

The CFO Survey

a partnership of



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Methodology

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Overview

The CFO Survey is a quarterly survey of U.S. financial professionals designed to elicit the financial outlook for their firms, the challenges they face, and their expectations for the U.S. economy. The CFO Survey—which is conducted as a partnership among Duke University’s Fuqua School of Business and the Federal Reserve Banks of Richmond and Atlanta—is a continuation of the Duke Global Business Outlook, which has been one of the most comprehensive surveys of financial decision-makers for almost 25 years.

The objectives of the CFO Survey are basically threefold: to offer a reliable measure of business sentiment, elicit the foremost concerns that influence business sentiment, and provide a basis for determining how changes in business sentiment correlate with changes in expectations regarding own-firm performance and general macroeconomic conditions.

To broaden the applicability of the survey across firm types, reduce cognitive burden for respondents, and continue to enhance data quality, the Federal Reserve Banks of Richmond and Atlanta, along with John Graham from Duke University, engaged in a thorough methodological review. The result was a redesigned core questionnaire, which we describe in detail below.

As a result of the methodological review, we chose to depart from the repeated cross-section sampling method in favor of a panel arrangement, and we present details of this new approach and sample design here.

Although previously the Duke Global Business Outlook also surveyed financial professionals abroad, the CFO Survey now focuses only on those headquartered in the United States.

Redesigned core questionnaire

The core of the Duke Global Business Outlook questionnaire contained four sections: firm optimism, most pressing concerns, firm expectations, and expectations for macroeconomic variables. We have maintained all of these sections in the CFO Survey. We discuss the methodological changes below.

Firm optimism: Own-firm and the U.S. economy

For each survey participant, we elicit a respondent’s optimism about the overall U.S. economy and the financial prospects for their own company on a scale from 0 to 100 (see figures 1a and 1b). The new panel design enables us to present the respondent’s responses from the previous quarter below the text of each optimism question. This depiction of their previous optimism ratings should help ensure that any change in these ratings represent a meaningful change in sentiment.

Figure 1a: Firm optimism (prior question design)

1. Are you more or less optimistic about <u>your country's economy</u> compared to last quarter?	
<input type="radio"/> More optimistic <input type="radio"/> Less optimistic <input type="radio"/> No change	Rate your optimism about <u>your country's economy</u> on a scale from 0-100, with 0 being the least optimistic and 100 being the most optimistic. <input type="text"/>
2. Are you more or less optimistic about the financial prospects for <u>your company</u> compared to last quarter?	
<input type="radio"/> More optimistic <input type="radio"/> Less optimistic <input type="radio"/> No change	Rate your optimism about the financial prospects for <u>your own company</u> on a scale from 0-100, with 0 being the least optimistic and 100 being the most optimistic. <input type="text"/>

Figure 1b: Firm optimism (current question design)

Rate your optimism about the overall U.S. economy on a scale from 0-100, with 0 being the least optimistic and 100 being the most optimistic.

The last rating you provided was 100.

Rate your optimism about the financial prospects for your own company on a scale from 0-100, with 0 being the least optimistic and 100 being the most optimistic.

The last rating you provided was 60.

This design also streamlines the optimism portion of the survey by eliminating the need for the question formerly presented before each of the optimism rating questions: “Are you more or less optimistic about [your country’s economy/the financial prospects for your own company] compared to last quarter?” With the presentation of a previous period’s ratings, we can determine whether the new ratings represent a change in optimism without asking this explicitly.

Eliciting the “most pressing concerns”

Following firms’ optimism ratings, we attempt to elicit their “most pressing concerns” to better understand what may be contributing to changes in their level of optimism over time. This question was asked in a different form in the Duke Global Business Outlook.

Based on experience with this question topic in the Federal Reserve Bank of Atlanta’s Business Inflation Expectations (BIE) survey and Survey of Business Uncertainty (SBU), we changed the format of the question from multiple selection to an open-text-response question (see figures 2a and 2b).

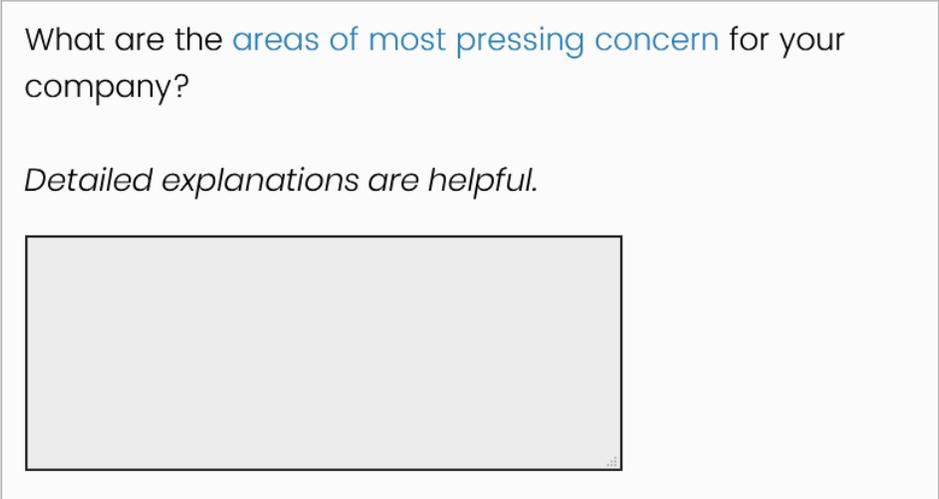
Figure 2a: Most pressing concerns (prior question design)



3. During the past quarter, which items have been the most pressing concerns for your company's top management team? (Choose up to 4)

<input type="checkbox"/> Access to capital	<input type="checkbox"/> Employee productivity
<input type="checkbox"/> Corporate tax code	<input type="checkbox"/> Geopolitical / health crises
<input type="checkbox"/> Cost of benefits	<input type="checkbox"/> Government policies
<input type="checkbox"/> Cost of borrowing	<input type="checkbox"/> Inflation
<input type="checkbox"/> Currency risk	<input type="checkbox"/> Regulatory requirements
<input type="checkbox"/> Data security	<input type="checkbox"/> Rising input or commodity costs
<input type="checkbox"/> Deflation	<input type="checkbox"/> Rising wages and salaries
<input type="checkbox"/> Difficulty attracting / retaining qualified employees	<input type="checkbox"/> Weak demand for your products/services
<input type="checkbox"/> Economic uncertainty	<input type="checkbox"/> Other <input type="text"/>
<input type="checkbox"/> Employee morale	

Figure 2b: Most pressing concerns (current question design)



What are the areas of most pressing concern for your company?

Detailed explanations are helpful.

The revised question design eliminates the backward-looking reference period of the original question (“during the past quarter”), thus allowing respondents to provide their most pressing concerns regardless of the time period.

The open-text response format permits the introduction of novel concerns during unusual economic conditions (such as the COVID-19 pandemic) and allows respondents to elaborate.

Although this sort of flexibility is the primary reason for the choice of question design, the open-text format also eliminates any bias that could result from satisficing behavior of respondents and the wording of the multiple-selection-response options.

We use standard text analytics to evaluate responses to this question. This procedure groups responses based on keywords and phrases, facilitated by a dictionary constructed using several thousand responses to a similar question fielded over several years in both the Federal Reserve Bank of Atlanta’s BIE survey and its SBU. The dictionary will be updated continuously to include new topics and then applied to previous quarters’ responses to allow for a consistent comparison of the frequency at which a given topic is mentioned.

Firm-level expectations

Because one of the goals of The CFO Survey is to elicit expectations from firms of all sizes and across all private industries, we have refined the set of concepts in the expectations section to include only those relevant to the broadest spectrum of firms (see figures 3a and 3b). For example, “research and development spending” is likely applicable only to a subset of respondents.

Figure 3a: Firm-level expectations (prior question design)

4. Relative to the previous 12 months, what will be your company's PERCENTAGE CHANGE during the next 12 months? (e.g., +3%, 0%, -2%, etc.) [Leave blank if not applicable.]

<input type="text"/>	% Capital spending
<input type="text"/>	% Earnings
<input type="text"/>	% Health care costs
<input type="text"/>	% Marketing/advertising spending
<input type="text"/>	% Number of domestic full-time employees
<input type="text"/>	% Prices of your products
<input type="text"/>	% Research and development spending
<input type="text"/>	% Revenue
<input type="text"/>	% Technology spending
<input type="text"/>	% Wages/Salaries

Figure 3b: Firm-level expectations (current question design)

We would like you to consider your **current** expectations for this calendar year (Jan. 1 – Dec. 31, 2021) and next calendar year. What **year-over-year percentage change** do you expect for each of the following variables?

	Expected year-over-year percentage change for calendar year 2021	Expected year-over-year percentage change for calendar year 2022
Revenue	<input type="text"/> %	<input type="text"/> %
Price of the product/product line or service responsible for the largest share of domestic revenue	<input type="text"/> %	<input type="text"/> %
Total wage and salary costs (including bonuses)	<input type="text"/> %	<input type="text"/> %
Non-wage compensation (healthcare costs, 401K contributions, pension contributions)	<input type="text"/> %	<input type="text"/> %
Unit Cost of the product/product line or service responsible for the largest share of domestic revenue	<input type="text"/> %	<input type="text"/> %

What is your **current** number of employees?

Precise values are preferred. We will assume a value of "0" if left blank.

domestic, full-time employees	<input type="text"/>
domestic, part-time employees	<input type="text"/>
domestic, temporary and contract workers	<input type="text"/>

What number of employees do you expect to have at the **end** of calendar years 2021 and 2022?

We will assume a value of "0" if left blank.

	End of calendar year 2021	End of calendar year 2022
domestic, full-time employees	<input type="text"/>	<input type="text"/>
domestic, part-time employees	<input type="text"/>	<input type="text"/>
domestic, temporary and contract workers	<input type="text"/>	<input type="text"/>

The reduction in the number of measured concepts should help reduce the overall cognitive burden for respondents, leading to lower panel attrition and potentially improving data quality.

We've chosen to ask about employment expectations in terms of the level of employment, necessitating the inclusion of separate questions following the main expectations block. Cognitive interviews and other interactions with firms led to the understanding that employment changes are more easily considered in terms of levels than in rates of change.

We have also changed the reference period for these expectations from a rolling year-ahead ("12 months ahead") format to a calendar year time frame, eliciting a current calendar year and a next calendar year expectation for each concept. This change was motivated by findings from cognitive interviews that suggest a calendar year format is a more natural time frame for firms to consider when answering forward-looking questions related to their budgets or forecasts.

Eliciting calendar year expectations allows us to relate changes in firms' expectations directly to changes in those of professional forecasters and the Federal Open Market Committee's Summary of Economic Projections. Perhaps more importantly, asking the question over two discrete time frames allows us to observe which economic shocks firms expect will be fleeting and which they view as more durable (that is, affecting the next calendar year projection). This type of insight should prove useful for monetary policymakers.

Macroeconomic expectations

The CFO Survey maintains the Duke Global Business Outlook's tradition of eliciting firms' expectations about macroeconomic variables. We elicit firms' probabilistic expectations about year-ahead growth in real gross domestic product (GDP) as well as their expectations for the return in the S&P 500 over the next 12 months and the next 10 years.

Without question, firm decision-makers hold expectations for how their firms might perform or change in various areas like, for example, revenue and their level of employment. But it is less

clear that firm decision-makers hold similar expectations for macro-level outcomes like real gross domestic product and S&P 500 returns.

Recognizing this ambiguity, we first assess the relevance of macroeconomic variables before asking respondents to provide their expectations (see figures 4a and 4b). We pose these filter questions the first time we administer the survey, and we ask respondents to update their views regarding the relevance of these variables annually, as they may become more or less relevant in response to economic events.

Figure 4a: Familiarity with real GDP

Which of the following best describes your familiarity with U.S. Gross Domestic Product (GDP) statistics?

- I do not follow GDP growth
- I read about GDP growth occasionally, but I don't follow it closely
- I follow GDP growth closely, but it does not impact decision making within my firm
- I follow GDP growth closely, and it has an impact on decision making within my firm
- Other (please specify):

Figure 4b: Familiarity with the S&P 500 Stock Market Index

Which of the following best describes your familiarity with the S&P 500 stock market index?

- I do not follow the stock market
- I look at the stock market occasionally, but I don't follow it closely
- I follow the stock market closely, but it does not impact decision making within my firm
- I follow the stock market closely, and it has an impact on decision making within my firm
- Other (please specify):

Respondents providing responses of anything other than “I do not follow [GDP growth/the stock market]” are then asked to provide their [GDP growth/the stock market] expectations. Other response options rank the level of familiarity with the macro variable and the impact that variable has on firm-level decision-making. These response options will be useful controls when considering the influence of these expectations in the current period and when examining the influence of these expectations on firm-level outcomes in longer-term research.

Real GDP growth

The Global Business Outlook did not elicit real GDP growth expectations but instead focused on respondents’ recession expectations, asking, “In which quarter do you expect a downturn (recession) will occur?” Although recession expectations are indeed of interest, we opted, for various reasons, to include a probabilistic real GDP growth expectation question (see Figure 5).

Figure 5: Real GDP growth expectations

Please indicate what probabilities you would attach to the various possible year-ahead percentage changes in U.S. economic output (Real Gross Domestic Product).

Results should sum to 100%.

+16 percent or more	<input type="text" value="0"/> %
+10.0 to +15.9 percent	<input type="text" value="0"/> %
+7.0 to +9.9 percent	<input type="text" value="0"/> %
+4.0 to +6.9 percent	<input type="text" value="0"/> %
+2.5 to +3.9 percent	<input type="text" value="0"/> %
+1.5 to +2.4 percent	<input type="text" value="0"/> %
+0.0 to +1.4 percent	<input type="text" value="0"/> %
-3.0 to -0.1 percent	<input type="text" value="0"/> %
-6.0 to -3.1 percent	<input type="text" value="0"/> %
-12.0 to -6.1 percent	<input type="text" value="0"/> %
Less than -12.0 percent	<input type="text" value="0"/> %
Total	<input type="text" value="0"/> %

This question format gives us a richer snapshot of firms’ expectations regarding downturns by capturing the numerical probability of negative growth while also allowing firms to express changes in their expectations for the growth rate of real GDP. In addition, the current format applies to all states of the economy—expansion as well as contraction—in a way that the previous format did not. The subjective probability format of the real GDP growth question has proven effective in a variety of long-term research studies using business survey data (see Altig et al. 2020¹) and was first popularized in research published by Charles Manki (2004).²

The response option format of this question mirrors that of the Federal Reserve Bank of Philadelphia’s Survey of Professional Forecasters and facilitates comparisons between the expectations of business leaders and those of professional forecasters.

S&P 500 expectations

The CFO Survey elicits respondents’ S&P 500 return expectations over the next 12 months and next 10 years using the exact language used in the Global Business Outlook Survey (see figure 6).

Figure 6: S&P 500 expectations

Over the next 12 months, I expect the **annual** S&P 500 return will be:

Worst Case: There is a 1-in-10 chance the actual return will be less than :		<input style="width: 90%;" type="text"/> %
Most Likely: I expect the return to be:		<input style="width: 90%;" type="text"/> %
Best Case: There is a 1-in-10 chance the actual average return will be greater than :		<input style="width: 90%;" type="text"/> %

Over the next 10 years, I expect the average **annual** S&P 500 return will be:

Worst Case: There is a 1-in-10 chance the actual return will be less than :		<input style="width: 90%;" type="text"/> %
Most Likely: I expect the return to be:		<input style="width: 90%;" type="text"/> %
Best Case: There is a 1-in-10 chance the actual average return will be greater than :		<input style="width: 90%;" type="text"/> %

¹ David Altig, Jose Maria Barrero, Nicholas Bloom, Steven J. Davis, Brent H. Meyer, and Nicholas Parker, “[Surveying Business Uncertainty](#),” *NBER Working Paper no. 25956* (issued June 2019, revised February 2020).

² Charles Manki, “[Measuring Expectations](#),” *Econometrica* 72, no. 5 (2004): 1329–76.

Semiannual questions

The CFO Survey typically includes two additional question modules on a rotating, semiannual basis. The first module (the “credit module”) elicits firms’ requests for credit, sources of credit, and perceived access to credit. The second module (the “investment module”) engages participants in an in-depth inquiry of their recent structures and equipment investment decisions.

Figure 7a: Credit module

In the last 6 months, did your business apply for new credit (for example, a new credit card, loan, line of credit, trade financing, etc.)?

Yes

No

Don't know

For the credit your business applied for in the last 6 months, how much of the total amount requested did your business receive?

None

1-25%

26-50%

51-75%

76-100%

Unsure

For the credit your business applied for in the last 6 months, from what lender(s) did your business apply for new credit?

Select all that apply.

Finance Company (company that provides loans or leases but unlike a bank does not accept deposits or offer banking services. Examples include mortgage companies, equipment dealers, and auto finance companies)

Fintech/Online Lender (type of finance company that operates exclusively online and/or by phone to issue loans or lines of credit, usually with no collateral requirements. Includes payments companies that offer loans and cash advances to merchants)

Community Development Financial Institution (CDFI) (financial institution certified by the U.S. Department of the Treasury that provides credit, financial services, and technical assistance to underserved people or places)

Credit Union (non-profit financial institution that provides banking services, including loans, to its members)

Government (SBA loans; Federal, state and local government programs)

Bank (financial institution that accepts deposits and extends credit, either in person or online)

Other (please specify below):

Overall, do you feel obtaining credit for this business has become more difficult, less difficult, or has remained the same over the last 6 months?

It is more difficult to obtain credit

Remained the same

It is less difficult to obtain credit

If the response to the previous question is “more difficult,” the respondent is presented with this question:

Which of the following might explain why it was more difficult to obtain credit for your business in the last 6 months?

This business's credit worthiness has changed

Lending standards have become more stringent

Other (please specify below):

If the response to the previous question is “less difficult,” the responded is presented with this question:

Which of the following might explain why it was less difficult to obtain credit for your business in the last 6 months?

This business's credit worthiness has changed

Lending standards have become less stringent

Other (please specify in box below):

Figure 7b: Capital Expenditures module

What is the current book value of all of your property, plant, and equipment?

Estimates are acceptable.

\$Bil.		Mil.			Thou.			
<input type="text"/>	, 0 0 0							

Do you currently plan to purchase, construct, or renovate any **structures** and/or purchase any **land** over the next six months? (hover cursor over structures for a detailed definition)

Yes

No

If the response to the previous question is “yes,” the respondent receives the following two questions:

Which of the following describe the purpose of your planned **equipment** purchase(s)?

Select all that apply:

- reduce reliance on labor
- health and safety improvements
- addition of a new product/product line or service
- need to increase productive capacity
- replacement or repair of aging equipment
- cost reduction
- financing/funding conditions were favorable
- Other

Roughly, what is the dollar value of the **equipment** purchases you currently plan to make over the next six months?

Estimates are acceptable.

\$Bil.	Mil.	Thou.							
□	□	□	□	□	□	□	□	□	□

, 0 0 0

If the respondent indicates that they do not plan to engage in any equipment and structures spending over the next six months, they receive the following question:

Which of the following describe the reason(s) your business does not plan to make any equipment or structures expenditures over the next six months?

Select all that apply:

no need to expand capacity

recently engaged in structures and equipment investment

too much uncertainty

lack of funding

can't achieve the desired return on investment

financing conditions are not favorable

need to preserve cash

Other:

Special questions

The CFO Survey will typically include, at the end of the questionnaire, questions exploring topics of current relevance to policymakers or for use in academic research.

Firm characteristics

In a panel member's first survey, they're presented with a set of questions about their firm's characteristics (see figure 8). To ensure that this information remains accurate, panel members are again presented with this question set in the first-quarter survey each year.

Figure 8: Firm characteristics

What was your total revenue for calendar year 2020?

An estimate is acceptable.

\$ Bil.		Mil.			Thou.			
<input type="text"/>	, 0 0 0							

Which one of the following groups currently accounts for the largest share of your revenue?

Consumers/Households

Businesses

Government/Institutions

Roughly what percent of revenues from your firm's U.S. operations are due to foreign sales?

%

Sampling methodology

The CFO Survey panel aims for broad representation geographically (in the United States) and sectorally, and with regard to firm size (defined here as the number of employees). Ongoing panel recruitment efforts are conducted primarily out of the Federal Reserve Bank of Atlanta's Economic Survey Research Center's (ESRC) outreach lab. Current panel members, however, came to the survey via the following channels.

Duke Global Business Outlook participants

In May 2020, everyone on the Duke Global Business Outlook distribution lists received a request to join the new CFO Survey panel. Those interested in joining the panel completed a registration form and were then added. Several hundred survey participants moved to the new CFO Survey panel.

Regional liaison groups

Members of regional liaison groups at the Federal Reserve Banks of Atlanta and Richmond have recruited business contacts to join the panel. However, the number of panel members added through this channel represents a small share. This form of recruitment will continue, although we don't expect it to contribute significantly to panel membership.

Telephone recruitment via the ESRC's outreach lab (primary method of recruitment)

We purchased lists of eligible firms from suppliers of business contact data such as Dun & Bradstreet and determined the composition of these lists using their sectoral contribution to GDP at the two-digit NAICS level. Among eligible firms (those with at least one employee), we select panelists using a hierarchy of job functions, prioritizing financial executives, financial professionals, owners, and other C-suite executives at U.S.-based firms.

Panel coordinators contact potential firms from their assigned contact lists and engage in telephone recruitment. Each panel coordinator's contacts are sorted by a random variable, and coordinators call contacts in that order to eliminate bias in the selection process and ensure an equal probability of selection for each contact.

Panel composition

As previously stated, recruitment efforts for the CFO Survey panel are ongoing. The geographic, sectoral, and firm size (number of employees) composition of the survey panel is updated quarterly on [The CFO Survey website](#).

Data collection

The CFO Survey is conducted quarterly within a two-week fielding period (typically running from Monday of the first week through Friday of the second week) during the last calendar month of each quarter.

Panel members receive an email with a web link to the CFO Survey questionnaire by noon (ET) on the first day of the fielding period. During the two-week fielding period, we send three periodic reminder emails to panel members who have not yet responded.

During the second week of the fielding period, all new panel members who have yet to respond receive a follow-up call to ensure that email delivery failure is not the reason for nonresponse. In addition, panel members who did not respond in either of the two prior quarters also receive a follow-up call. If a respondent does not respond in any of the three previous quarters and cannot be reached after two follow-up call attempts, we remove that panel member.

Upon conclusion of the fielding period, we tabulate responses and code them for analysis using STATA statistical software.

Data cleaning and weighting

The CFO Survey questionnaire was designed to minimize the potential for data entry and processing errors. However, some automatic and manual data-cleaning procedures are necessary to maintain overall data quality.

For panel members recruited via the outreach lab, we check user-supplied demographic information against the information provided by Dun & Bradstreet. Outliers are then subject to a manual review. We also determine outliers by regressing firm size (revenue) on revenue (firm size) and using a set of controls (including industrial classification).

Data cells are automatically cleaned of extraneous characters (such as % and \$ symbols). We identify and correct for obvious response errors that fit certain patterns. For optimism questions, we flag values outside the 0–100 range for manual review.

With regard to the real GDP growth expectations question and questions of a similar nature (such as the S&P 500 return expectations questions), we make no effort within the survey tool to force respondents' values to sum to 100. We've chosen not to pursue this sort of prompting because it is important to understand whether the question is well understood, and responses that do not sum properly are a useful indication of this.

In some cases, respondents may make small mathematical errors. If the probabilities sum to a value in [95,105], responses are then rescaled to sum to 100 percent. Responses outside that range are checked and cleaned for obvious response errors, such as probabilities that sum to 1 instead of 100 percent. Those responses are rescaled. Other responses are ignored.

Firm-level expectations and S&P 500 expectations data are winsorized at 2.5 and 97.5 percent. Where applicable, data are weighted by industry, firm size, or revenue, and we use demographic responses to firm size and revenue questions in the construction of weights (see the table). Both

variables are top-coded at the 85th percentile to prevent the fluctuations in the responses of the largest firms from dominating overall changes.

Variable	Weighting Scheme
Own-firm optimism	Unweighted
U.S. economy optimism	Unweighted
Most pressing concerns	Unweighted
Revenue expectations	Activity weighting
Price growth expectations	Activity weighting
Unit cost growth expectations	Activity weighting
Full-time employment expectations	Firm-size weighting
Wage bill expectations	Firm-size weighting
Nonwage compensation	Firm-size weighting
Macro expectations	Activity weighting

Data revisions

In the first quarter of each year, we submit a revised historical data series incorporating additional survey responses captured after a given quarterly survey's close date (up to two weeks after) as well as any updates to survey weighting or other necessary revisions. This annual revision process began in Q1 2022 and included all historical data.

Also, as of Q1 2022 the winsorization procedure was adjusted to use the full sample of data (through the prior year), not just responses from the current quarter.