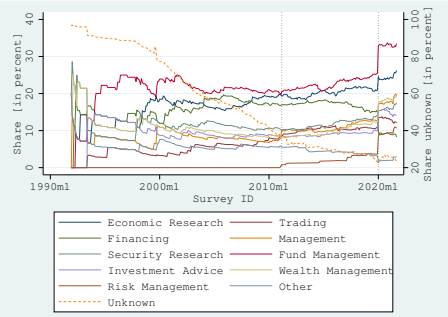
(f) Career entry year over survey waves

Notes: These figures illustrate the compostion of the ZEW FMS in terms of gender, birth year, and career entry year. All reported percentages are relative to the number of non-missing observations. The figures on the left show the composition as of September 2021. The figures on the right show how the composition has evolved over the sample period.

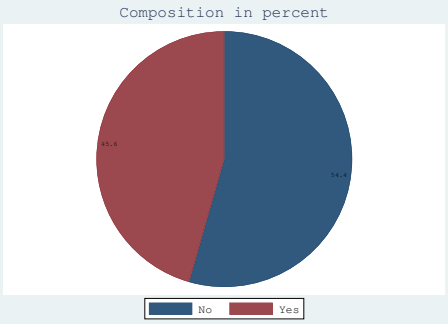
Figure 4: Panel composition: main occupation, and professional experience in stock market forecasting



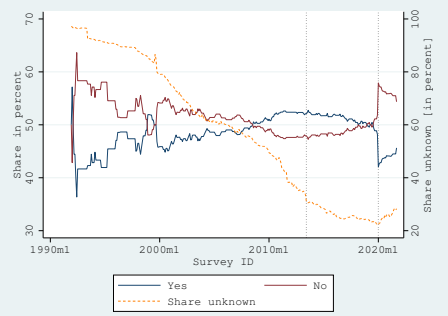
(a) Current composition by main occupation



(b) Main occupation over survey waves



(c) Current composition by professional experience in stock market forecasting



(d) Professional experience in stock market forecasting over survey waves

Notes: These figures illustrate the compostion of the ZEW FMS in terms of main occupation and professional experience in stock market forecasting. All reported percentages are relative to the number of non-missing observations. The figures on the left show the composition as of September 2021. The figures on the right show how the composition has evolved over the sample period. Vertical, dotted lines mark survey waves, during which the respective variables were observed.

the respondents were also able to indicate whether an occupation is a main or a side activity.[5] The variable *occupation* thus has a structural break in January 2020.

Figure 4a documents the occurrences of the different occupations in the current panel. For panel members that provided this information, the four most frequent main activities are "Fund Management" (about 33 percent), "Economic Research" (about 26 percent), and, with equal shares of about 12 percent, "Management" and "Wealth Management".[6] The structural break in *occupation* is clearly visible in Figure 4b: the possibility to provide more than one occupation led to significant increases in the occurrences of the different main occupations after January 2020. The large increases in the shares of e.g. "Trading", "Management", and "Wealth Management" suggest that these activities are important secondary main activities of the financial market experts in the ZEW FMS panel.

Figures 4c and 4d report the composition of the ZEW FMS panel in terms of professional experience in forecasting the German stock market index DAX, i.e. *profdax*. As in the case of *occupation*, the variable *profdax* was collected on two occasions and with two different questions. In 2013, the survey participants were asked what they forecast if they forecast the DAX in a different context than the ZEW FMS, e.g. point or return forecast of the DAX. If the participants stated that they do not conduct DAX forecasts outside of the ZEW FMS context, the variable *profdax* equals "No" and "Yes" otherwise. In 2020, the survey participants were asked directly whether they regularly or irregularly forecast the DAX in a different context than the ZEW FMS. If they stated that this is regularly or irregularly the case, the variable *profdax* equals "Yes" and "No" otherwise.

Professional experience in stock market forecasting is relatively evenly distributed in the current panel (Figure 4c). About 45.6 percent of current panel members forecast the DAX outside of the context of the ZEW FMS. Over the sample period, the share of professional DAX forecasters has varied between about 37 and about 54 percent (Figure 4d). Given that the DAX forecasting status for many panel members has changed between 2013 and 2020, there are significant movements in the time series for "Yes" and "No" in January 2020.

Finally, Figure 5 shows the composition of the ZEW FMS panel in terms of employer characteristics. Over the sample period, the large majority of financial market experts has worked at firms based in Germany (Figure 5b). As of September 2021, the share of German employers stands at about 94.7 percent (Figure 5a). The residual category "Other" includes China, Switzerland, and UK (with about 0.8 percent each), and Austria, Japan, Luxembourg, Netherlands, Slovakia, Sweden, and USA (with about 0.4 percent each).

Figures 5c and 5d reveal that the composition by employer sector is more heterogeneous than that by country. We distinguish between the following five sectors: "Banking"[7], "Investment Banking and Asset Management"[8], "Non-

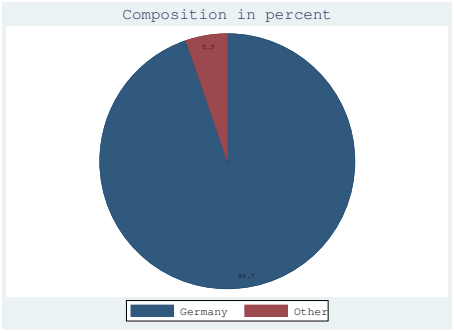
[5] Given that there are three different possible states for each occupation, the variable *occupation* actually consists of ten different variables in the research dataset.

[6] Note that, because respondents have been able to give more than one main occupation since January 2020, the shares do not add up to 100 percent.

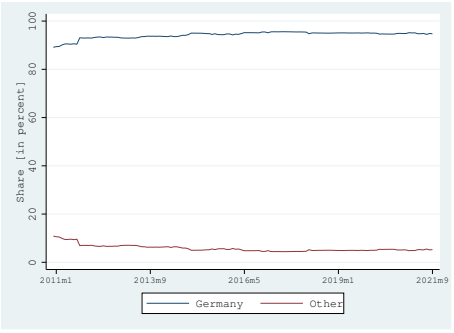
[7] The category "Banking" includes building societies, cooperative banks, mortgage banks, private banks, savings banks, state banks, and universal banks.

[8] The category "Investment Banking and Asset Management" includes asset managers and

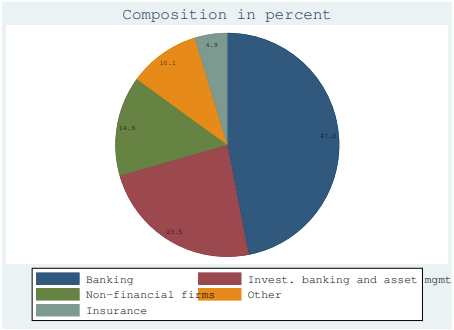
Figure 5: Panel composition: employer country, and employer sector classification



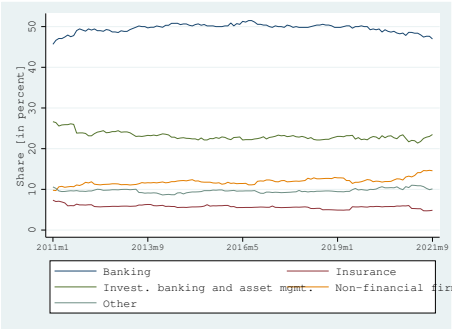
(a) Current composition by employer country



(b) Employer country over survey waves



(c) Current composition by employer sector



(d) Employer sector over survey waves

Notes: These figures illustrate the compostion of the ZEW FMS in terms of employer country and sector. All reported percentages are relative to the number of non-missing observations. The figures on the left show the composition as of September 2021. The figures on the right show how the composition has evolved over the sample period.

financial Firms", "Insurance", and "Other"[9].

Figure 5c shows that about 47 percent of current panel members work in banks, about 23.5 percent in investment banking or asset management firms, and about 4.9 percent in insurance firms. Non-financial firms make up about 14.6 percent and the remaining 10.6 percent fall into the category "Other". As Figure 5d reveals, the composition of the ZEW FMS panel by employer sector has also been very stable over the sample period.

3 Content of the ZEW FMS

The questionnaire of the ZEW FMS has two parts. The first part consists of eight fixed questions and their sub-questions, which are asked every month. The second part varies across surveys. It includes questions that are asked regularly but have a quarterly frequency. It also might include questions on topics of current interest or questions which are included as part of a ZEW study or project.

Figure 6 shows the current questionnaire, which has been in use since April 2021.[10] The eight questions ask for (1) the assessment of the current economic situation, expectations on (2) the future economic situation, (3) inflation rates, (4) short-term interest rates, (5) long-term interest rates, (6) stock indexes, (7) currencies, and (8) the profitability of German sectors. The country coverage for most of the questions is Germany, the Euro area, the US, and China. While China was added in April 2020, Great Britain, France, Italy, and Japan were removed in the same month.

The majority of the questions of the current and the earlier questionnaires ask for the expected direction of the change of a financial or macroeconomic factor for a specific country or region over the coming six months. Overall, all of these questions are similar as they require the formulation of expectations or assessment using four pre-defined categories: a good state (e.g. "good" or "improve"), a neutral state (e.g. "normal" or "not change"), a bad state (e.g. "bad" or "worsen"), and the option to express that one does not know or does not want to answer (e.g. "no estimate"). A typical question of this type is (Question 2a of the April 2021 questionnaire):

In the medium-term (6 months), the overall macroeconomic situation will

	improve	not change	worsen	no estimate
Eurozone	[ ]	[ ]	[ ]	[ ]
Germany	[ ]	[ ]	[ ]	[ ]
USA	[ ]	[ ]	[ ]	[ ]
China	[ ]	[ ]	[ ]	[ ]

In question 2a, the participants are asked to form expectations for the "overall macroeconomic situation" six months ahead for the Eurozone, Germany,

investment firms/banks.

[9] The category "Other" includes academic institutions and associations.

[10] The questionnaire used before can be found in Appendix A.2.

Figure 6: The fixed part of the current questionnaire

ZEW

Financial Market Survey April 2021

Please send back until April 9, 2021

President: Prof. Achim Wambach, PhD
Research Department:
International Finance and Financial Management
P.O. Box 103443, 68034 Mannheim
Tel. +49(0)621 1235 -148 / -311 / -368 / Fax -4223
Project Team:
Frank Brückbauer, Dr. Jesper Riedler, Dr. Michael Schröder

Code:
Company:
Department:
Contact:
Address Changes:
Are you the addressed person? [ ] yes [ ] no (e.g. deputy)

All information will be handled confidentially. Your responses will be analysed anonymously.

1. We estimate the overall macroeconomic situation as being

	good	normal	bad	no estimate
Eurozone	[ ]	[ ]	[ ]	[ ]
Germany	[ ]	[ ]	[ ]	[ ]
USA	[ ]	[ ]	[ ]	[ ]
China	[ ]	[ ]	[ ]	[ ]

2a. In the medium-term (6 months) the overall macro-economic situation will

	improve	not change	worsen	no estimate
Eurozone	[ ]	[ ]	[ ]	[ ]
Germany	[ ]	[ ]	[ ]	[ ]
USA	[ ]	[ ]	[ ]	[ ]
China	[ ]	[ ]	[ ]	[ ]

2b. Please assess the probability of the following medium-term (6 months) developments of the overall macroeconomic situation in Germany (in per cent).

Improvement	Stay same	Worsening	Σ
			100%

2c. The probability of a negative GDP growth in Germany (quarterly growth of the seasonally adjusted real GDP) will be:

current quarter: [_____] per cent
next quarter: [_____] per cent

3. In the medium-term (6 months) the macroeconomic annual inflation rate will

	increase	not change	decrease	no estimate
Eurozone	[ ]	[ ]	[ ]	[ ]
Germany	[ ]	[ ]	[ ]	[ ]
USA	[ ]	[ ]	[ ]	[ ]
China	[ ]	[ ]	[ ]	[ ]

4. In the medium-term (6 months) short-term interest rates (3-month interbank rates) will

	increase	not change	decrease	no estimate
Eurozone	[ ]	[ ]	[ ]	[ ]
USA	[ ]	[ ]	[ ]	[ ]
China	[ ]	[ ]	[ ]	[ ]

5. In the medium-term long-term interest rates (yields on 10-year bonds) will

	increase	not change	decrease	no estimate
Germany	[ ]	[ ]	[ ]	[ ]
USA	[ ]	[ ]	[ ]	[ ]
China	[ ]	[ ]	[ ]	[ ]

6a. In the medium-term (6 month) the following stock market indices will

	increase	not change	decrease	no estimate
EURO-STOXX 50	[ ]	[ ]	[ ]	[ ]
DAX (Germany)	[ ]	[ ]	[ ]	[ ]
Dow Jones (USA)	[ ]	[ ]	[ ]	[ ]
SSE Composite (China)	[ ]	[ ]	[ ]	[ ]

6b. Six month ahead, I expect the DAX to stand at [_____] points. With a probability of 90 per cent the DAX will then range between [_____] and [_____] points.

6c. In view of the fundamentals of the DAX companies the DAX is currently

over-priced [ ] fairly priced [ ] under-priced [ ]

7. In the medium-term (6 months) the following currencies compared to the Euro will

	appreciate	stay constant	depreciate	no estimate
US-Dollar	[ ]	[ ]	[ ]	[ ]
Yuan	[ ]	[ ]	[ ]	[ ]

8. In the medium-term the profit situation of German companies in the following sectors will

	improve	not change	worsen	no estimate
Banks	[ ]	[ ]	[ ]	[ ]
Insurance	[ ]	[ ]	[ ]	[ ]
Vehicles/Automotive	[ ]	[ ]	[ ]	[ ]
Chemicals/Pharma	[ ]	[ ]	[ ]	[ ]
Steel/Metal Products	[ ]	[ ]	[ ]	[ ]
Electronics	[ ]	[ ]	[ ]	[ ]
Machinery	[ ]	[ ]	[ ]	[ ]
Consumption/Trade	[ ]	[ ]	[ ]	[ ]
Construction	[ ]	[ ]	[ ]	[ ]
Utilities	[ ]	[ ]	[ ]	[ ]
Service	[ ]	[ ]	[ ]	[ ]
Telecommunications	[ ]	[ ]	[ ]	[ ]
Inform.-Technologies	[ ]	[ ]	[ ]	[ ]

the United States, and China. They are requested to express their expectations using one of the three directional categories "improve", "not change", and "worsen". The question on the "profit situation of German companies" (question 8) uses exactly the same three categories regarding the six-months-ahead expectations on the profit situation for 13 sectors of the German economy. The "overall macroeconomic situation" is not defined regarding the gross domestic product (GDP) but is a more holistic term. It will certainly comprise GDP, but also other important aspects of the economy as for example the labor market or social stability. Our own experiences show, however, that expectations on the "overall macroeconomic situation" are highly correlated with GDP growth and annual changes of the industrial production.

Very similar types of formulations applying the three categories "increase", "not change", and "decrease" are used in questions 3 (inflation), 4 (short-term interest rates), 5 (long-term interest rates), and 6a (stock market indices). These questions ask for the six-month-ahead expectations of the respective macroeconomic or financial factors. Question 7 asks for the expected change of the value of the euro against US dollar and Chinese yuan applying the categories "appreciate", "stay constant", and "depreciate", also with a horizon of six months ahead.

Question 1 requires an assessment of the currently existing "overall macroeconomic situation". As explained above, the "overall macroeconomic situation" is not defined with regard to GDP but is a more comprehensive term. With regard to the "overall macroeconomic situation", the panel participants are asked to give their evaluation using the three categories "good", "normal", or "bad".

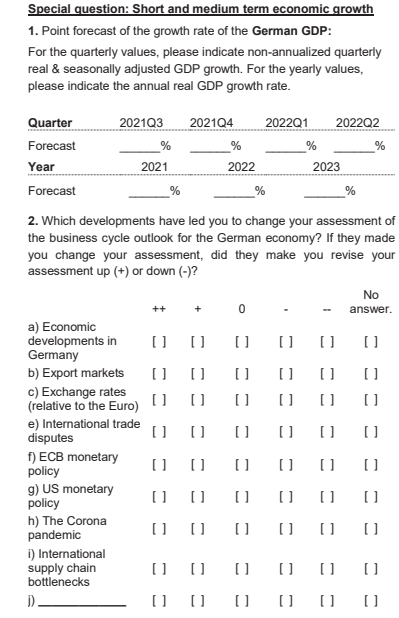
There are four (sub-)questions in the regular monthly questionnaire (2b, 2c, 6b, and 6c) that ask for different types of quantitative answers. In question 2b, the participants are required to give a probability distribution regarding the future development of the macroeconomic situation in Germany. As usual, the time horizon is the next six months. The respondents shall assess probabilities for the three possible states "improvement", "stay same", and "worsening".[11] Question 2c refers to future GDP growth. The respondents are asked to indicate the probabilities of a negative quarter-to-quarter GDP growth for the current quarter and the next quarter.

Question 6b asks for point and interval forecasts for the DAX in six months' time. The participants are asked to provide an expected value. In addition, we ask for a 90 per cent confidence interval for the expected future DAX value. The interval is not restricted to be symmetric. Question 6c asks for the evaluation of the current pricing of the DAX (Deutscher Aktienindex). The participants shall give their assessment of the current DAX level relative to the fundamentals of the DAX companies. The three categories they can use are "over-priced", "fairly priced", and "under-priced".

In addition to these regular monthly questions there are also two sets of special questions which are asked quarterly. Both are shown in Figure 7. In the first month of every quarter, a question is asked on the medium- and long-term growth of German GDP. The special question on GDP consists of two parts. In part one, we ask for the quarter-to-quarter growth for the current and the next three quarters, and for the annual growth rate for the current and the following two years. In part two, we ask for the relevance of several pre-defined factors as

[11] The sum of the probabilities has to sum up to 100 per cent.

Figure 7: Examples of quarterly special questions on GDP, inflation, and the ECB's main refinancing rate



Special question: Short and medium term economic growth

1. Point forecast of the growth rate of the **German GDP:**

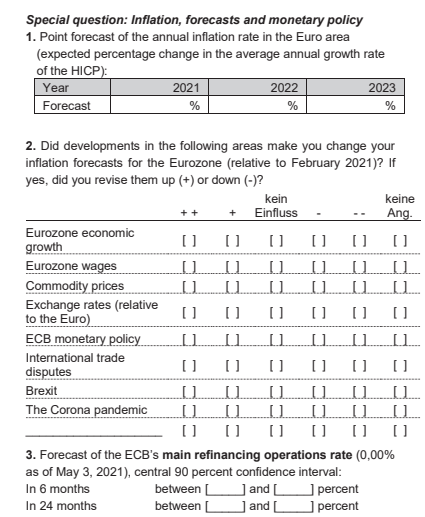
For the quarterly values, please indicate non-annualized quarterly real & seasonally adjusted GDP growth. For the yearly values, please indicate the annual real GDP growth rate.

Quarter	2021Q3	2021Q4	2022Q1	2022Q2
Forecast	_____%	_____%	_____%	_____%
Year	2021	2022	2023	
Forecast	_____%	_____%	_____%	

2. Which developments have led you to change your assessment of the business cycle outlook for the German economy? If they made you change your assessment, did they make you revise your assessment up (+) or down (-)?

	++	+	0	-	--	No answer.
a) Economic developments in Germany	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
b) Export markets	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
c) Exchange rates (relative to the Euro)	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
e) International trade disputes	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
f) ECB monetary policy	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
g) US monetary policy	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
h) The Corona pandemic	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
i) International supply chain bottlenecks	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
j) _____	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

(a) GDP



Special question: Inflation, forecasts and monetary policy

1. Point forecast of the annual inflation rate in the Euro area (expected percentage change in the average annual growth rate of the HICP):

Year	2021	2022	2023
Forecast	%	%	%

2. Did developments in the following areas make you change your inflation forecasts for the Eurozone (relative to February 2021)? If yes, did you revise them up (+) or down (-)?

	+ +	+	kein Einfluss	-	- -	keine Ang.
Eurozone economic growth	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Eurozone wages	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Commodity prices	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Exchange rates (relative to the Euro)	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
ECB monetary policy	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
International trade disputes	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Brexit	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
The Corona pandemic	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
_____	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

3. Forecast of the ECB's **main refinancing operations rate** (0,00% as of May 3, 2021), central 90 percent confidence interval:

In 6 months between [_____] and [_____] percent

In 24 months between [_____] and [_____] percent

(b) Inflation, and the ECB's main refinancing rate

drivers for changes in the GDP forecasts.

In the second month of every quarter, the questions are on the medium- and long-term development of inflation in the Eurozone and on monetary policy. The special question on inflation first asks for the annual inflation rate in the Eurozone in the current and the next two years. We then ask for the relevance of several pre-defined factors as drivers for changes in the inflation forecasts. The third part of this section is on the forecast of the main refinancing facility of the ECB with horizons of six months and twenty-four months.

4 Research using the ZEW FMS dataset

Since the launch of the FMS, ZEW Mannheim has systematically collected the survey responses and has offered the continuously growing database to academic researchers. The ZEW FMS data have been increasingly used in academic studies beginning in the mid-1990s. This section provides an overview of the main topics of these studies and describes how the data have been used. The most recent list of studies can be found under `https://ftp.zew.de/pub/zew-docs/div/Liste_der_Veroeffentlichungen.pdf`.

As of September 2021, we are aware of 52 publications using data from the ZEW FMS. These studies can be broadly classified into two groups. In the first group, ZEW FMS variables are used as input variables to econometric models. Here one can distinguish between two use cases. The first use case is the use of ZEW FMS variables as predictors in a forecasting exercise. Table 3 lists the corresponding studies. The second use case is the use of a ZEW FMS variable as a control variable. Table 4 lists these studies.

The second group of papers studies how financial market experts form their expectations of different macroeconomic and financial variables (see Tables 5, 6, and 7). Many of papers listed in Tables 5 and 6 are on behavioral finance topics. The three papers shown in Table 7 concentrate on the effects of changes in monetary policy, for example, on expectations on future inflation and short-term interest rates. Table 2 provides more details on the distribution of papers across topics:

Table 2: Which are the main topics the publications deal with?

Topics	Number of publications
Forecasting	
Business cycle	9
Exchange rates (in most cases: USD/EUR)	5
Inflation	4
Other	4
ZEW FMS variables as control variables (future economic situation, inflation, interest rates, DAX)	**8**
Expectation formation	
Stocks (e.g. DAX)	11
Exchange rates (in most cases: USD/EUR)	9
Inflation	6
Interest rates	4
Business cycle	2

4.1 Inputs to econometric models

The publications that use ZEW FMS variables as inputs to econometric models are described in more detail in the following sub-section.

4.1.1 Using ZEW variables in forecasting exercises

Are the expectations collected by the ZEW Financial Market Survey useful to forecast the future value of selected target variables? The 17 papers shown in Table 3 examine the prediction performance of different expectation series of the ZEW FMS.

Five out of the 16 papers are primarily interested in business cycle forecasting. Benner and Meier (2004), Breitung and Jagodzinski (2001), Hüfner and Schröder (2002a,b) investigate the forecasting performance of the ZEW Economic Expectations and other leading indicators for Germany, whereas Carstensen et al. (2011) focus on the euro area. Lahl and Hüfner (2003) asks whether the ZEW Economic Expectations can be explained by other leading business cycle indicators.

Hüfner and Schröder (2002a,b) concentrate on the forecast performance evaluation of the ifo business cycle expectations and the ZEW Economic Expectations index for predicting the future change in the German industrial production index. Benner and Meier (2004) also take the ifo and the ZEW expectations indices and additionally analyse the "Earlybird" indicator of the journal Wirtschaftswoche. Going beyond Huefner and Schröder, Benner and Meier also determine the model recursively, and not only the forecasts. Carstensen et al. (2011) compare the forecast performance of seven indicators for the industrial production in the euro area. The indicators are, for example, the OECD composite leading indicator, the European Sentiment Indicator (ESI), the FAZ Euro Indicator, and the ZEW Economic Expectations index.

Four publications examine the forecast performance of exchange rate expectations. These are Bofinger and Schmidt (2003), Dick et al. (2015), Leitner and

Schmidt (2006), and MacDonald et al. (2009). Bofinger and Schmidt (2003) and Leitner and Schmidt (2006) take the aggregated USD/EUR expectations of the ZEW FMS and assess the forecast performance for the future USD/EUR exchange rate. Dick et al. (2015) and MacDonald et al. (2009) use the micro-data, i.e. the expectations on the individual level and try to find out, why some forecasters are better than others. They conclude, inter alia, that persons with a superior forecast performance for exchange rate fundamentals are also better in forecasting exchange rates.

Another four studies concentrate on stock and bond markets. Entorf and Steiner (2007), Entorf et al. (2012), and Hess and Niessen (2010) examine whether a new release of the ZEW Economic Expectations index has impact on capital markets in Germany. Entorf and Steiner (2007) use high-frequency data for the Xetra DAX and estimate the market impact of the release of the ZEW index. This analysis is extended to the impact of the ifo Business Climate index in Entorf et al. (2012). Hess and Niessen (2010) investigate the impact of ZEW and ifo index on the German bund futures market in the context of a Bayesian learning model using high-frequency data. Schmeling and Schrimpf (2011) examine the predictive power of inflation expectations on future stock returns for France, Germany, Italy, Japan, the US and the UK. For all six countries, expected inflation is measured by the inflation expectations from the ZEW FMS.

One paper (Krüger et al., 2011) assesses the forecast performance of the ZEW expectations for the short-term interest rates in the euro area for the future EURIBOR. This paper uses the Carlson and Parkin (1975) method to estimate quantitative short-term interest forecasts using the qualitative expectations of the ZEW FMS.[12] In (Krüger et al., 2011), the quantified EURIBOR survey forecasts are combined with forecasts from a time series model applying a time-varying weighting scheme. Scheufele (2011) uses the quantified ZEW inflation expectations to forecast consumer price inflation. He finds, inter alia, that the inflation expectations, when added to forecasting models, improves forecast accuracy.

There are two studies which are methodologically oriented. Nolte and Pohlmeier (2007) test the forecasting performance of traditional time series methods and compare them with the results using different quantification methods applied to the qualitative expectations from the ZEW FMS. They make use of the following data from the survey (for the period December 1991 until April 2004): German, US and Japanese inflation rates; German, US and Japanese short-term interest rates; DAX index, Dow Jones Industrial Index, Nikkei 225 Index, FTSE 100 Index, CAC 40 Index; the USD/EUR and the GBP/EUR exchange rate. Mokinski (2016) develops a nowcasting model with the aim to estimate the (latent) daily responses using the irregularly distributed responses within the monthly survey interval. This is possible because the time stamps (i.e. the time of arrival) of the individual responses are available. The results are interesting for improving event studies based on the individual responses of the ZEW FMS.

[12] The Carlson and Parkin method uses in our context the relative shares of the three categories of the ZEW FMS data, namely "increase", "stay the same", and "decrease" and assumes a normal distribution for the underlying continuous variable. As a result, a quantitative future value for the EURIBOR is estimated based on the original qualitative expectations.

Table 3: Studies using ZEW FMS variables in forecasting exercises

Authors/Year of Publ.	**Topic**	**ZEW FMS data used**
Benner and Meier (2004)	Comparison of the forecasting power of ifo and ZEW leading business cycle indicators for Germany	ZEW Economic Expectations for Germany (index)
Bofinger and Schmidt (2003)	Assessing the performance of different forecasts for USD/EUR. Use of forecasts from Reuters, Consensus Economics, and ZEW.	Expectations on USD/EUR. The study uses the aggregated expectations only.
Breitung and Jagodzinski (2001)	Comparison of the forecasting power of several leading business cycle indicators for Germany	ZEW Economic Expectations for Germany (index)
Carstensen et al. (2011)	Evaluating different indicators to predict the industrial production index of the eurozone	Expected future economic situation in the euro area
Dick et al. (2015)	Performance of exchange rate forecasts and relationship to forecasting performance for fundamental factors	Expectations on USD/EUR, GBP/EUR, JPY/EUR, short-term interest rates, inflation, economic activity for the included countries. The study is based on using individual expectations (panel data)
Entorf and Steiner (2007)	Event study: Estimation of the reaction of the 15-second Xetra DAX returns on the release of the ZEW Economic Expectations index	ZEW Economic Expectations for Germany (index)
Entorf et al. (2012)	Event study: Estimation of the reaction of the 15-second Xetra DAX returns on ifo Business Climate and ZEW Economic Expectations index	ZEW Economic Expectations for Germany (index)
Hess and Niessen (2010)	Using a Bayesian learning model the study analyzes the market impact of releases of the ifo Business Climate and the ZEW Economic Expectations on the German bund futures market.	ZEW Economic Expectations for Germany (index)
Hüfner and Schröder (2002a,b)	Comparison of the forecasting power of ifo and ZEW leading business cycle indicators for Germany	ZEW Economic Expectations for Germany (index)
Krüger et al. (2011)	Combination of time series model with survey data to forecast the EURIBOR	Expectations on the EURIBOR. Individual data are aggregated using the Carlson and Parkin (1975) method.
Lahl and Hüfner (2003)	The study examines if the ZEW Economic Expectations for Germany can be (partly) explained by other leading business cycle indicators of Germany and the US (such as US Consumer Confidence, yield curve indicators, ifo indicator etc.)	ZEW Economic Expectations for Germany (index)
Leitner and Schmidt (2006)	Measuring the performance of different forecasts for USD/EUR. Use of forecasts from Reuters, Consensus Economics, and ZEW.	Expectations on USD/EUR. The study uses the aggregated expectations only.
MacDonald et al. (2009)	Performance of exchange rate forecasts and relationship to forecasting performance for fundamental factors	Expectations on USD/EUR, GBP/EUR, JPY/EUR, short-term interest rates, inflation, economic activity for all countries included. Use of personal characteristics of the forecasters. The study is based on individual expectations (panel data).
Mokinski (2016)	Development of a nowcasting model. Using a state-space model the author develops estimators for daily results using the irregularly distributed responses within the monthly survey interval. The results are interesting for improving event studies based on the individual responses of the ZEW FMS.	Assessment of the current economic situation, expected future economic situation, inflation expectations, and expected short-term interest rates in Germany, the US, and the euro area. The study is based on the individual expectations.
Nolte and Pohlmeier (2007)	Evaluation of different methods for the quantification of qualitative survey data, using forecasts to assess the quality of quantification and comparison with the results of time series models	Expectations on German, US and Japanese inflation rates; German, US and Japanese short-term interest rates; Deutscher Aktienindex 30 (DAX 30), Dow Jones Industrial Index, Nikkei 225 Index, FTSE 100 Index, CAC 40 Index; the USD/EUR foreign exchange (FX) rate, and GBP/EUR FX rate.
Scheufele (2011)	Assessing the quality of inflation forecasts using ZEW data	ZEW inflation expectations (index) for Germany
Schmeling and Schrimpf (2011)	The paper investigates the predictive power of expected inflation for stock returns in Germany, the US, the UK, France, Italy, and Japan.	Expectations on inflation from the ZEW FMS for Germany, the US, the UK, France, Italy, and Japan. Use of the indices.

4.1.2 Using ZEW variables as control variables

Quite a few studies on different economic topics use data from the ZEW FMS as control variables to capture the effect of expectations. Two of them, Alonso Alvarez et al. (2020) and Roos (2006) use the ZEW Economic Expectations index for Germany. Bekaert and Hoerova (2016) take the ZEW expectations on the future economic situations for Germany and the US in form of qualitative expectations, quantified by the Carlson and Parkin (1975) method.

D'Acunto et al. (2016), Franz (2005), and Rieth et al. (2016) make use of the ZEW inflation expectations for Germany. D'Acunto et al. (2016) and Rieth et al. (2016) use the qualitative expectations index, whereas Franz (2005) takes the qualitative inflation expectations, quantified via the Carlson and Parkin (1975) method.

The expectations on the short-term interest rates in the Euro area are included in a leading inflation indicator for the Eurozone in de Bondt et al. (2021) and Laudenbach et al. (2021) use the ZEW DAX expectations as an indicator of investor attention.

In the recent years, the use of expectation series from the ZEW FMS as input variables in economic models has increased, with six publications since 2016 and three since 2020.

4.2 Expectation formation

Tables 5 and 6 list 20 papers which use data from the ZEW FMS to analyze expectation formation. Many of these studies examine specific behavioral finance topics like overconfidence, the effect of framing on expectations, herding behavior or differences between "chartists" and "fundamentalists". Table 7 lists another three papers on the effect of monetary policy on inflation expectations.

The first study using data from the ZEW FMS to investigate expectations formation is Marnet (1996). The data of this dissertation are the aggregated expectations of the complete ZEW FMS between its launch in December 1991 and December 1993. A main part of the study is the analysis of expectations with regard to the – at that time – most important expectations hypotheses such as static, extrapolative, adaptive, and regressive expectations. The investigations are performed using regression methods applied to the aggregate expectations indices (i.e. the difference between the categories "increase" and "decrease" in percent of the total replies). Other relatively early studies (König et al. (1998), König et al. (1999), and Szczesny et al. (1997)) also only use the expectations in form of these aggregates. König et al. (1998) examine the USD/DM expectations, while König et al. (1999) estimate relationships between capital market expectations (short- and long-term interest rates, German DAX, US Dow Jones index) in the US and Germany. Szczesny et al. (1997) develop a sentiment indicator for the German capital market, the G-Mind (German Market indicator) which is still calculated and published every month up to now. The G-Mind consists of the German expectations indices for short- and long-term interest, inflation, and the DAX. It is thus an indicator for the overall sentiment of the German capital market.

Almost all of the other, more recent, papers shown in Table 5 and 6 use the expectations data of the ZEW FMS on the individual level, i.e. the individual responses to the questions of the survey.

Table 4: Studies using ZEW FMS variables as control variables

Authors/Year of Publ.	**Topic**	**ZEW FMS data used**
Alonso Alvarez et al. (2020)	The study investigates the effect of the unconventional monetary policies of four major central banks (the Fed, ECB, BoE and BOJ) on market uncertainty.	The ZEW Economic Expectations index is amongst a set of 21 control variables used in the event study section of the publication.
Bekaert and Hoerova (2016)	The study uncovers unobserved risk aversion and fundamental uncertainty from the observed time series of the VIX and credit spreads. Applications for Germany and the US.	ZEW expectations on the future economic situations for Germany and the US are used to measure macroeconomic uncertainty. Quantification of the qualitative data using the Carlson/Parkin method.
D'Acunto et al. (2016)	Effect of Unconventional Fiscal Policy on Consumption Expenditure	Index of inflation expectations for Germany is used as a control variable
de Bondt et al. (2021)	Development of leading inflation indicators for the euro area (Area-wide Leading Inflation CyclE (ALICE))	Expectations on short-term interest rates for the euro area were included in the leading indicators for the core inflation for data up to 2009, but not for data up to 2016
Franz (2005)	Estimation of the NAIRU for Germany	ZEW inflation expectations for Germany are one of two sources to estimate expected inflation rates. The qualitative expectations are quantified by the Carlson/Parkin method.
Laudenbach et al. (2021)	The study uses data from a German online brokerage and a survey to show that retail investors sharply reduce risk-taking in response to nearby firm bankruptcies, which are not predictive of returns.	ZEW DAX expectations are part of a set of macroeconomic factors which is used to measure investor attention.
Rieth et al. (2016)	Estimation of the effects of non-standard ECB policy on the macroeconomy in the euro area and in Germany using VAR models.	For Germany one of the variables used are the ZEW inflation expectations (index).
Roos (2005)	The study analyzes the relationship between expert and consumer expectations about general economic conditions in Germany in order to make conclusions about the rationality of expectations.	ZEW Economic Expectations for Germany (index) are used to proxy for expert expectations.

Table 5: Studies on expectation formation that use ZEW FMS variables

Authors/Year of Publ.	**Topic**	**ZEW FMS data used**
Breitung and Schmeling (2013)	Comparison of the characteristics of quantitative expectations with qualitative expectations that have been quantified. In particular, analysis of the results of the original Carslon/Parkin method and extensions.	DAX point forecasts and qualitative DAX expectations. Use of the individual expectations data.
Brückbauer (2020)	The study analyzes how stock market expectations are formed. In particular, it investigates the sources of the variation in expected returns, the relationship between expected returns and economic conditions, and it evaluates the accuracy of DAX return forecasts.	DAX point forecasts, qualitative DAX expectations, expectations on the general economic situation, inflation rate, and long-term interest rates for Germany, and expectations on the EURIBOR. Use of individual expectations, aggregate indices, and personal characteristics of the respondents.
Deaves et al. (2010)	The paper examines both the statics and dynamics of overconfidence of stock market forecasters. The stock market considered is the German DAX.	DAX point forecasts, DAX interval forecasts. Personal characteristics of the respondents. All expectations / forecasts used are individual data.
Deaves et al. (2019)	Based on the finding that German stock market forecasters are overconfident, the paper shows how filtering out the most overconfident forecasters can improve the average predictions for the German DAX.	DAX point forecasts, DAX interval forecasts, personal characteristics of the respondents. All expectations / forecasts used are individual data.
Deaves et al. (2021)	"Do economic forecasters believe the stock market is efficient?" is the leading question of this paper.	DAX point forecasts as well as the answers to the question whether the DAX is currently overpriced, fairly priced, or underpriced (DAX valuation). Use of individual responses.
Dick and Menkhoff (2013)	It is analyzed if the participants of the ZEW Financial Market survey are either chartists or fundamentalists when forming expectations on the USD/EUR exchange rate. The differences in expectation formation and the consequences for forecast performance are investigated.	Expectations on the USD/EUR exchange rate on the individual level, personal characteristics of the respondents. In addition, the answers to a special question on whether participants ("self assessment") are considering charts/technical analysis and/or fundamentals (asked in 2004, 2007, 2011) are used.
Glaser et al. (2019)	The study focusses on the question if expectations differ when forecasters are asked for future prices in contrast to future returns	For part 3 of the study, data from a survey experiment, which was conducted as part of the ZEW FMS, is used. This survey experiment consisted of 12 waves during the period Sept. 2012 until June 2015. The survey questionnaire was sent to the panel members of the monthly ZEW Financial Market Survey.
Gloede and Menkhoff (2014)	This study examines financial professionals' overconfidence in their forecasting performance. The individuals' self-rating of performance is compared to their true performance. The target variable are the USD/DM and USD/EUR exchange rates, respectively.	Self-rating of forecast performance asked as special question in April 2007 and October 2008. In addition, qualitative expectations on USD/DM and USD/EUR are used, and also personal characteristics of the respondents.
Hoffmann et al. (2017)	The study investigates if and how the stock market returns a person has witnessed in the past influence expected future stock returns. The stock market considered is the DAX.	Point forecasts of the DAX, qualitative expectations of the future economic situation and assessment of the current economic situation for Germany. Personal characteristics of the respondents are used. The study makes use of the data on the individual level.
König et al. (1998)	Analysis of the USD/DM expectations of the ZEW survey using ordered probit models. "Explanatory" variables are macro variables and other expectations data.	Expectations on USD/DM, the future economic situation, long-term interest rates, inflation, stock indexes of both Germany and the US. The expectations data used are aggregated.

Table 6: Studies on expectation formation that use ZEW FMS variables - cont.

Authors/Year of Publ.	Topic	ZEW FMS data used
König et al. (1999)	Estimation of relationships between capital market expectations for the US and for Germany using VAR models.	Expectations on short-term and long-term interest rates for the US and Germany as well as the German DAX, and the US Dow Jones stock index. All expectations data used are aggregated indices.
Lux (2009)	The focus of the paper is on the question how much "social interaction" is among the participants of the ZEW FMS, i.e. how strong is the orientation towards the opinion of peers in contrast to rational expectation formation.	Individual expectations on the future economic situation in Germany, aggregated in the three categories "increase", "no change", "decrease".
Marnet (1996)	First extensive analysis of the expectations of the ZEW Financial Market Survey. Examination of the characteristics of the expectations using univariate and multivariate economic models.	Expectations on current and future economic conditions, short- and long-term interest rates, inflation, stock indices, exchange rates, etc. for all countries included in the ZEW FMS. The expectations data are used in form of aggregated indices and quantified using the Carlson/Parkin method.
Menkhoff and Rebitzky (2008)	The study investigates the relationship between investor sentiment and the USD/EUR exchange rate in the long term. It shows how investor sentiment is connected to fundamentals (PPP) at longer horizons and how deviations from long-run PPP are corrected.	Expectations on the USD/EUR exchange rate (index)
Menkhoff et al. (2008)	It is analyzed how strongly the USD/EUR expectations of "Chartists" and "Fundamentalists" are driven by the PPP model. Also the forecast performance of both groups is evaluated.	Individual expectations on the USD/EUR and USD/DM, respectively.
Menkhoff et al. (2009)	The paper examines heterogeneity in exchange rate expectations for USD/EUR), GBP/EUR, and JPY/EUR, and its determinants.	Individual expectations on USD/EUR, GBP/EUR, and JPY/EUR.
Nolte et al. (2019)	The (individual) forecasting errors of the participants of the ZEW FMS are examined in detail using different econometric techniques. Forecasting errors are, e.g., related to individual and macroeconomic factors.	Expectations on German inflation, German short term and long-term interest rates, DAX, USD/EUR exchange rate. The data used are the qualitative expectations on the individual level. In addition, personal characteristics of the respondents are used.
Rangvid et al. (2009)	It is examined if herding or "higher-order expectations" can be found in the behavior of the individual responses of the ZEW FMS on international stock markets.	Expectations on stock market indices in the US, Germany, UK, France, Italy, and Japan. In addition, personal characteristics of the respondents are used. All expectations data used are on the individual level.
Schröder and Dornau (2002)	It is analyzed whether financial market analysts use structural economic models when forecasting exchange rates.	Expectations on US dollar, British pound, Japanese yen, French franc and Italian lire (defined against the German mark) as target variable. In addition, expectations on future economic conditions, short- and long-term interest rates, and inflation rates for all countries. All expectations data used are on the individual level.
Szczesny et al. (1997)	Development and estimation of the G-Mind, a sentiment indicator for the German capital market.	Expectations for Germany regarding short-term and long-term interest rates, inflation, EURIBOR, and the DAX. All data used are aggregated indices.

Seven of the papers focus on stock expectations and in particular the expectations on the German DAX. Deaves et al. (2010) is the first paper to use the DAX point and interval forecasts. Since mid-2003, the regular questionnaire of the ZEW FMS has asked for the six-month-ahead forecast of the DAX index and a 90 per cent confidence interval for the point forecast. Deaves et al. (2010) and Deaves et al. (2019) use these data for analyzing the statics and dynamics of overconfidence and for the effect of overconfidence on the ability to forecast future stock returns. In Deaves et al. (2021), the DAX point forecasts are combined with the responses on the question regarding the fundamental value of the DAX ("Is the DAX currently overpriced, fairly priced, or underpriced?"). Using these data the study investigates whether the survey respondents believe in stock market efficiency. Brückbauer (2020) examines how the DAX expectations, in particular the DAX point forecasts, are formed. He uses not only DAX point forecasts, but also the qualitative expectations on the DAX, the future economic situation in Germany, inflation, and short- and long-term interest rates. He investigates which factors drive the variation in expected DAX returns and he also evaluates the precision of DAX return forecasts. Hofmann et al. (2017) take the DAX point forecasts and investigate if the DAX returns the respondents witnessed in the past influence how they form expectations on the future DAX. As control variables they use (qualitative) expectations from the ZEW FMS on the economic situation. They make also use of personal characteristics of the respondents like gender, age, and year of career start.

Breitung and Schmeling (2013) focus on methods which are used to quantify qualitative survey data, for example the Carlson and Parkin (1975) method and more flexible methods with time-varying parameters. The authors use DAX point forecasts and qualitative DAX expectations to evaluate different econometric procedures to quantify the qualitative DAX expectations. The comparison of the quantified qualitative expectations with the quantitative DAX forecasts (from the same respondents and for the same time horizon) makes it possible to analyze the characteristics of the quantification procedures in greater detail.

The paper of Rangvid et al. (2009) focuses on so called "higher-order expectations". If higher-order expectations persist in a market, an investor does not only invest in those assets they prefer as best performing assets, but also takes into account what other investors will choose to invest in. They will also take into account that other investors will act in the same way (see Rangvid et al. (2009: 2)). In their study, the authors try to differentiate the hypothesis of higher-order expectations from the hypothesis of herding behavior. Their study is based on the qualitative expectations from the ZEW FMS on the stock markets of France, Germany, Italy, Japan, the US, and the UK.

A paper that also deals with herding is Lux (2009). The author focuses on the response behavior for the question on the future economic situation in Germany. He uses neither the individual data nor the aggregate indices but the ratio of replies for the three categories "increase", "no change", and "decrease". The author uses a stochastic dynamic model on social interaction and finds that the respondents of the ZEW FMS show a strong tendency to follow the opinion of their peers.

Another seven papers deal with the expectations on exchange rates.[13] The

[13]The publication of König et al. (1998) on the USD/DM expectations has already been

majority of these papers investigate the expectations on the USD/EUR exchange rate, for earlier periods also on the USD/DM exchange rate. One of the older publications, Schröder and Dornau (2002), investigates whether the respondents have structural economic exchange rate models (flexible- or sticky-price model, Mundell Fleming model) in mind when forming expectations on exchange rates, future economic conditions, inflation, and interest rates.

Menkhoff and Rebitzky (2008) estimate the long-term relationships between USD/EUR expectations and (relative) prices and investigate how deviations from long-run purchasing power parity (PPP) is reflected in the exchange rate expectations. Whereas this paper uses the expectations index, the individual responses are the main data source for Menkhoff et al. (2008). In this second study, the authors investigate if and how strongly the two groups of "chartists" and "fundamentalists" are driven by the PPP model in contrast to so called technical forecasting models. They find, inter alia, that fundamentalists believe too much in mean reversion, which leads to a poor forecasting performance, whereas "chartists" rely too much on extrapolating short-term trends.

Menkhoff et al. (2009) examine the sources of heterogeneity in exchange rate expectations for USD/EUR GBP/EUR, and JPY/EUR applying the chartist-fundamentalist model. Some of the findings are that heterogeneity decreases when exchange rates deviate relatively strongly from their fundamentals, the group of fundamentalists expects a mean-reverting exchange rate behavior. Strong movements in the exchange rates lead fundamentalists to shift temporarily into the group of chartists.

Dick and Menkhoff (2013) investigate the different behaviors of chartists and fundamentalist for the USD/EUR in more detail. They make use of the individual USD/EUR expectations from the ZEW FMS and combine this dataset with the answers to a special question in which the participants had been asked for a self-assessment regarding the use of charts and fundamentals. They find, inter alia, that the choice of forecasting tools is influenced by recent experience: when exchange rates exhibit trends, the respondents tend to switch toward chartism; in contrast, they move away from chartism when the exchange rate deviates substantially from its longer-term average.

Gloede and Menkhoff (2014) deal with the USD/DM and USD/EUR expectations and investigate the overconfidence of the respondents. In addition to the regular ZEW FMS data, they make use of responses to special question regarding a self-assessment on how strong they see their own forecasting precision compared to the average of all survey participants. To account for person-specific characteristic Gloede and Menkhoff (2014) include data on gender, age, and job function into their analysis. They find that high overconfidence goes along with a high self-rating and a low forecasting performance.

Glaser et al. (2019) study the so called framing effect. In particular, the authors investigate in three sub-studies if professional forecasters think of asset prices and asset returns in the same way. In the third sub-study data from an experiment, conducted within the ZEW FMS, are used. This survey experiment consisted of 12 waves between September 2012 and June 2015. The respondents received an additional questionnaire to collect the data needed for the experiment. One main result of the paper is that it actually significantly matters if forecasters are asked to form expectations on prices or on returns.

mentioned at the beginning of this section and is therefore not further discussed here.

Nolte et al. (2019) search for the determinants of individual forecast errors for several expectation series from the ZEW FMS. They analyze the qualitative expectations for German short- and long-term interest rates, the DAX, and the USD/EUR exchange rate using a quantal response model with misclassification. Their estimation approach allows them to analyze forecasting behavior at the individual level, but also for average forecasts for specific groups of forecasters or for the overall group of respondents.

Table 7: Monetary policy and inflation expectations

Authors/Year of Publ.	Topic	ZEW FMS data used
Heinemann and Ullrich (2006)	Analysis of the effect of the monetary regime shift from the Bundesbank to the ECB on inflation expectations.	ZEW inflation expectations for Germany. Quantitative inflation expectations are calculated using the Carlson/Parkin method.
Schmidt and Nautz (2012)	The study investigates how financial experts perceive the monetary policy of the European Central Bank (ECB) using panel models and individual data of the ZEW Financial Market Survey.	ZEW expectations on short-term interest rates, inflation, and the future economic situation in the euro area.
Ullrich (2008)	Analysis of the informational content of the monthly introductory statements of the ECB president explaining interest rate decisions with regard to inflation expectations of financial market experts for the euro area.	The qualitative expectations on inflation for the euro area, quantified by using the Carlson/Parkin method.

The three studies mentioned in Table 7 examine the effects of monetary policy changes on inflation expectations as well as interest rates expectations. Heinemann and Ullrich (2006) and Ullrich (2008) use the aggregated inflation expectations for Germany and calculate quantitative inflation forecasts applying the Carlson and Parkin (1975) method. Heinemann and Ullrich (2006) investigate the effect of the monetary regime shift from the German Bundesbank to European Central Bank. They could not find a strong and lasting impact on the formation of inflation expectations for Germany. Ullrich (2008) analyzes if the informational content of the monthly introductory statements of the ECB president explaining interest rate decisions have a significant effect on inflation expectations. She finds that the wording indicator on the stance of the monetary policy of the ECB significantly contributes to explain inflation expectations.

Schmidt and Nautz (2012) examine how financial market experts perceive the monetary policy of the ECB. The authors use a Taylor-rule-type reaction function and combine the qualitative expectations on short-term interest rates, inflation, and output from the ZEW FMS. They estimate the reaction function using individual expectations and applying a panel random coefficient model. They show, inter alia, that the financial market experts systematically misperceived the ECB's interest rate rule.

As Tables 5, 6, and 7 show, there has been a steady interest in using ZEW FMS data in studies on expectation formation. Since 2003, the number of publications in this field has increased. Part of this increase in the years from 2010 on is due the additional use of DAX point- and interval-forecasts in six academic studies. The DAX point- and interval forecasts are part of the regular monthly questionnaire since 2003 and the first study making use of this information was published in 2010 (Deaves et al., 2010).

Table 8: Studies using data from special questions or special surveys

Authors/Year of Publ.	Topic	ZEW FMS data used
Dick and Menkhoff (2013)	It is analyzed if the participants of the ZEW Financial Market survey are either chartists or fundamentalists when forming expectations on the USD/EUR exchange rate. The differences in expectation formation and the consequences for forecast performance are investigated.	Expectations on the USD/EUR exchange rate on the individual level, personal characteristics of the respondents. In addition, the answers to a special question on whether participants ("self assessment") are considering charts/technical analysis and/or fundamentals (asked in 2004, 2007, 2011) are used.
Glaser et al. (2019)	The study focusses on the question if expectations differ when forecasters are asked for future prices in contrast to future returns	For part 3 of the study, data from a survey experiment, which was conducted as part of the ZEW FMS, is used. This survey experiment consisted of 12 waves during the period Sept. 2012 until June 2015. The survey questionnaire was sent to the panel members of the monthly ZEW Financial Market Survey.
Gloede and Menkhoff (2014)	This study examines financial professionals' overconfidence in their forecasting performance. The individuals' self-rating of performance is compared to their true performance. The target variable are the USD/DM and USD/EUR exchange rates, respectively.	Self-rating of forecast performance asked as special question in April 2007 and October 2008. In addition, qualitative expectations on USD/DM and USD/EUR are used, and also personal characteristics of the respondents.
Köhler and Lang (2008)	Trends in Retail Banking	Study based on the responses to special questions on retail banking (conducted between January and April 2008)
Meitner et al. (2002)	Survey on necessary improvements of accounting standards and the likelihood of accounting fraud in Germany after the ENRON scandal	Special questions as part of the ZEW Financial Market Survey, conducted in March 2002.
Meitner et al. (2002)	Survey on consequences for company valuation after the ENRON scandal	Special questions as part of the ZEW Financial Market Survey, conducted between June 26 and July 9, 2002.
Schröder and Schüler (2006)	Survey-based study on private savings, old-age provisions, and the interrelations between aging societies and capital markets.	Data are stemming from a special survey as part of the ZEW Financial Market Survey. The survey was conducted in June 2004 for a project commissioned by the Allianz Group.

4.3 Studies using data from special questions or special surveys

The bulk of the studies presented in Sections 4.1 and 4.2 are mainly based on the expectations stemming from the regular questionnaire of the ZEW FMS. Some of these studies also use data on personal characteristics like gender, age, year of career start, job function, type of the company in which the respondent works.

The seven studies shown in Table 8 make use of special questions or special surveys send out to the panel of participants of the ZEW FMS. Although the first three of them, Dick and Menkhoff (2013), Glaser et al. (2019), and Gloede and Menkhoff (2014) have already been described in the chapter above on expectation formation (see also Table 3), we present these papers again in the following paragraphs.

Dick and Menkhoff (2013) examine the different behavior of chartists and fundamentalist for the USD/EUR. They make use of the individual USD/EUR expectations from the ZEW FMS and combine this dataset with the answers to a special question in which the participants were asked for a self-assessment regarding the use of charts and fundamentals. This special question was asked in the years 2004, 2007, and 2011. The authors find, inter alia, that the choice of forecasting tools is influenced by recent experience: when exchange rates exhibit trends, the respondents tend to switch toward chartism; in contrast, they move away from chartism when the exchange rate deviates substantially from its longer-term average.

Gloede and Menkhoff (2014) analyze the USD/DM and USD/EUR expec-

tations and investigate the overconfidence of the respondents. In addition to the regular ZEW FMS data they make use of responses to a special question regarding a self-assessment on how strong they see their own forecasting precision compared to the average of all survey participants. This special question was asked in April 2007 and in June 2015. To account for person specific characteristic Gloede and Menkhoff (2014) include also data on gender, age, and job function into their analysis. They find that high overconfidence goes along with a high self-rating and a low forecasting performance.

Glaser et al. (2019) is a study on the so called framing effect. In particular, the authors investigate in three sub-studies if professional forecasters think of asset prices and asset returns in the same way. In the third sub-study data from an experiment, conducted with the participant panel of the regular ZEW FMS, are used. This survey experiment consisted of 12 waves during September 2012 and June 2015. The panel member of the ZEW FMS received an additional questionnaire to collect the data needed for this experiment. One main result of the paper is that it actually significantly matters if forecasters are asked to form expectations on prices or on returns.

The other four studies shown in Table 8 are using data from special surveys on selected economic topics with the aim of developing policy recommendations. Meitner et al. (2002,?) focus on improvements in accounting after the ENRON scandal, Schröder and Schüler (2006) investigate expert opinions on capital markets and demographic changes, and Köhler and Lang (2008) focus on developments in retail banking. The special surveys were distributed to the participant panel of the ZEW FMS.

5 Data access

ZEW Mannheim provides academic researchers free access to the anonymized ZEW FMS micro data. There are no restrictions with respect to research topics. The ZEW FMS research dataset is offered through the research data center ZEW-FDZ. To request access to the ZEW FMS data, interested researchers shall send an email to fdz@zew.de, including:

- the research topic
- the requested parts of the research dataset (see the information on the ZEW FMS research dataset below)

Based on this information, ZEW Mannheim will prepare a data usage agreement, which will have to be signed by the interested researcher or the research institution they are working in. A template of the data usage agreement can be found under `https://kooperationen.zew.de/en/zew-fdz/provided-data/zew-financial-market-test`. After the data usage agreement is signed by both parties, ZEW Mannheim will provide electronic access to the ZEW FMS research dataset.

The ZEW FMS research dataset consists of five Stata files.[14] These include 1) information on survey waves, 2) static information on panel members, 3) static information on panel members' employers, 4) dynamic information of

[14] Other formats are available on request.

panel members and 5) the results of the ZEW FMS. Appendix A.1 details the content of these files. The variables in the files as well as their values are labeled.

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A Appendix

A.1 The research dataset

The ZEW FMS research dataset consists of five Stata files. In all of these files, panel members and survey waves are identified by a unique person identification number ("person_id") and a unique survey identification number ("survey_id"). The following tables provide more details about the contents of these files.

Table 9: Contents of the file "fmt_survey_waves.dta"

Variable name	Variable label	Comment
survey_id	Survey ID	Survey wave identifier
ts_first_response	timestamp of first response	Start of the survey wave
ts_last_response	timestamp of last response	End of the survey wave
no_active_panelmembers	Number of active panel members	-
no_responses	Number of responses	-

Table 10: Contents of the file "fmt_panelmember.dta"

Variable name	Variable label	Comment
person_id	Person ID	Panel member identifier
gender	Gender	-
careerentryyear	Career entry year	-
birthyear	Birthyear	-
valid_from	Survey ID panel entry	-
valid_to	Survey ID panel exit	-
language	Language	Values: 1:"German", 2:"English"

Table 11: Contents of the file "fmt_panelmember2.dta"

Variable name	Variable label	Comment
person_id	Person ID	-
as_of	Survey ID of data collection	Survey wave, in which the data was collected
Variable in the paper: *occupation*		
job_econ	Professional activities: Economic research	Values: 1: "Main activity", 2: "Side activity", 3: "No activity"
job_trading	Professional activities: Trading	Values: 1: "Main activity", 2: "Side activity", 3: "No activity"
job_financing	Professional activities: Financing	Values: 1: "Main activity", 2: "Side activity", 3: "No activity"
job_management	Professional activities: Management	Values: 1: "Main activity", 2: "Side activity", 3: "No activity"
job_sec_research	Professional activities: Security research	Values: 1: "Main activity", 2: "Side activity", 3: "No activity"
job_portf_mngmnt	Professional activities: Fund management	Values: 1: "Main activity", 2: "Side activity", 3: "No activity"
job_investm_advice	Professional activities: Investment advice	Values: 1: "Main activity", 2: "Side activity", 3: "No activity"
job_wealth_mngmnt	Professional activities: Wealth management	Values: 1: "Main activity", 2: "Side activity", 3: "No activity"
job_risk_mngmnt	Professional activities: Risk management	Values: 1: "Main activity", 2: "Side activity", 3: "No activity"
job_other	Professional activities: Other	Values: 1: "Main activity", 2: "Side activity", 3: "No activity"
prof_dax_forecasts	Predicts the DAX outside of the ZEW FMS	*profdax*, values: 1: "Yes", 2: "Yes, sometimes", 3: "No, never"

Table 12: Contents of the file "fmt_survey_waves.dta"

Variable name	Variable label	Comment
person_id	Person ID	Panel member identifier
employer_id	Employer ID	Employer identifier
employer_country	Employer country name	-
employer_sector	Employer sector name	-

Table 13: Contents of the file "fmt_expectations.dta"

Variable name	Variable label	Comment
person_id	Person ID	Panel member identifier
survey_id	Survey ID	Survey wave identifier
timestamp	Timestamp	Timestamp of response
y0_ez	Overall macroeconomic situation, current, Eurozone (Q1)	Values: 1: "good", 2: "normal", 3:"bad", 4:"no estimate"
y0_deu	Overall macroeconomic situation, current, Germany (Q1)	Values: 1: "good", 2: "normal", 3:"bad", 4:"no estimate"
y0_usa	Overall macroeconomic situation, current, USA (Q1)	Values: 1: "good", 2: "normal", 3:"bad", 4:"no estimate"
y0_chn	Overall macroeconomic situation, current, China (Q1)	Values: 1: "good", 2: "normal", 3:"bad", 4:"no estimate"
y0_jap	Overall macroeconomic situation, current, Japan (Q1)	Values: 1: "good", 2: "normal", 3:"bad", 4:"no estimate"
y0_uk	Overall macroeconomic situation, current, UK (Q1)	Values: 1: "good", 2: "normal", 3:"bad", 4:"no estimate"
y0_fra	Overall macroeconomic situation, current, France (Q1)	Values: 1: "good", 2: "normal", 3:"bad", 4:"no estimate"
y0_it	Overall macroeconomic situation, current, Italy (Q1)	Values: 1: "good", 2: "normal", 3:"bad", 4:"no estimate"
y_ez	Overall macroeconomic situation, chg., in 6 months, Eurozone (Q2a)	Values: 1: "improve", 2: "not change", 3:"worsen", 4:"no estimate"
y_deu	Overall macroeconomic situation, chg., in 6 months, Germany (Q2a)	Values: 1: "improve", 2: "not change", 3:"worsen", 4:"no estimate"
y_usa	Overall macroeconomic situation, chg., in 6 months, USA (Q2a)	Values: 1: "improve", 2: "not change", 3:"worsen", 4:"no estimate"
y_chn	Overall macroeconomic situation, chg., in 6 months, China (Q2a)	Values: 1: "improve", 2: "not change", 3:"worsen", 4:"no estimate"
y_jap	Overall macroeconomic situation, chg., in 6 months, Japan (Q2a)	Values: 1: "improve", 2: "not change", 3:"worsen", 4:"no estimate"
y_uk	Overall macroeconomic situation, chg., in 6 months, UK (Q2a)	Values: 1: "improve", 2: "not change", 3:"worsen", 4:"no estimate"
y_fra	Overall macroeconomic situation, chg., in 6 months, France (Q2a)	Values: 1: "improve", 2: "not change", 3:"worsen", 4:"no estimate"
y_it	Overall macroeconomic situation, chg., in 6 months, Italy (Q2a)	Values: 1: "improve", 2: "not change", 3:"worsen", 4:"no estimate"
pi_ez	Annual inflation rate, chg., in 6 months, Eurozone (Q3)	Values: 1: "increase", 2: "not change", 3:"decrease", 4:"no estimate"
pi_deu	Annual inflation rate, chg., in 6 months, Germany (Q3)	Values: 1: "increase", 2: "not change", 3:"decrease", 4:"no estimate"
pi_usa	Annual inflation rate, chg., in 6 months, USA (Q3)	Values: 1: "increase", 2: "not change", 3:"decrease", 4:"no estimate"
pi_chn	Annual inflation rate, chg., in 6 months, China (Q3)	Values: 1: "increase", 2: "not change", 3:"decrease", 4:"no estimate"
pi_jap	Annual inflation rate, chg., in 6 months, Japan (Q3)	Values: 1: "increase", 2: "not change", 3:"decrease", 4:"no estimate"
pi_uk	Annual inflation rate, chg., in 6 months, UK (Q3)	Values: 1: "increase", 2: "not change", 3:"decrease", 4:"no estimate"
pi_fra	Annual inflation rate, chg., in 6 months, France (Q3)	Values: 1: "increase", 2: "not change", 3:"decrease", 4:"no estimate"
pi_it	Annual inflation rate, chg., in 6 months, Italy (Q3)	Values: 1: "increase", 2: "not change", 3:"decrease", 4:"no estimate"
i_deu	Short-term interest rates, chg., in 6 months, Germany / Eurozone (Q4)	Values: 1: "increase", 2: "not change", 3:"decrease", 4:"no estimate"
i_usa	Short-term interest rates, chg., in 6 months, USA (Q4)	Values: 1: "increase", 2: "not change", 3:"decrease", 4:"no estimate"
i_chn	Short-term interest rates, chg., in 6 months, China (Q4)	Values: 1: "increase", 2: "not change", 3:"decrease", 4:"no estimate"
i_jap	Short-term interest rates, chg., in 6 months, Japan (Q4)	Values: 1: "increase", 2: "not change", 3:"decrease", 4:"no estimate"
i_uk	Short-term interest rates, chg., in 6 months, UK (Q4)	Values: 1: "increase", 2: "not change", 3:"decrease", 4:"no estimate"
i_fra	Short-term interest rates, chg., in 6 months, France (Q4)	Values: 1: "increase", 2: "not change", 3:"decrease", 4:"no estimate"
i_it	Short-term interest rates, chg., in 6 months, Italy (Q4)	Values: 1: "increase", 2: "not change", 3:"decrease", 4:"no estimate"

Table 14: Contents of the file "fmt_expectations.dta" - contd.

Variable name	Variable label	Comment
r_deu	Long-term interest rates, chg., in 6 months, Germany (Q5)	Values: 1: "increase", 2: "not change", 3:"decrease", 4:"no estimate"
r_usa	Long-term interest rates, chg., in 6 months, USA (Q5)	Values: 1: "increase", 2: "not change", 3:"decrease", 4:"no estimate"
r_chn	Long-term interest rates, chg., in 6 months, China (Q5)	Values: 1: "increase", 2: "not change", 3:"decrease", 4:"no estimate"
r_jap	Long-term interest rates, chg., in 6 months, Japan (Q5)	Values: 1: "increase", 2: "not change", 3:"decrease", 4:"no estimate"
r_uk	Long-term interest rates, chg., in 6 months, UK (Q5)	Values: 1: "increase", 2: "not change", 3:"decrease", 4:"no estimate"
r_fra	Long-term interest rates, chg., in 6 months, France (Q5)	Values: 1: "increase", 2: "not change", 3:"decrease", 4:"no estimate"
r_it	Long-term interest rates, chg., in 6 months, Italy (Q5)	Values: 1: "increase", 2: "not change", 3:"decrease", 4:"no estimate"
sto_ez	EURO-STOXX50 (Eurozone), chg., in 6 months (Q6a)	Values: 1: "increase", 2: "not change", 3:"decrease", 4:"no estimate"
sto_dax	DAX (Germany), chg., in 6 months (Q6a)	Values: 1: "increase", 2: "not change", 3:"decrease", 4:"no estimate"
sto_usa	Dow Jones (USA), chg., in 6 months (Q6a)	Values: 1: "increase", 2: "not change", 3:"decrease", 4:"no estimate"
sto_sse_comp_chn	TecDAX / Nemax (Germany), chg., in 6 months (Q6a)	Values: 1: "increase", 2: "not change", 3:"decrease", 4:"no estimate"
sto_jap	Nikkei 225 (Japan), chg., in 6 months (Q6a)	Values: 1: "increase", 2: "not change", 3:"decrease", 4:"no estimate"
sto_uk	FTSE 100 (UK), chg., in 6 months (Q6a)	Values: 1: "increase", 2: "not change", 3:"decrease", 4:"no estimate"
sto_fra	CAC-40 (France), chg., in 6 months (Q6a)	Values: 1: "increase", 2: "not change", 3:"decrease", 4:"no estimate"
sto_it	FTSE MIB (Italy), chg., in 6 months (Q6a)	Values: 1: "increase", 2: "not change", 3:"decrease", 4:"no estimate"
sto_nemax	TecDAX / Nemax (Germany), chg., in 6 months (Q6a)	Values: 1: "increase", 2: "not change", 3:"decrease", 4:"no estimate"
oil	Crude oil (North Sea Brent), chg., in 6 months (Q6a)	Values: 1: "increase", 2: "not change", 3:"decrease", 4:"no estimate"
fx_usa	US-Dollar relative to Euro, chg., in 6 months (Q7)	Values: 1: "appreciate", 2: "not change", 3:"depreciate", 4:"no estimate"
fx_chn	Yuan relative to Euro, chg., in 6 months (Q7)	Values: 1: "appreciate", 2: "not change", 3:"depreciate", 4:"no estimate"
fx_jap	Japanese Yen relative to Euro, chg., in 6 months (Q7)	Values: 1: "appreciate", 2: "not change", 3:"depreciate", 4:"no estimate"
fx_uk	UK-Pound relative to Euro, chg., in 6 months (Q7)	Values: 1: "appreciate", 2: "not change", 3:"depreciate", 4:"no estimate"
fx_ch	Swiss Franc relative to Euro, chg., in 6 months (Q7)	Values: 1: "appreciate", 2: "not change", 3:"depreciate", 4:"no estimate"
fx_fra	French Franc relative to German Mark, chg., in 6 months (Q7)	Values: 1: "appreciate", 2: "not change", 3:"depreciate", 4:"no estimate"
fx_it	Italian lira relative to German Mark, chg., in 6 months (Q7)	Values: 1: "appreciate", 2: "not change", 3:"depreciate", 4:"no estimate"
sec_c	Profit situation of Germany companies, chg., in 6 months, consumer goods (Q8, un	Values: 1: "improve", 2: "not change", 3:"worsen", 4:"no estimate"
sec_banks	Profit situation of German companies, chg., in 6 months, banks (Q8)	Values: 1: "improve", 2: "not change", 3:"worsen", 4:"no estimate"
sec_insur	Profit situation of German companies, chg., in 6 months, insurance (Q8)	Values: 1: "improve", 2: "not change", 3:"worsen", 4:"no estimate"
sec_cars	Profit situation of German companies, chg., in 6 months, vehicles/automotive (Q8	Values: 1: "improve", 2: "not change", 3:"worsen", 4:"no estimate"
sec_chemi	Profit situation of German companies, chg., in 6 months, chemicales/pharma (Q8)	Values: 1: "improve", 2: "not change", 3:"worsen", 4:"no estimate"
sec_steel	Profit situation of German companies, chg., in 6 months, steel/metal products (Q	Values: 1: "improve", 2: "not change", 3:"worsen", 4:"no estimate"
sec_elect	Profit situation of German companies, chg., in 6 months, electronics (Q8)	Values: 1: "improve", 2: "not change", 3:"worsen", 4:"no estimate"
sec_mecha	Profit situation of German companies, chg., in 6 months, machinery (Q8)	Values: 1: "improve", 2: "not change", 3:"worsen", 4:"no estimate"
sec_consu	Profit situation of German companies, chg., in 6 months, consumption/trade (Q8)	Values: 1: "improve", 2: "not change", 3:"worsen", 4:"no estimate"
sec_const	Profit situation of German companies, chg., in 6 months, construction (Q8)	Values: 1: "improve", 2: "not change", 3:"worsen", 4:"no estimate"
sec_utili	Profit situation of German companies, chg., in 6 months, utilities (Q8)	Values: 1: "improve", 2: "not change", 3:"worsen", 4:"no estimate"
sec_servi	Profit situation of German companies, chg., in 6 months, services (Q8)	Values: 1: "improve", 2: "not change", 3:"worsen", 4:"no estimate"
sec_telec	Profit situation of German companies, chg., in 6 months, telecommunications (Q8)	Values: 1: "improve", 2: "not change", 3:"worsen", 4:"no estimate"
sec_infor	Profit situation of German companies, chg., in 6 months, information technologie	Values: 1: "improve", 2: "not change", 3:"worsen", 4:"no estimate"

Table 15: Contents of the file "fmt_expectations.dta" - contd.

Variable name	Variable label	Comment
y_hist	Overall macroeconomic situation, past 6 months, Germany (formerly Q1b)	Values: 1: "improved", 2: "not changed", 3:"worsened", 4:"no estimate"
dax_fund	Current DAX valuation relative to fundamentals of DAX companies (Q6c)	Values: 1: "over-priced", 2: "fairly priced", 3:"under-priced", 4:"no estimate"
dax_erw	DAX (Germany), point forecast (Q6b)	
dax_max	DAX (Germany), upper bound of 90 percent forecast interval	
dax_min	DAX (Germany), lower bound of 90 percent forecast interval	
y_probbad	Overall macroeconomic situation, chg., in 6 months, probability for 'worsen' (Q2	
y_probgood	Overall macroeconomic situation, chg., in 6 months, probability for 'improve' (Q	
y_probnormal	Overall macroeconomic situation, chg., in 6 months, probability for 'not change'	
y_recession	Probability of a negative GDP growth rate, next quarter (Q9)	
ezb24max	ECB main refinancing rate, in 24 months, upper bound of 90-percent probability i	
ezb24min	ECB main refinancing rate, in 24 months, lower bound of 90-percent probability i	
ezb6max	ECB main refinancing rate, in 6 months, upper bound of 90-percent probability in	
ezb6min	ECB main refinancing rate, in 6 months, lower bound of 90-percent probability in	
ppjinf_jp0	Annual inflation rate (HICP), Eurozone, current year, point forecast	
ppjinf_jp1	Annual inflation rate (HICP), Eurozone, current year + 1, point forecast	
ppjinf_jp2	Annual inflation rate (HICP), Eurozone, current year + 2, point forecast	
pprwbipj1	Annual gdp growth (real), Germany, changing years, year 1, point forecast	
pprwbipj2	Annual gdp growth (real), Germany, changing years, year 2, point forecast	
pprwbipj3	Annual gdp growth (real), Germany, changing years, year 3, point forecast	
pprwbipq1	Quarterly gdp growth (real), Germany, changing quarters, quarter 1, point forecast	
pprwbipq2	Quarterly gdp growth (real), Germany, changing quarters, quarter 2, point forecast	
pprwbipq3	Quarterly gdp growth (real), Germany, changing quarters, quarter 3, point forecast	
pprwbipq4	Quarterly gdp growth (real), Germany, changing quarters, quarter 4, point forecast	

A.2 Older questionnaires

Figure 8: The questionnaire from the very first survey wave (available only in German)

ZEW Zentrum für Europäische Wirtschaftsforschung GmbH

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Unternehmen: ..... / Abteilung : .....

Ihre Angaben werden streng vertraulich behandelt. Die Erfassung der Daten erfolgt nur in anonymisierter Form.
Die Weitergabe der Einzeldaten an Dritte ist ausgeschlossen.

Finanzmarkttest

Beurteilung im Dezember 1991

1. Die gesamtwirtschaftliche Situation beurteilen wir z.Z. als

	gut	zufriedenstellend (normal)	schlecht	keine Einschätzung
BRD	[ ]	[ ]	[ ]	[ ]
USA	[ ]	[ ]	[ ]	[ ]
Japan	[ ]	[ ]	[ ]	[ ]
UK	[ ]	[ ]	[ ]	[ ]
Frankreich	[ ]	[ ]	[ ]	[ ]
Italien	[ ]	[ ]	[ ]	[ ]

Erwartungen / Prognosen

2. Die gesamtwirtschaftliche Situation wird sich mittelfristig (6 Monate)

	verbessern	nicht verändern	verschlechtern	keine Einschätzung
BRD	[ ]	[ ]	[ ]	[ ]
USA	[ ]	[ ]	[ ]	[ ]
Japan	[ ]	[ ]	[ ]	[ ]
UK	[ ]	[ ]	[ ]	[ ]
Frankreich	[ ]	[ ]	[ ]	[ ]
Italien	[ ]	[ ]	[ ]	[ ]

3. Die jährl. gesamtwirtschaftliche Preisveränderungsrate (Inflationsrate) wird sich mittelfristig (6 Monate)

	erhöhen	nicht verändern	reduzieren	keine Einschätzung
BRD	[ ]	[ ]	[ ]	[ ]
USA	[ ]	[ ]	[ ]	[ ]
Japan	[ ]	[ ]	[ ]	[ ]
UK	[ ]	[ ]	[ ]	[ ]
Frankreich	[ ]	[ ]	[ ]	[ ]
Italien	[ ]	[ ]	[ ]	[ ]

4. Die kurzfr. Zinsen (3-Monats-Zinssatz) werden sich mittelfristig (6 Monate)

	erhöhen	nicht verändern	reduzieren	keine Einschätzung
BRD	[ ]	[ ]	[ ]	[ ]
USA	[ ]	[ ]	[ ]	[ ]
Japan	[ ]	[ ]	[ ]	[ ]
UK	[ ]	[ ]	[ ]	[ ]
Frankreich	[..]	[ ]	[ ]	[ ]
Italien	[ ]	[ ]	[ ]	[ ]

5. Die langfr. Zinsen (Emmisionsrenditen 10 jg. Staatsanleihen) werden sich mittelfristig (6 Monate)

	erhöhen	nicht verändern	reduzieren	keine Einschätzung
BRD	[ ]	[ ]	[ ]	[ ]
USA	[ ]	[ ]	[ ]	[ ]
Japan	[ ]	[ ]	[ ]	[ ]
UK	[ ]	[ ]	[ ]	[ ]
Frankreich	[ ]	[ ]	[ ]	[ ]
Italien	[ ]	[ ]	[ ]	[ ]

6. Das Aktienkursniveau wird sich mittelfristig (6 Monate)

	erhöhen	nicht verändern	reduzieren	keine Einschätzung
BRD (DAX)	[ ]	[ ]	[ ]	[ ]
USA (Dow-Jones)	[ ]	[ ]	[ ]	[ ]
Japan (Nikkei)	[ ]	[ ]	[ ]	[ ]
UK (FT-SE-100)	[ ]	[ ]	[ ]	[ ]
Frankreich(CAC-40)	[ ]	[ ]	[ ]	[ ]
Italien (MIB)	[ ]	[ ]	[ ]	[ ]

7. Der DM-Wechselkurs der folgenden Währungen wird mittelfristig (6 Monate)

	steigen	etwa gleich bleiben	fallen	keine Einschätzung
US-Dollar	[ ]	[ ]	[ ]	[ ]
Yen	[ ]	[ ]	[ ]	[ ]
UK-Pfund	[ ]	[ ]	[ ]	[ ]
Schw. Franken	[ ]	[ ]	[ ]	[ ]

8. Die Ertragslage der Unternehmen in der Bundesrepublik Deutschland wird sich mittelfristig (6 Monate) in den folgenden Branchen

	verbessern	nicht verändern	verschlechtern	keine Einschätzung
Banken	[ ]	[ ]	[ ]	[ ]
Versicherungen	[ ]	[ ]	[ ]	[ ]
Fahrzeugbau	[ ]	[ ]	[ ]	[ ]
Chemie	[ ]	[ ]	[ ]	[ ]
Stahl/NE-Metalle	[ ]	[ ]	[ ]	[ ]
Elektro	[ ]	[ ]	[ ]	[ ]
Maschinenbau	[ ]	[ ]	[ ]	[ ]
Konsumgüter	[ ]	[ ]	[ ]	[ ]
Handel	[ ]	[ ]	[ ]	[ ]
Baugewerbe	[ ]	[ ]	[ ]	[ ]

Wir bitten um Rücksendung des Fragebogens bis spätestens: **20.12.1991**

Figure 9: The fixed part of the current questionnaire used until March 2021

ZEW

Financial Market Survey March 2021

Please send back until March 12, 2021

President: Prof. Achim Wambach, PhD
Research Department:
International Finance and Financial Management
P.O. Box 103443, 68034 Mannheim
Tel. +49(0)621 1235 -148 / -311 / -368 / Fax -4223
Project Team:
Frank Brückbauer, Dr. Jesper Riedler, Dr. Michael Schröder

Code:
Company:
Department:
Contact:
Address Changes:
Are you the addressed person? [ ] yes [ ] no (e.g. deputy)

All information will be handled confidentially. Your responses will be analysed anonymously.

1a. We estimate the overall macroeconomic situation as being

	good	normal	bad	no estimate
Eurozone	[ ]	[ ]	[ ]	[ ]
Germany	[ ]	[ ]	[ ]	[ ]
USA	[ ]	[ ]	[ ]	[ ]
Japan	[ ]	[ ]	[ ]	[ ]
Great Britain	[ ]	[ ]	[ ]	[ ]
France	[ ]	[ ]	[ ]	[ ]
Italy	[ ]	[ ]	[ ]	[ ]

1b. During the past six months the overall macroeconomic situation in Germany has

improved [ ] not changed [ ] worsened [ ]

2a. In the medium-term (6 months) the overall macro-economic situation will

	improve	not change	worsen	no estimate
Eurozone	[ ]	[ ]	[ ]	[ ]
Germany	[ ]	[ ]	[ ]	[ ]
USA	[ ]	[ ]	[ ]	[ ]
Japan	[ ]	[ ]	[ ]	[ ]
Great Britain	[ ]	[ ]	[ ]	[ ]
France	[ ]	[ ]	[ ]	[ ]
Italy	[ ]	[ ]	[ ]	[ ]

2b. Please assess the probability of the following medium-term (6 months) developments of the overall macroeconomic situation In Germany (in per cent).

Improvement	Stay same	Worsening	Σ
			100%

3. In the medium-term (6 months) the macroeconomic annual inflation rate will

	increase	not change	decrease	no estimate
Eurozone	[ ]	[ ]	[ ]	[ ]
Germany	[ ]	[ ]	[ ]	[ ]
USA	[ ]	[ ]	[ ]	[ ]
Japan	[ ]	[ ]	[ ]	[ ]
Great Britain	[ ]	[ ]	[ ]	[ ]
France	[ ]	[ ]	[ ]	[ ]
Italy	[ ]	[ ]	[ ]	[ ]

4. In the medium-term (6 months) short-term interest rates (3-month interbank rates) will

	increase	not change	decrease	no estimate
Eurozone	[ ]	[ ]	[ ]	[ ]
USA	[ ]	[ ]	[ ]	[ ]
Japan	[ ]	[ ]	[ ]	[ ]
Great Britain	[ ]	[ ]	[ ]	[ ]

5. In the medium-term long-term interest rates (yields on 10-year bonds) will

	increase	not change	decrease	no estimate
Germany	[ ]	[ ]	[ ]	[ ]
USA	[ ]	[ ]	[ ]	[ ]
Japan	[ ]	[ ]	[ ]	[ ]
Great Britain	[ ]	[ ]	[ ]	[ ]

6a. In the medium-term (6 month) the following stock market indices/commodity spot prices will

	increase	not change	decrease	no estimate
EURO-STOXX 50	[ ]	[ ]	[ ]	[ ]
DAX (Germany)	[ ]	[ ]	[ ]	[ ]
TecDAX (Germany)	[ ]	[ ]	[ ]	[ ]
Dow Jones (USA)	[ ]	[ ]	[ ]	[ ]
Nikkei 225 (Japan)	[ ]	[ ]	[ ]	[ ]
FT-SE 100 (UK)	[ ]	[ ]	[ ]	[ ]
CAC-40 (France)	[ ]	[ ]	[ ]	[ ]
FTSE MIB (Italy)	[ ]	[ ]	[ ]	[ ]
Crude oil (North Sea Brent)	[ ]	[ ]	[ ]	[ ]

6b. Six month ahead, I expect the DAX to stand at [_____] points. With a probability of 90 per cent the DAX will then range between [_____] and [_____] points.

6c. In view of the fundamentals of the DAX companies the DAX is currently

over-priced [ ] fairly priced [ ] under-priced [ ]

7. In the medium-term (6 months) the following currencies compared to the Euro will

	appreciate	stay constant	depreciate	no estimate
US-Dollar	[ ]	[ ]	[ ]	[ ]
Japanese Yen	[ ]	[ ]	[ ]	[ ]
UK-Pound	[ ]	[ ]	[ ]	[ ]
Swiss Franc	[ ]	[ ]	[ ]	[ ]

8. In the medium-term the profit situation of German companies in the following sectors will

	improve	not change	worsen	no estimate
Banks	[ ]	[ ]	[ ]	[ ]
Insurance	[ ]	[ ]	[ ]	[ ]
Vehicles/Automotive	[ ]	[ ]	[ ]	[ ]
Chemicals/Pharmac	[ ]	[ ]	[ ]	[ ]
Steel/Metal Products	[ ]	[ ]	[ ]	[ ]
Electronics	[ ]	[ ]	[ ]	[ ]
Machinery	[ ]	[ ]	[ ]	[ ]
Consumption/Trade	[ ]	[ ]	[ ]	[ ]
Construction	[ ]	[ ]	[ ]	[ ]
Utilities	[ ]	[ ]	[ ]	[ ]
Service	[ ]	[ ]	[ ]	[ ]
Telecommunications	[ ]	[ ]	[ ]	[ ]
Inform.-Technologies	[ ]	[ ]	[ ]	[ ]

9. With a probability of [_____] per cent German GDP growth will be negative in the 2nd quarter of 2021 (quarterly growth of the seasonally adjusted real GDP).

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