TECHNICAL ASSISTANCE REPORT

KENYA

Improving the Business Surveys and the Nowcasting Framework at the Central Bank of Kenya

August 2024

Prepared By
Edward Anthony Chernis (STX), Taylor Webley (STX), and Jianping Zhou (MCM)

Authoring Department:

Monetary and Capital Markets Department

©2024 International Monetary Fund

The contents of this document constitute technical advice provided by the staff of the International Monetary Fund to the authorities of Central Bank of Kenya (the "CD recipient") in response to their request for technical assistance. Unless the CD recipient specifically objects to such disclosure, this document (in whole or in part) or summaries thereof may be disclosed by the IMF to the IMF Executive Director for Kenya, to other IMF Executive Directors and members of their staff, as well as to other agencies or instrumentalities of the CD recipient, and upon their request, to World Bank staff, and other technical assistance providers and donors with legitimate interest (see Staff Operational Guidance on the Dissemination of Capacity Development Information). Publication or Disclosure of this report (in whole or in part) to parties outside the IMF other than agencies or instrumentalities of the CD recipient, World Bank staff, other technical assistance providers and donors with legitimate interest shall require the explicit consent of the CD recipient and the IMF's Monetary and Capital Markets department.

The analysis and policy considerations expressed in this publication are those of the IMF's Monetary and Capital Markets Department.

International Monetary Fund, IMF Publications
P.O. Box 92780, Washington, DC 20090, U.S.A.
T. +(1) 202.623.7430 • F. +(1) 202.623.7201
publications@IMF.org
IMF.org/pubs

Contents

Glossary **4**

Preface **5**

Executive Summary **6**

Recommendations **8**

I. Introduction **9**

II. Mission Discussions **10**
A. Improving CBK's Expectation Surveys 10
B. Improving Survey Data Management and Data Analysis 11
C. Improving the Nowcasting Framework 14

III. Next Steps **18**

Boxes
Box 1. Central Bank Business Surveys 20

Figures
Figure 1. Absolute Correlation Between Balance of Opinion Indicators and GDP 12
Figure 2. Survey Results Based on the BoO Index 13
Figure 3. Automated Forecast Evaluation Will Empower Nowcast Model Development at the CBK 16
Figure 4. Disaggregate Nowcasts Provide a Powerful Communication Tool 17

Tables
Table 1. Key Recommendations 8

Annexes
I. Mission Concluding Presentation 21
II. Presentations of CBK 39
III. Survey Questionaries 51
IV. Kenya – Program Files 72

Glossary

AFE	IMF's Regional Technical Assistance Center for Eastern Africa—AFRITAC East
BoO	Balance of Opinion
CPI	Consumer Price Index
CBK	Central Bank of Kenya
DFM	Dynamic Factor Model
GDP	Gross Domestic Product
IC	Initial Condition
ICD	Institute for Capacity Development
FPAS	Forecasting and Policy Analysis System
FT	Forecast Team
MCM	Monetary and Capital Markets Department
MP	Monetary Policy
MPC	Monetary Policy Committee
MPF	Monetary Policy Framework
MPR	Monetary Policy Report
MPS	Market Perceptions Survey
NA	National Account
NBS	National Bureau of Statistics
NTF	Near-Term Forecast
QPM	Quarterly Projection Model
STX	Short-Term Experts
TA	Technical Assistance
VAR	Vector Autoregression

Preface[1]

At the request of the Central Bank of Kenya (CBK) and in accordance with the AFRITAC East (AFE) workplan, a Monetary and Capital Markets (MCM) Department mission visited Nairobi, Kenya during April 17–21, 2023, to assist the authorities in improving their Forecasting and Policy Analysis System (FPAS). The mission team was comprised of Ms. Jianping Zhou (Mission Chief, MCM) and Messrs. Edward Anthony Chernis and Taylor Webley (Short-term experts (STXs), Bank of Canada).

The mission met with the entire CBK forecasting team in the Real Sector Analysis Division which is currently being overseen by Dr. Maureen Were, as well as staff from the MPC Secretariat, External Sector and Fiscal Analysis, Monetary Policy Analysis, and Statistics Divisions. Mr. Raphael Otieno (Deputy Director, Monetary Policy Analysis Division) who also stood in for Prof. Robert Mudida, Director, Research Department joined the opening and concluding sessions. Prior to the mission, Ms. Zhou met Dr. Patrick Njoroge, the CBK Governor,[2] and Prof. Robert Mudida, the Director of the Research Department, at IMF headquarters during the 2023 Spring Meetings.

The mission wishes to thank the CBK management and staff for their cooperation, productive discussions, and hospitality.

[1] The report was sent to the CBK for review in May 2023 and all factual comments have been included.

[2] Dr. Kamau Thugge has been the new Governor since June 19, 2023.

Executive Summary

The mission focused on the nowcasting frameworks and Monetary Policy Committee (MPC) business surveys. It had two specific objectives. First, to review and improve the current MPC survey framework, customize the MPC surveys, enhance data management and analysis, and integrate the survey framework more closely with the FPAS. Second, to improve the nowcasting framework for GDP to provide better inputs for the quarterly projection model (QPM). These improvements and tools will facilitate the use of judgement in the forecasting process and help substantiate and communicate the forecast and policy analysis to the MPC.

The highly interactive daily technical sessions were attended by the CBK forecasting team as well as staff from the MPC Secretariat and other divisions. Mr. Raphael Otieno, Deputy Director, Monetary Policy Analysis Division joined the opening and concluding sessions. The mission team completed its planned and additional tasks, including:

(i) reviewing three MPC business surveys and proposing detailed changes to the survey questions to streamline the surveys and enhance their monetary policy relevance.

(ii) creating EViews programs for more efficient survey data management and for converting qualitative survey data to quantitative data using the concept of “balance of opinion (BoO)”.

(iii) reviewing existing models for nowcasting Consumer Price Index (CPI) and GDP, operationalizing a forecast evaluation system to empower future development, and creating a disaggregated nowcasting framework for enhancing narrative-building.

(iv) starting the process of integrating survey results into nowcasting.

The TA team gave a detailed concluding presentation at the end of the mission to summarize the mission recommendations and highlight the key issues to be captured in the TA report (Attachment I). The CBK participants also prepared and gave three mock-up presentations to the MPC (Attachment II).

The mission team made several recommendations regarding the MPC surveys. In particular, the CBK should continue to improve and streamline the survey questions, use, and further develop the tools created during this mission for more efficient survey data management and analysis, and consider changing the survey timing so that the surveys can better inform the nowcasts and QPM projections. Regarding nowcasting, the mission recommended the integration of quantified survey results into nowcasting, and continued refinement of the nowcasting framework for GDP at a disaggregated level to facilitate a deeper understanding of the current economic developments and better storytelling. Finally, the mission recommended to continue expanding the database of leading indicators and assessing new nowcasting models by leveraging the new forecast evaluation framework.

The mission team also made recommendations regarding nowcasting. Specifically, the mission recommends:

- Integrating quantified survey results into nowcasting.
- Continuing to refine the nowcasting framework for GDP at a disaggregated level to enhance understanding of current economic developments and storytelling.
- Continuing to expand the database of leading indicators.
- Assessing new nowcasting models by leveraging the new forecast evaluation framework.

The CBK forecasting team is skilled but could become more specialized. Currently, the team members handle all tasks related to the forecast exercise, including nowcasting, QPM-based projections, and more. While this practice was established to avoid potential disruptions in the event of unexpected staff departures. there is a room for improvement in encouraging more specialization and the development of deeper modeling skills.

It was agreed that the next mission should focus on improving the QPM model. Specifically, follow up work should consider the significant developments in the economy and data rebasing since the original development of the model.

Recommendations

Table 1. Key Recommendations

Recommendations and Authority Responsible for Implementation	Priority	Timeframe[3]
Business Surveys		
• Consider changing the survey timing so that the surveys can inform the nowcasts and QPM projections. • Create a firm registry to track survey respondents. • Further refine and automate the survey data pipeline. • Continue consolidating historical survey results into a time series. • Leverage the new analysis tools (e.g., balance of opinion) to inform the policy process.	High	Near-term
• Use the TA survey review as a guideline to revise the surveys. • Start assessing the information content of the survey indicators as the sample grows.	High	Medium-term
Nowcasting Framework		
• Use the forecast evaluation framework to continuously explore relationships between GDP/inflation and key economic indicators, including from new data sources (e.g., exchange rates, Purchasing Managers' Index (PMIs)). • Leverage the bottom-up framework to help formulate the economic narrative. • Refine the performance of the new disaggregated nowcasting tools by trimming the worst performing models and exploring forecast combination. • Explore relationships between timely survey-based indicators and key macroeconomic time series to further enhance short-term monitoring of the economy.	High	Near-term
• Continue to expand the database of leading indicators. • Enhance the nowcasting framework at the disaggregated level. • Incorporate and assess the performance of larger vector autoregressive (VAR) models using the "additional models" part of the nowcasting platform. • Proposed study visit to the Bank of Canada/IMF for practical skills development, skill enhancement and comparative analysis.	High	Medium-term

[3] Near term: < 12 months; Medium term: 12 to 24 months.

I. Introduction

1. Achieving and maintaining price stability is the principal objective of monetary policy in Kenya. Concretely, this objective is implemented with a view to achieving a medium-term inflation target of 5± 2.5 percent. The CBK is making progress in modernizing its monetary policy framework, including strengthening its capacity in forecasting and monetary policy analysis with support from IMF TA. In July 2021, the CBK published a white paper on "Modernization of the Monetary Policy Framework and Operations", outlining the areas in which the CBK will need to advance to become a leading and modern central bank.

2. Accordingly, two virtual TA missions took place during October 2021 to September 2022 to review the key components of the FPAS. These missions found that the CBK has an elaborate forecast process, but some key components of the FPAS need to be revised and updated urgently, specifically the QPM framework and the nowcasting framework (including integrating the survey information). These missions also concluded that several more missions will be needed to complete the revision and updating process. Subsequently, an AFE workplan was created for Kenya. In line with the workplan, a virtual mission to update the QPM in the meantime took place during August 29 - September 2, 2022. However, the participants felt that the much-needed hands-on practical training was limited during the virtual mission.

3. This mission focused on improving the CBK business/MPC surveys and the nowcasting framework. The mission had two specific tasks. First, reviewing and improving the current business survey framework, customizing the surveys, improving data management and analysis, and integrating the survey framework more closely with the FPAS. Second, improving the nowcasting framework for GDP to provide better inputs for the quarterly projection model (QPM). These improvements and new tools will support the use of judgement in the forecasting process, help generate a better substantiated forecast and aid the CBK staff in better communicating the forecast and policy analysis to the Monetary Policy Committee (MPC).

4. The mission worked with a range of counterparts. The highly interactive daily technical sessions were attended by the entire CBK forecasting team as well as staff from the MPC Secretariat, External Sector and Fiscal Analysis, Monetary Policy Analysis, and Statistics Divisions. Mr. Raphael Otieno, Deputy Director, Monetary Policy Analysis Division joined the opening and concluding sessions.

II. Mission discussions

A. Improving CBK's Expectation Surveys

5. The CBK currently conducts the following three main bi-monthly surveys (Box 1): (i) the Market Perceptions Survey (MPS), which was introduced in 2009 and targets banks, nonbank financial firms, and private firms; (ii) the CEO Survey (CEO), which has been conducted since March 2021 and targets the CEOs of key private sector organizations; and (iii) the Agriculture Sector Survey, which was introduced in July 2022 and aims to generate high frequency agriculture sector data on agricultural prices and output expectations in different parts of the country. These surveys provide a potentially rich source of information for the monetary policy process.[4]

6. The mission team walked through the CEO and MPS surveys in detail with workshop participants and provided suggestions related to question wording, response design, and introduced conditional follow-up questions to investigate topics of interest. The mission team also reviewed and provided wording suggestions for the Agriculture Sector Survey. (See Attachment III).

7. To better integrate these surveys into the monetary policy process, the mission recommended:

i. Design – The questionnaires should be streamlined to reduce the response burden and increase the policy relevance of the surveys. The questions should be focused to inform the monetary policy and projections process. The TA team has provided recommendations during the survey review for all three surveys.

a. The CEO survey has the most scope for revisions due to its relatively short sample size and should be a priority.

b. The MPS has a longer sample size so revisions should be done carefully. The CBK will need to designate core questions. The most policy relevant questions with the longest sample size should not be revised. The remaining questions should be considered for revision.

c. The Agricultural Sector Survey does not need immediate changes since the survey is administered in person and the questions are direct. Instead, the focus should be on consistent interview techniques and coding practices to ensure survey quality.

ii. Timing – Moving the survey period earlier would allow more time to integrate the results into the policy process. Currently surveys are sent about one month before the MPC meetings. For example, when surveys are sent out on March 1, surveys result would be back on March 15, which would be too late for the incorporation into the forecasting framework in time for the Monetary Policy Analytical Meeting on March 20 and the MPC meeting on March 29. Moving the survey period one week earlier (in the example above, distributing the surveys on February 21) would allow the surveys to influence the projection and economic outlook thereby making MPC decisions better informed.[5]

[4] In addition, the CBK also conducts ad hoc surveys, for examples, the Survey of Flower Farms and the Survey of Hotels, but both have been discontinued.

[5] Since August 2023, the MPC meetings have been moved one week later, taking place on the first week of even-numbered months.

B. Improving Survey Data Management and Data Analysis

Consolidating survey contacts with "a firm registry"

8. CBK currently does not have a well-developed system to manage their survey contacts. Such a system is essential for recruiting respondents and managing the sample. CBK will also need to consolidate their firm contact information for the three surveys into a single database and begin carefully tracking their respondents. To this end, the TA team provided a template firm registry so that they can begin improving their panel administration. Additionally, the CBK should ensure their sample frame, and sample, is representative of the Kenyan economy.

9. A well-developed firm registry helps manage and track survey respondents/the survey sample systemically. According to the presentation of the CBK participants, MPS survey responses are weighted averages based on the market size of the bank/microfinance bank relative to total banks/microfinance banks, respectively, while those from the non-bank private firms were weighted using the respective sector weights based on the latest available sectoral contributions to GDP. Given the lack of a consolidated firm registry, it will be difficult to carefully track the survey respondents and the representativeness of the survey sample. In the mission team's view, the representativeness of the sample should be assessed to motivate the need for reweighting. Once a consolidated firm registry is constructed and more careful tracking of survey respondents is implemented, however, the CBK can start work on assessing the need for reweighting.

Converting qualitative results into quantitative data series using "Balance of Opinions"

10. The TA demonstrated how to convert qualitative survey results into quantitative data. Using the "Balance of Opinions (BoO)" approach, CBK staff can transform qualitative Likert scale questions into time series data. This has the potential to improve the narrative building and presentation of survey results. Furthermore, once a sufficiently long time series is compiled (either from compiling historical data or collecting more data) the survey results can be integrated into the nowcasting platforms.

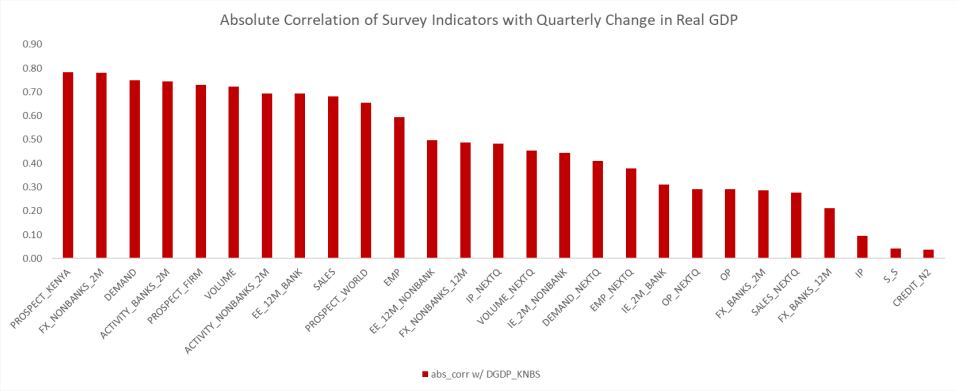
11. The "Balance of Opinion" is generally defined as the difference between the proportion of respondents having expressed a positive opinion and the proportion of respondents having expressed a negative opinion.[6] Often the questions in economic outlook surveys ask for a response chosen from three possibilities: "up", "stable", or "down". From these responses, the percentage of respondents saying "up" (positive responses), "stable" (neutral response), or "down" (negative responses) is calculated for each question. These can be calculated for subsets of the survey respondents to investigate heterogeneity in the results. In the case of enterprises, this could be the relative size of the enterprises, the sector concerned, geographic region or any grouping which is policy relevant. A balance of opinion is then established for each question as being the difference between the percentage of respondents giving a positive response and the percentage of respondents with a negative response. This can show the average responses for a question over time.

12. The TA team assessed the correlation between Balance of Opinion indicators and GDP, finding a strong correlation (Figure 1). Due to the short sample the results are suggestive and not conclusive. They should be reviewed with a longer sample size for their survey (after CBK compiles past results and gathers new responses). The mission team provided training on how to conduct this analysis. Nonetheless, the current results show strong correlations between survey questions and quarterly growth

[6] In this case, BoO = (the number of respondents with positive opinion – the number responses with negative opinion) / (total number of respondents).

in real GDP, thus suggesting these results have significant value added considering the significant lag in most economic data.

Figure 1. Absolute Correlation Between Balance of Opinion Indicators and GDP

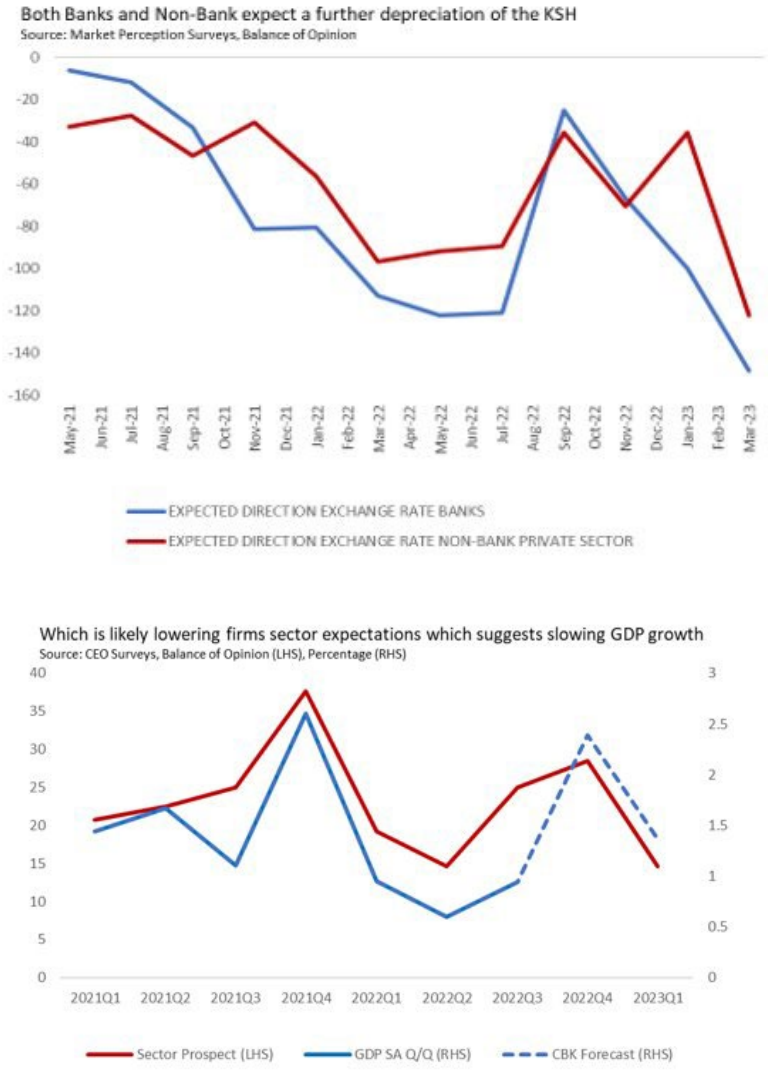


Source: CBK and IMF staff calculations.

13. Figure 2 presents an example based on the MPS. The specific question shown in the figure is about the expected change in the Ksh/USD exchange rate and has five possibilities: weaken, weaken slightly, same level, strengthen slightly, and strengthen. The top panel based on the BoO indices shows that both banks and non-banks expect a further depreciation and that their views have changed over time. The lower panel shows how closely the firms' sector prospect expectations (BoO indices) traced the actual quarterly GDP growth and the CBK forecasts in the last 2-3 years (when the survey data is available).

14. The example clearly illustrates the high value of the survey data. Given that most economic data and higher-frequency indicators for the Kenyan economy become available with a significant lag, strong correlations such as the one shown in the lower panel highlight the significant value-added of the CBK's timely survey-based indicators for both nowcasting and narrative building. The CBK should continue to explore relationships between their timely survey-based indicators and key macroeconomic time series to further enhance their short-term monitoring of the Kenyan economy.

Figure 2. Survey Results Based on the BoO Index



Source: CBK and IMF staff calculations.

Introducing a system of automatized import of survey data

15. Though not included in the scope of the mission, the TA team developed a proof-of-concept process to help the CBK staff import raw Survey Monkey data into EViews. During exploratory conversations, it was widely agreed that the CBK would benefit significantly from some automation of the survey data ingestion processes, with the key advantages being to reduce the time spent on manual data entry and manipulation, and drastically reduce the margin for transcription errors.

16. With this program, the CBK staff can import survey data more efficiently and generate summary statistics and quantitative indicators such as BoO indices. The CBK staff were trained on how the code works and provided with an extensive hands-on tutorial for properly ingesting data, adjusting the code to fit raw data from new surveys, and writing small algorithms to generate key

analytical survey series of interest (e.g., shares of firms providing responses on each question and balance of opinion indices).

17. Further work will be required by the CBK (or by experts in future missions) to complete the system. The key outstanding tasks include:

iii. Establishing a well-defined and persistent mnemonic structure for each survey so data ingestion and analysis is repeatable.
iv. Writing a program to gather cleaned data and computations from multiple surveys to stack as a time series.
v. Writing a program to export key time series of interest to a database for easy access by analysts and the nowcasting tools.

C. Improving the Nowcasting Framework

18. The CBK currently has two separate nowcasting platforms for both GDP and CPI. These platforms are set up to produce forecasts for one year ahead (either four quarters or twelve months), though only the first quarterly nowcast is used as the starting point for QPM.

- For GDP:
  - Platform 1 (Matlab): A PCA and BVAR model using a variety of domestic and external indicators. The BVAR is currently not functional and the PCA is the primary nowcast tool.
  - Platform 2 (EViews): A platform that estimates a large set of bridge equations and VARs using domestic indicators. The code for this platform had deteriorated and was not being used actively at the start of the mission.
- For Inflation:
  - Platform 1 (EViews): A disaggregated nowcasting tool that forecasts each of the components of CPI and adds them up to a CPI nowcast.
  - Platform 2 (EViews): Same as Platform 2 for GDP, though using only lagged monthly price data for the various sub-components of CPI. CBK staff can choose whether this platform targets inflation or GDP by identifying the target variable of interest.

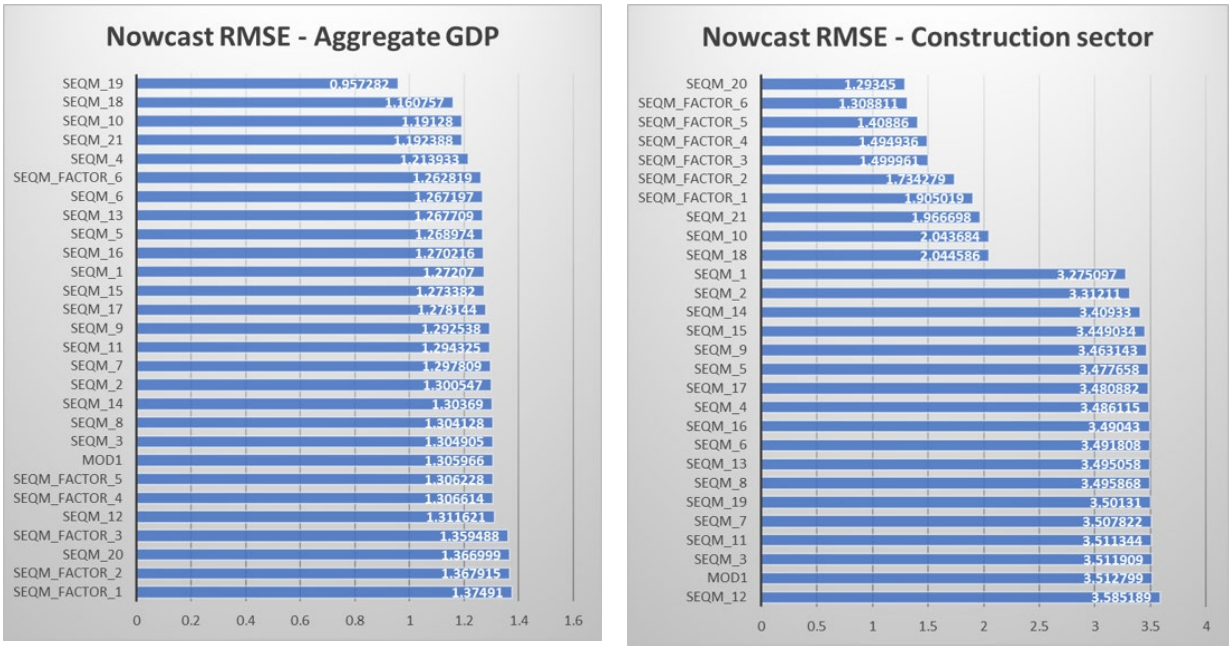
19. The mission team began by reviewing the CBK nowcasting database. Overall, CBK staff have made substantial progress on adding metadata and standardizing their full suite of indicators. Considering this, the mission team's focus shifted entirely to fixing and improving the nowcasting platforms.

20. Due to time constraints, the mission team decided to focus on fixing and developing the EViews-based nowcasting platform rather than the MATLAB-based BVAR model. This decision was taken for three reasons: (i) the EViews platform provides significantly more flexibility for CBK staff and scope for enhancement; (ii) it generates nowcasts for both GDP and CPI, thus improvements to the platform will benefit both analytical streams; and (iii) the efficacy and usefulness of the BVAR required more time to be determined. The mission thoroughly reviewed the EViews-based platform and updated the code so that it now runs without errors regardless of the variable – CPI or GDP – it is predicting. Furthermore, additional static factor-based models were added to the model outputs and various algorithms were made more robust to variations in the structure of the input data. It was decided that the team will thoroughly go through these models, e.g., PC, DFM, FAVAR etc. in the next TA missions. For example, users would previously receive a non-descriptive error if only one quarterly series was in the

dataset with no indication of why the code was failing or how to troubleshoot it. Several bugs like this were identified and corrected.

21. The most significant improvement made to the EViews code was an automated system for evaluating the nowcasting accuracy of all models generated by the platform. This applies to all models regardless of the target variable chosen, empowering CBK staff to develop both their GDP and CPI nowcasting tools. For every nowcasting model estimated by the platform, the evaluation system generates RMSEs and other key summary statistics (e.g., adjusted R-squared, residual plots), creates summary tables comparing the statistics, and then exports the results to excel files for easy charting and manipulation. Figure 3 below provides examples of how the outputs can be displayed for efficient model evaluation and analysis.

Figure 3. Automated Forecast Evaluation Will Empower Nowcast Model Development at the CBK



Source: CBK and IMF staff claculations.

22. This new and automated system provides the CBK with two crucial benefits moving forward: (i) it provides CBK staff with a simple and transparent way of comparing model performance and identifying which predictions are most informative for the staff forecast; (ii) it will empower CBK Staff to conduct efficient and flexible model development on an ongoing basis by enabling them to test the predictive performance of new indicators and models with the click of a button. Specifically, when paired with the platform's ability to specify custom VARs for nowcasting, CBK staff now can instantaneously compare the predictive performance of a new model with that of their existing model set.

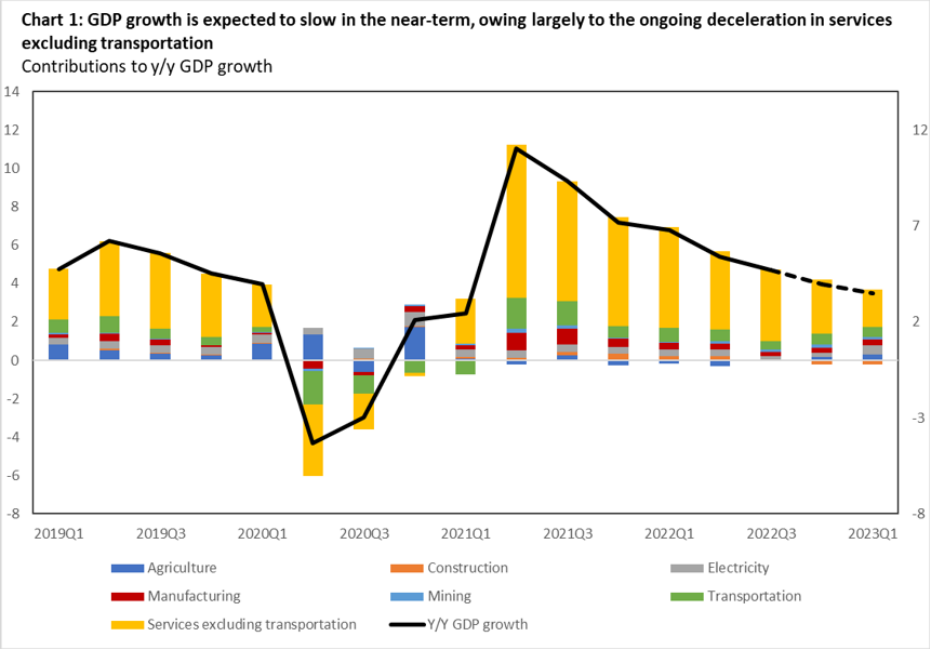
23. CBK staff were briefed on the tool and given a hands-on workshop where all participants had the opportunity to customize the dataset used by the platform, specify custom models if desired, and then examine the forecast evaluation results in real-time. By the end of the training, most staff were very successful in running and adjusting the platform based on their specific focus.

24. The mission team recommends that the CBK continues to expand the nowcasting database with new indicators. These include Purchasing Manager Indices (PMI's), external trade flows data, or other financial indicators such as exchange rates. As the database continues to expand, staff will now be able to quickly evaluate the usefulness of new indicators and quantify the improvements that new data sources or models have on the predictive performance of their nowcasts.

25. Another main task of the mission was to improve the bottom-up nowcast for real GDP growth. Specifically, the nowcasting framework was expanded to predict disaggregated components of GDP. The platform's data input-output structure was adjusted to streamline the generation of nowcasts for individual components of the real GDP. CBK staff can now simply create a dataset for each industry component (or custom sub-industries) of GDP they wish to produce a nowcast for and run the platform. The improved program can automatically estimate all specified models, evaluate their historical performance, and output both the nowcast predictions alongside the evaluation results.

26. The mission team then built a new tool that gathers all disaggregated nowcasts and combines them into a bottom-up nowcast for headline GDP growth. The program produces and exports contributions to growth that CBK staff can use for analysis or for generating charts (see Figure 4 below as an example) to guide their judgement-based forecasts and to improve narrative-building for presentations to the MPC.

Figure 4: Disaggregate Nowcasts Provide a Powerful Communication Tool



Source: CBK and IMF staff calculations.

27. The current set of industries being predicted was determined jointly with CBK staff using their expert judgement. However, the mission team recommends that future work should aim to identify the optimal level of disaggregation by examining nowcasting accuracy of various cuts of the data. This work will be made significantly easier through the new forecast evaluation platform.

28. Due to the limited sample size of most survey-based indicators created as part of the mission (as discussed in Section B), the mission team was unable to integrate them systematically into the nowcasting platform. In the near-term, the mission team recommends that the CBK actively use the survey-based indicators to enhance their narratives and inform their judgement-based forecasts as noted earlier in this report. Once sufficient history exists (either through compiling historical results or time), CBK staff should leverage the new evaluation platform to explore the potential nowcasting benefits from adding survey-based indicators to the platform's input database.

29. The mission team also recommends that future work (either by CBK staff or in a future TA mission) aim to evaluate the benefits of forecast combination, as many of the nowcasting models are simple bridge equations, VARs, or static factor models. It is likely that forecast combination will yield some gains in accuracy.

III. Next Steps

30. Going forward, the MPC surveys should continue to be refined and improved to inform the forecasting process. The questionnaires should be streamlined to reduce the response burden and increase the policy relevance of the surveys. The CEO survey has the most scope for revisions due to its relatively short sample size and should be a priority. Consideration should be given to creating a firm registry to manage and track survey respondents/the survey sample systemically.

31. The CBK staff should continue to improve and automate the survey data pipeline, consolidate historical survey results into a time series, and use the new analysis tools developed during this mission (for example, balance of opinion, see Appendix IV) to inform the policy process. The staff should also continue to explore relationships between their timely survey-based indicators and key macroeconomic time series to further enhance their short-term monitoring of the Kenyan economy. The CBK should consider moving the survey period at least one week earlier to allow more time to integrate the survey results into the policy process.

32. The CBK forecasting teams should continue to improve the nowcasting framework at a disaggregated level. This will help facilitate a deeper understanding of the current economic developments and enable better storytelling for more effective policy communication. The forecast evaluation framework developed during the mission (Appendix IV) should be used to continuously explore relationships between GDP/inflation and key economic indicators, including from new data sources (e.g., exchange rates, Purchasing Managers' Index (PMIs)), and refine the performance of the new disaggregated nowcasting tools by trimming the worst performing models and exploring forecast combination.

33. Further refinements of the nowcasting frameworks will be required during the current TA arrangement. This would involve input and feedback between CBK team and the Mission. In particular, the current framework will be monitored to assess its performance, resolve any emerging issues and upscale where possible. In particular, the BVAR framework should be revisited with a view to resolving existing challenges, improving its efficacy or upscaling it all together. Additional frameworks should be considered in the inflation and GDP nowcasting toolkit such as dynamic factor models, factor augmented VARs, averaging bridge and regARIMAs.

34. The CBK forecasting team is skilled but could become more specialized. Currently, the team members do all tasks related to the forecast exercise (nowcasting, QPM, etc.), though QPM is mainly operated by two people. This practice was established to avoid potential disruptions in the event of staff departures but could be improved to encourage more specialization and deeper modeling skills.

35. It was agreed that the next mission should be in-person and focus on improving the QPM model. Appendix V (FPAS TA log frame for Kenya) presents more general recommendations and the details of the FPAS project.

36. There is need to rebuild the QPM framework developed with the support of IMF TA between 2012-2014. At the time, all except one of the current team members were working on FPAS. In addition, the framework has been expanded in a piecemeal manner to incorporate fiscal and external blocks. Consequently, most team members have struggled to understand the various blocks and codes in the framework. Importantly, most calibrations of parameters, steady states and shock decompositions have demonstrated undesirable properties considering the National Accounts and CPI data have been rebased twice (in 2014 and 2021) rendering most trends, steady states and parameters out of sync. Since QPM is at the heart of FPAS, and taking into account the current realities, it will be critical to rebuild the

CBK QPM framework a fresh as opposed to a piecemeal resolution of the challenges. To achieve this objective the current framework will be allowed to run until the launch of the new upscaled QPM framework. In addition to improving the performance of QPM, this will allow for incorporation of new frontiers in the modeling field and provide an important learning opportunity for the entire team.

Box 1. Central Bank Business Surveys

The Central Bank of Kenya (CBK) currently conducts three main surveys to support monetary policy decisions by the Monetary Policy Committee (MPC).

(1) **Market Perception Survey** (since 2009)

It aims to capture perceptions of different firms on selected economic indicators including inflation, economic growth, demand for credit, growth in credit to private sector and exchange rate. It also assesses levels of optimism in the country's economic prospects and business environment, and perspectives on the current and expected economic conditions, focusing on economic activity and employment.

It targets commercial banks, micro-finance banks, and a sample of non-bank private sector firms selected from major towns across the country where the CBK has presence, namely Nairobi, Mombasa, Kisumu, Eldoret, Nakuru, Nyeri, Meru and Kisii, in the sectors that account for about 78 percent of GDP.

The survey questionnaires are administered via a direct online survey.

(2) **CEOs' Survey** (since March 2021)

It aims to capture CEOs' views/perceptions on selected indicators including business confidence and optimism, current business activity, and outlook for business activity in the near term. It also seeks to establish the key drivers and threats to firms' growth, internal and external factors that could influence the business outlook, and strategic priorities over the medium-term.

It targets the CEOs of key private sector organizations including members of the Kenya Association of Manufacturers (KAM), the Kenya National Chamber of Commerce and Industry (KNCCI) and the Kenya Private Sector Alliance (KEPSA).

The survey questionnaires are administered via a direct online survey.

(3) **Agriculture Sector Survey** (since July 2022)

This new survey aims to generate high frequency agriculture sector data on agricultural prices and output expectations in different parts of the country.

The survey targets wholesale markets, retail markets, and farms in major towns across the country including Nairobi, Nairobi Metropolitan area, Naivasha, Gilgil, Nakuru, Narok, Bomet, Nyandarua, Nyahururu, Kisumu, Mombasa, Kisii, Eldoret, Kitale, Meru and Nyeri.

It is conducted via face-to-face interviews.

Source: CBK presentation.

Annex I. Mission Concluding Presentation

Slide 1

Slide 2

Slide 3

Slide 4

Key components of an efficient system for forecasting and policy analysis (FPAS) and the focus of this mission (in bold)

1. FPAS to support a forward-looking monetary policy framework (TAs since 2012, renewed TA support since 2021 White paper)
2. AFE reviewed the key components of FPAS: (i) the organization of forecast process and the forecast team, (ii) nowcasting framework including the CBK expectations surveys, and (iii) the core macro model, the quarterly projection model (QPM) (November 2021).
3. **CBK surveys and survey data management (April 2023)**
4. **CBK nowcasting tools and models (April 2023)**
5. CBK core medium-term forecasting model/QPM (August 2022 and next)
6. Communication (next)

ONLY the interaction between **ALL** these key components will provide for a strong internal framework to support policy making!

Slide 5

Slide 6

Mission objectives

- Review the current MPC business expectation surveys to improve content and design
- Improve survey data management and data analysis
- Start developing a nowcasting framework for GDP
- Integrate survey results into nowcasting, thus provide better initial conditions for the QPM
- Prepare a presentation for MPC

Slide 7

What mission has achieved

- Streamlined the surveys and enhanced their monetary policy relevance: reviewed three MPC business surveys and proposed changes to the survey questions.
- Improved survey data management and data analysis: (1) created an EViews program for a more efficient data management; and (2) used the concept of "balance of opinion" to convert qualitative survey data to quantitative data.
- Reviewed the existing models for nowcasting GDP and CPI, operationalized a forecast evaluation system to empower future development, and created a disaggregated nowcasting framework to enhance narrative-building.
- Started integrating survey results into nowcasting.
- (CBK staff) prepared presentations for MPC.

Slide 8

1. Improving CBK expectation surveys

IMF | AFRITAC East 8

Slide 9

Current Surveys

- CBK currently conducts the following bi-monthly expectation surveys
  - Market Perceptions Surveys (MPS) since 2009
  - CEO Surveys (CEO) since March 2021
  - Agriculture Sector Survey since July 2022
- The experts walked through the CEO and MPS surveys in detail with workshop participants and provided recommendations related to question wording, response design, and introduced conditional follow-up questions to investigate topics of interest.
- Key findings:
  - These surveys provide a rich source of information for the monetary policy process. However, they need to better integrated into the policy process.
  - Design – could be streamlined and made more policy relevant
  - Timing -- could be advanced. currently surveys are sent about one month before the MPC meetings (e.g., surveys were sent on March 1, surveys back on March 15, too late for the analytical meeting on March 20 and the MPC meeting on March 29)
  - Policy relevance – could provide inputs for MPC meetings

Slide 10

TA recommendations

- The team has reviewed the surveys with the goal of increasing policy relevance. This has been accomplished by suggesting changes to the questions which will increase the analytical power of the survey and reduce response burden.
- Proposed changes to questions
  - Market Perceptions Surveys
  - CEO Surveys (CEO)
  - Agriculture Sector Survey
- Extend the existing survey data further into past. Currently, data is only compiled to around ~2017
- The timing of surveys
  - Start by sending out surveys one week earlier than the current timelines
  - Review experiences and consider moving forward even earlier (two weeks, for example)

IMF | AFRITAC East 10

Slide 11

11

Important files for improving CBK surveys

Name	What	Purpose	Created
CEO Survey - marked up	MS Word	Including proposed changes to the current CEO surveys	April 2023
MPS Banks - Marked up	MS Word	Including proposed changes to the current MPS surveys	April 2023
MPS Non-Bank - Marked up	MS Word	Including proposed changes to the current MPS surveys	April 2023
Agriculture - marked up	MS Word	Including proposed changes to the current agriculture survey	April 2023

IMF | AFRITAC East 11

Slide 12

2. Improving survey data management and data analysis

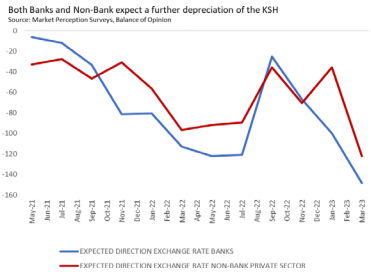
IMF | AFRITAC East

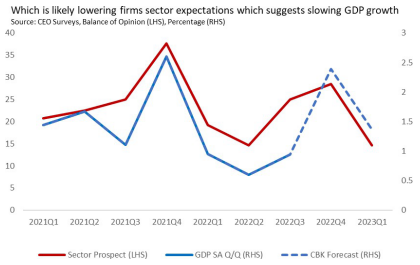
Slide 13

Converting qualitative survey results into quantitative data

The mission demonstrated how transformations of the survey results can make them much more useful:

Balance of Opinions (BoO): (# of higher – # of lower)/ (total # of answers)





Slide 14

Improving survey data management

Current practice: entirely manual data entry, from gathering data from Survey Monkey to concatenating with existing data to generate key time series of interest.

- Proof-of-concept was presented to CBK and it was agreed that this system will be highly beneficial for the survey data ingestion processes.
- The key advantages are that it saves a significant amount of time spent on manual data entry and manipulation, and also drastically reduces the margin for error. It will also significantly boost the efficiency of transferring survey data indicators/balances of opinions to the CBK's operational databases/nowcasting tools.
- Provided template for a firm registry. CBK will need to consolidate their firm contact information into a single database.

Slide 15

15

Important files for improving survey data management

Name	What	Purpose	Created
BoO_worksheet.xlsx	Excel	Provides examples of analysis, calculations using survey data, and Useful charts using BoP	April 2023
Firm_registry.xslx	Excel	Template of a firm registry	April 2023
Boo_workfile	Eview	Workfile converting survey data to quarterly and calculating correlations with GDP	April 2023
Calculaltion of BoO and Frequency Conversion	Excel	Tutorial spreadsheet for calculating Balance of Opinion and Frequency Conversion	April 2023
import_survey_data_agri.prg	Eviews	Proof-of-concept program to pull in SurveyMonkey data from Agricultural Survey	April 2023
Import_survey_data_mps.prg	Eviews	Proof-of-concept program to pull in SurveyMonkey data from MPS	April 2023

IMF | AFRITAC East

15

Slide 16

3. Reviewing and Improving Nowcasting system

IMF | AFRITAC East

Slide 17

Current Nowcasting System in CBK

- GDP and inflation each have two separate nowcasting platforms.
- **For GDP**:
  - Platform 1 (Matlab): A PCA and BVAR model using a variety of domestic and external indicators. The BVAR is currently not functional and the PCA is the primary nowcast tool.
  - Platform 2 (EViews): A system of simple bridge equations and VARs based on domestic indicators (code had deteriorated and was not being used actively)
- **For Inflation**:
  - Platform 1 (EViews): A disaggregated nowcasting tool that forecasts each of the components of CPI and adds them up to a CPI nowcast.
  - Platform 2 (EViews): [Same as Platform 2 for GDP, though using only monthly price data]
- Set up to produce forecasts for four quarters, though only the first quarterly nowcast is used as the starting point for QPM

Slide 18

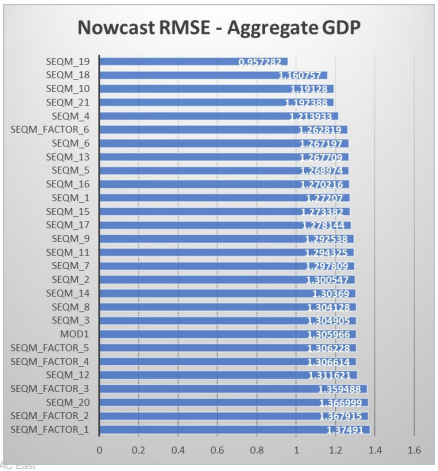
Nowcasting infrastructure reviewed and improved

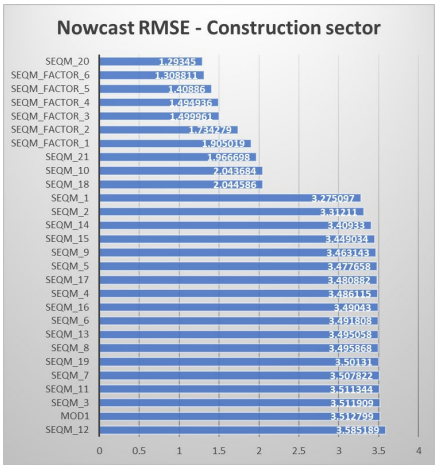
- The database was reviewed. CBK has made good progress on adding metadata and formalizing the full suite of indicators. In light of this, focus was shifted entirely to nowcasting.
- The EViews based platform was thoroughly reviewed and updated so that it runs without errors.
- Additional static factor-based models were added to the model outputs.
- A model forecast evaluation system was designed within the nowcasting tool.
  - This automatically generates RMSEs and other summary statistics for each model and exports the results as a table.
  - The flexibility and simplicity of the forecast evaluation tool will empower CBK Staff to conduct efficient and flexible model development on an ongoing basis.

Slide 19

19

Examples of analysis enabled by model evaluation





Slide 20

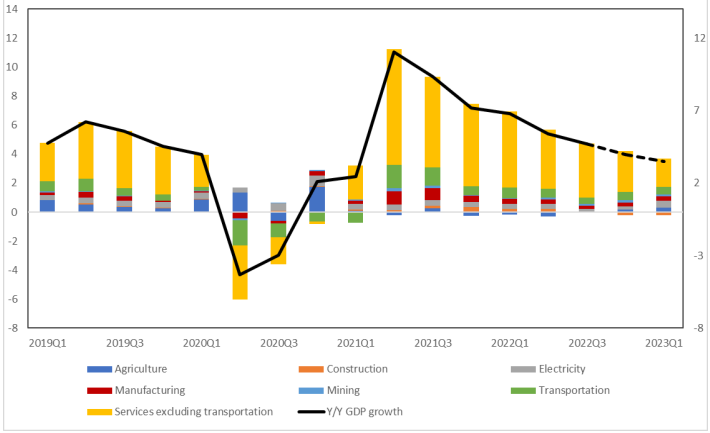
The nowcasting framework expanded to disaggregated components of GDP

- Updated the platform to facilitate the easy construction of nowcasts for the various industries within GDP.
- Built a new tool that combines these disaggregated forecasts into a forecast for headline GDP growth on a y/y basis, which can be used to guide judgement-based forecasts and also to aid narrative-building for presentations to MPC.
- The current set of industries being predicted was determined jointly with CBK Staff, though future work to identify the optimal level of disaggregate is recommended. This work will be made significantly easier through the forecast evaluation platform that was created.

Slide 21

Bottom-up nowcasts provide a richer narrative

Chart 1: GDP growth is expected to slow in the near-term, owing largely to the ongoing deceleration in services excluding transportation
Contributions to y/y GDP growth

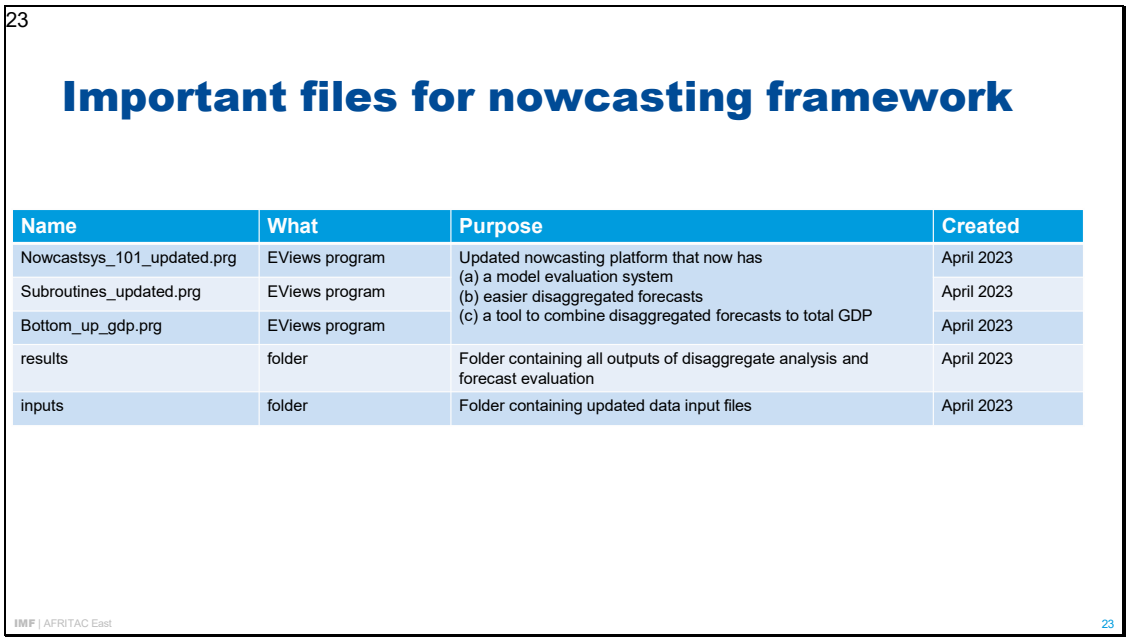


Slide 22

TA recommendations

- Continue to expand the database of leading indicators. The CBK should also look for additional (timely) quarterly series to bring into the dataset as well.
- Use the forecast evaluation framework to continuously explore relationships between GDP/inflation and key economic indicators/new data sources (e.g. exchange rates, PMIs).
- Assess performance of larger VAR models using the "additional models" part of the nowcasting platform.
- Leverage the bottom-up framework to help tell the short-run economic narrative. Continue investigating the optimal level of disaggregation from the perspective of both performance and story-telling.
- Refine the performance of the new disaggregated nowcasting tools by trimming the worst performing models and exploring forecast combination.

Slide 23



Slide 24

Slide 25

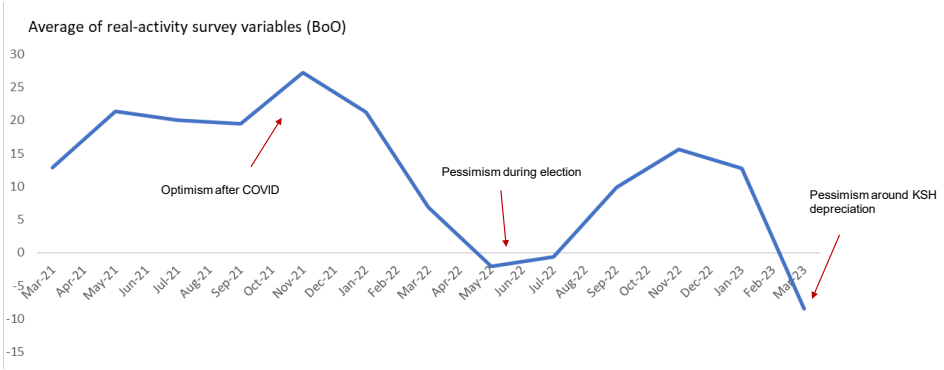
Business Surveys at the CBK

- CBK currently conducts the following bi-monthly expectation surveys
  - Market Perceptions Surveys (MPS) since 2009
  - CEO Surveys (CEO) since March 2021
  - Agriculture Sector Survey since July 2022
- The TA focus has been on improving the survey process
  - Preliminary work on the survey pipeline
    - Provided a template for firm registry
    - Created a template for ETL of survey data
  - Showed how to change qualitative data to quantitative
    - Provided examples of how survey data can be better used in the policy process
    - Did initial analysis on the usefulness of survey indicators

Slide 26

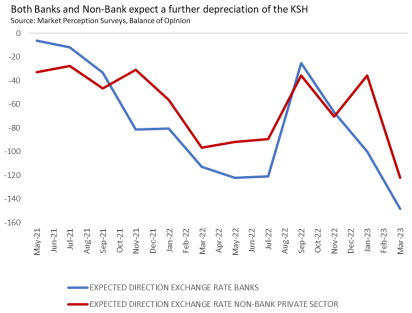
The TA mission finds that the survey data is informative about the Kanya economy

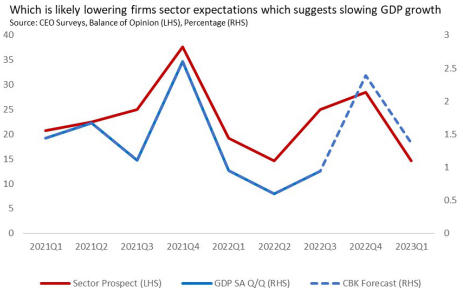
On average the survey results broadly track the economic situation



Slide 27

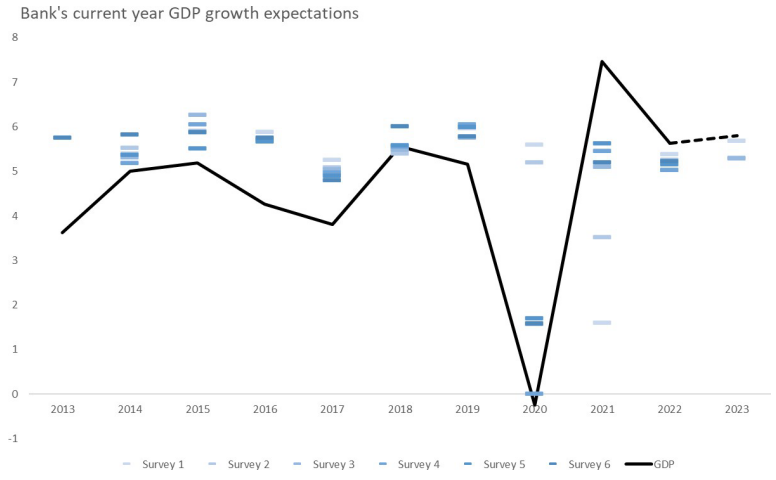
Survey data can provide narratives and inform the nowcasts





Slide 28

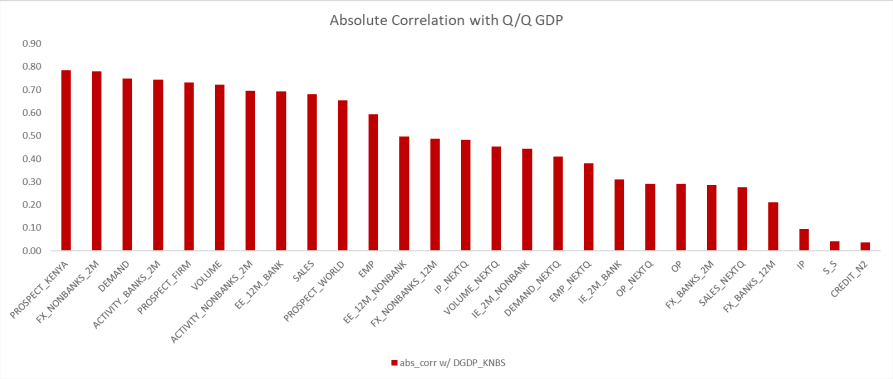
The TA mission provided many examples of how to use CBK surveys



Slide 29

We showed how to assess their indicators

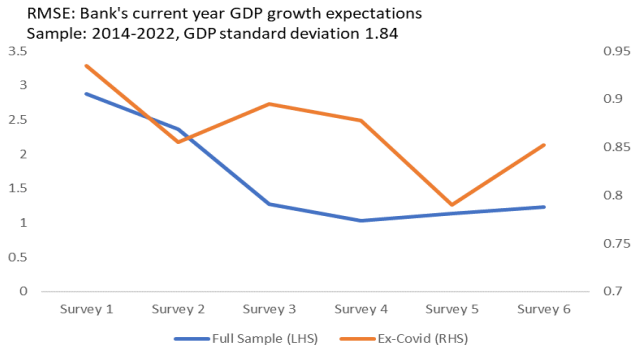
Promising results but the sample is extremely short



Slide 30

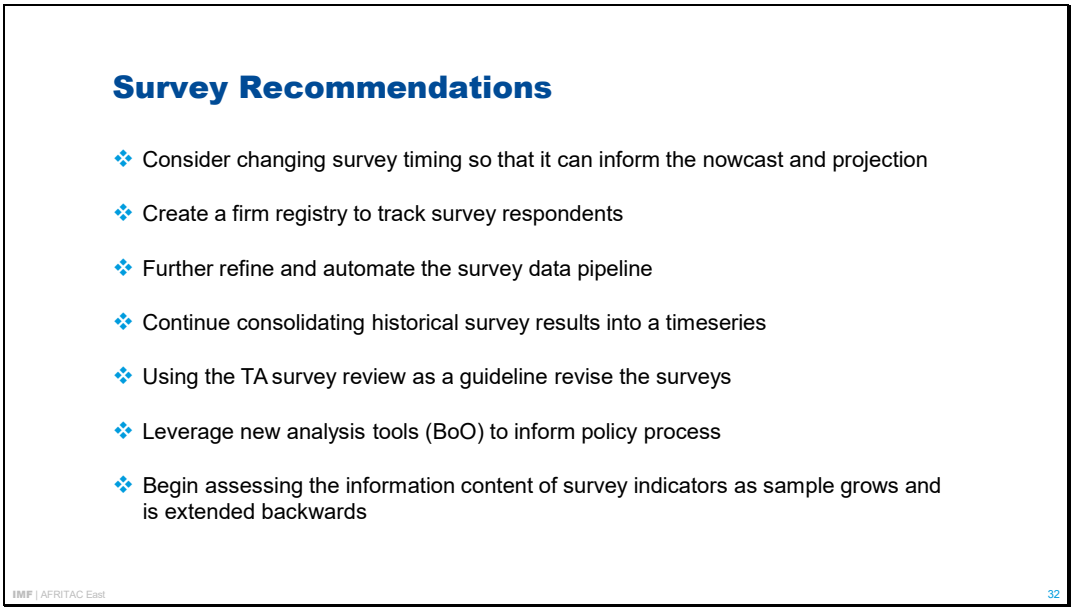
We showed thesurveys have some predictive power

And we have shown how the CBK can begin assessing their surveys information content



Slide 31

Slide 32



Slide 33

Nowcasting Recommendations

- Continue to expand the database of leading indicators. The CBK should also look for additional (timely) quarterly series to bring into the dataset as well.
- Use the forecast evaluation framework to continuously explore relationships between GDP/inflation and key economic indicators/new data sources (e.g. exchange rates, PMIs).
  - Over time, this will continue to improve the nowcasting platform's accuracy.
- Assess performance of larger VAR models using the "additional models" part of the nowcasting platform.
- Leverage the bottom-up framework to help tell the economic narrative.
- Refine the performance of the new disaggregated nowcasting tools by trimming the worst performing models and exploring forecast combination

IMF | AFRITAC East 33

Slide 34

Next steps

- The Concluding Presentation finalized and shared with CBK (Monday)
- Team to prepare the TA report based on the concluding presentation
- TA report send to CBK for comment in early May
- The planning of the next mission (in-person).

- Other issues

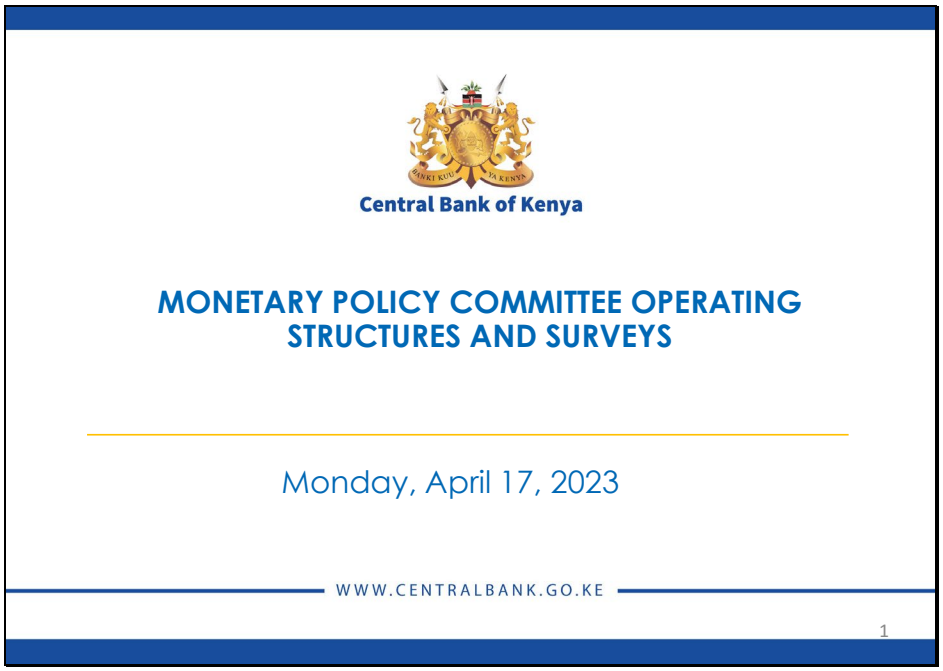
IMF | AFRITAC East 34

Slide 35

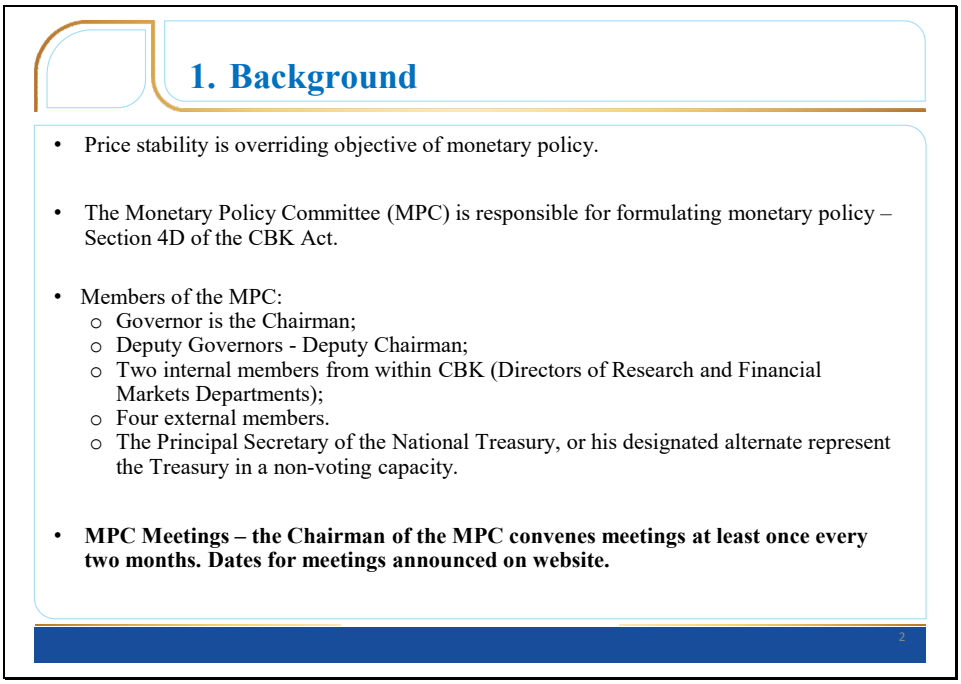
The IMF team would like to thank the CBK staff and management for their hospitality, cooperation, and very productive discussions.
Asante!
IMF | AFRITAC East
35

Annex II. Presentations of CBK

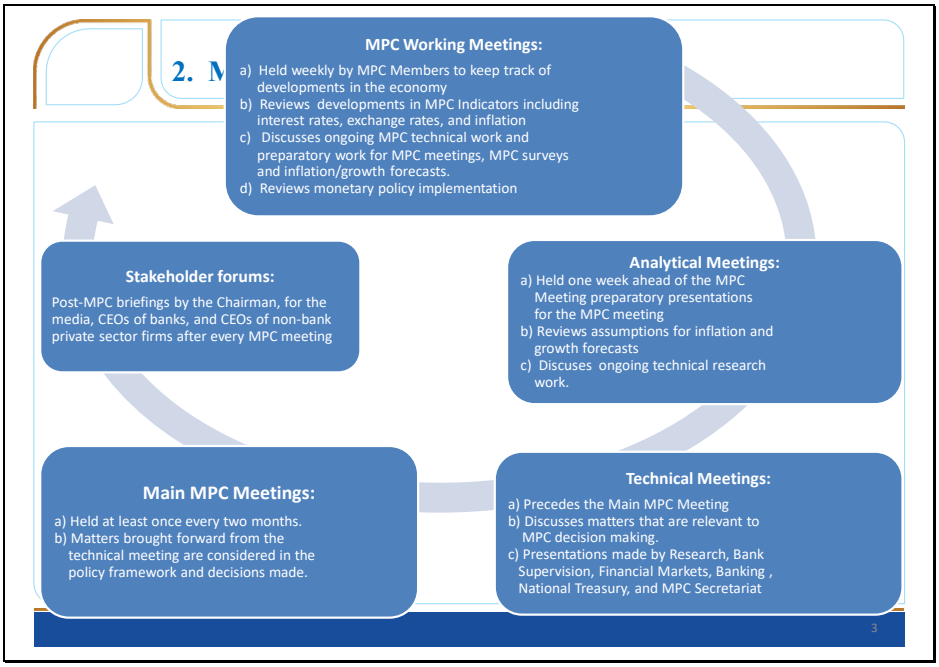
Slide 1



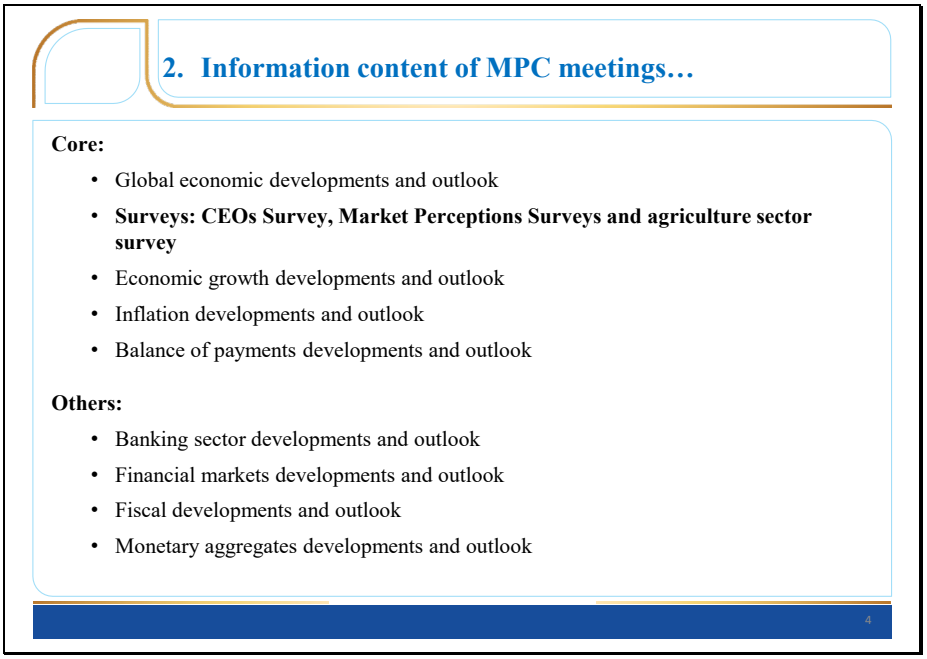
Slide 2



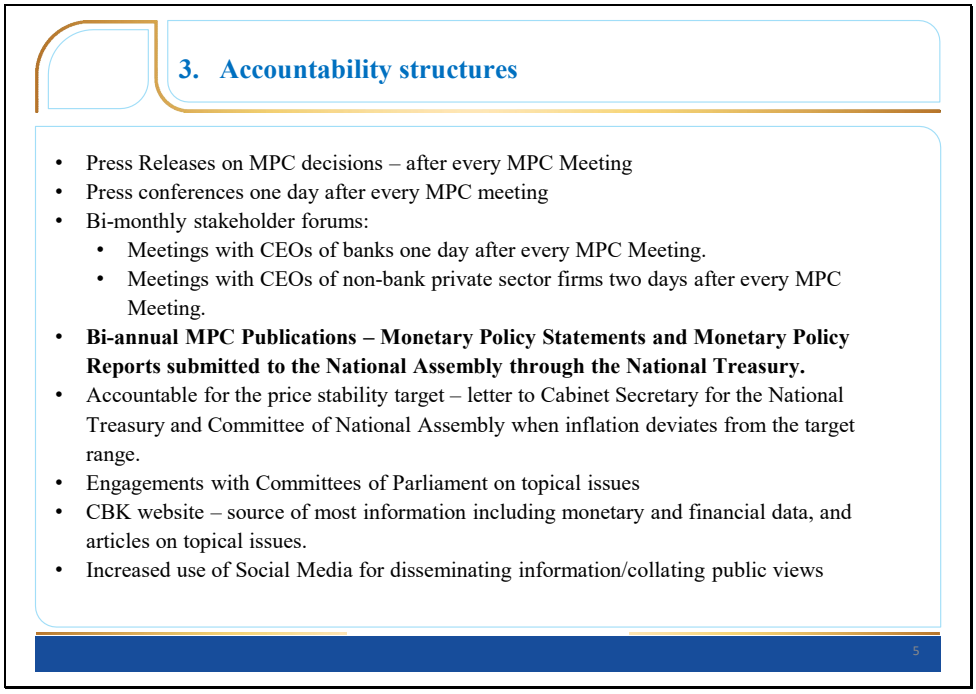
Slide 3



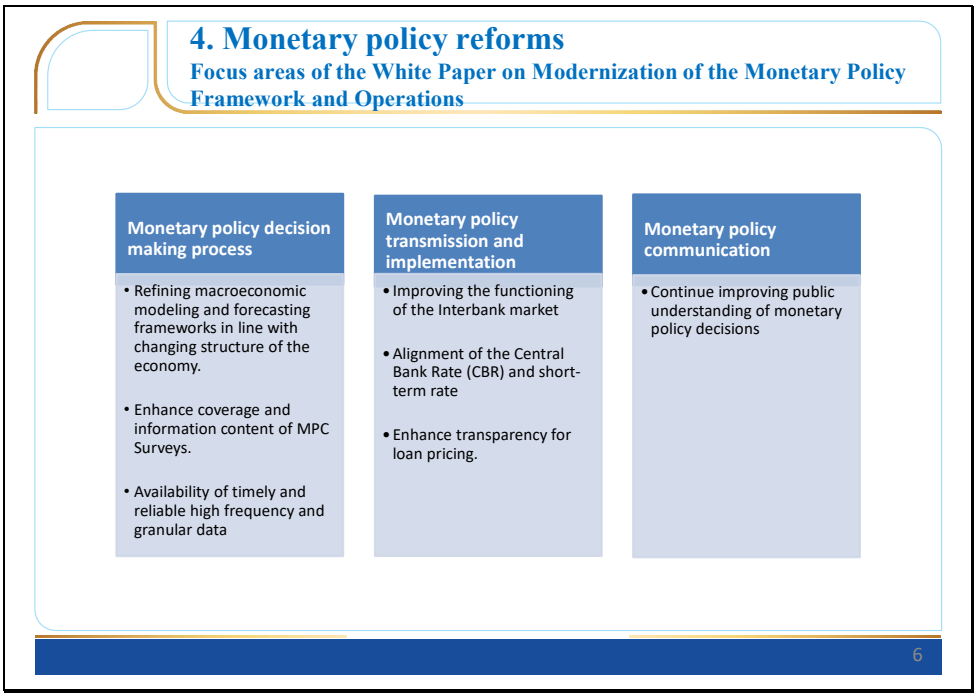
Slide 4



Slide 5



Slide 6



Slide 7

5. CBK Surveys

The Central Bank conducts various surveys to support decisions by the Monetary Policy Committee (MPC).

2009 – assess performance of the economy, access to credit from commercial banks, optimism in the country's economic prospects, among other indicators.

March 2021 – aims to gauge CEOs' expectations, perceptions, and issues of concern.

July 2022 - assess agricultural prices and output expectations in different parts of the country.

Slide 8

Market Perception Survey

Objective: Aims to capture perceptions of different firms on selected economic indicators including inflation, economic growth, demand for credit, growth in credit to private sector and exchange rate.
Also assesses levels of optimism in the country's economic prospects and business environment, and perspectives on the current and expected economic conditions, focusing on economic activity and employment.

Target: Commercial banks, micro-finance banks, and a sample of non-bank private sector firms* selected from major towns across the country namely Nairobi, Mombasa, Kisumu, Eldoret, Nakuru, Nyeri, Meru and Kisii.

Sectors: sectors that account for about 78 percent of GDP.

Methodology: questionnaires administered via a direct online survey. Responses are weighted averages based on the market size of the bank/ microfinance bank relative to total banks/microfinance banks, respectively, while those from the non-bank private firms were weighted using the respective sector weights based on the latest available sectoral contributions to GDP.

Slide 9

Overall inflation expected to remain elevated over the next two months ……..

Survey month	Expected Inflation for:	Large banks	Medium banks	Small banks	All banks (weighted by size of bank)	MFBs	Non-bank private firms
March '22	Mar-Apr 2022	5.4	5.7	5.7	5.5	5.5	5.9
May '22	May-Jun 2022	7.1	6.9	6.8	7.1	6.7	7.2
July '22	Jul-Aug 2022	8.2	8.1	7.9	8.1	7.9	7.5
September '22	Sep-Oct 2022	8.6	8.7	8.7	8.7	8.5	8.2
November '22	Nov-Dec 2022	9.8	9.7	8.7	9.7	9.6	9.4
January '23	Jan-Feb 2023	8.9	9.1	9.0	9.0	9.0	8.8
February 2023	Actual inflation	9.2	9.2	9.2	9.2	9.2	9.2
March '23	Mar-Apr 2023	9.1	9.4	9.2	9.2	9.2	8.9

Respondents expect inflation to remain elevated due to:

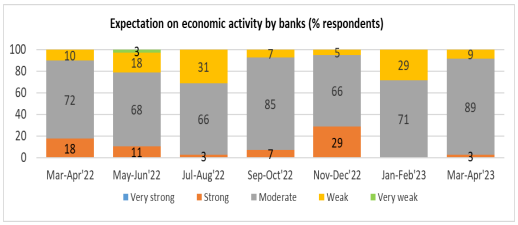
- High food prices due to prolonged dry weather conditions and below average rain as forecasted by the weathermen **(82 percent)**
- Pass through effects of foreign exchange rate depreciation, low dollar liquidity aggravating supply shocks hence prolonging price pressures, expensive imports **(43 percent)**
- High local energy prices impacting transport costs despite declining international oil prices, and upward review of power tariffs **(39 percent)**

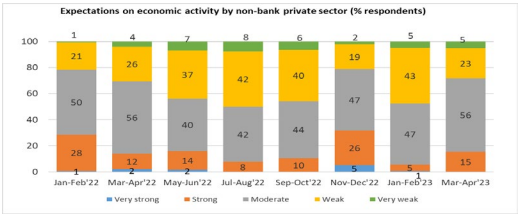
Respondents expect some relief on inflation from:

- Improved supply and distribution of food following the onset of the rains, and food imports, expected to reduce the cost of food items **(57 percent)**
- Positive spillovers from lower global crude oil prices on the cost of local fuel **(43 percent)**

Slide 10

Respondents expect improved economic activity in March and April compared to January and February ….





Respondents expect moderate to strong economic activity over the next two months, supported by:

- The onset of long rains to boost agricultural activity and lower the cost of food, thus improve purchasing power of consumers **(60 percent)**
- Increased private sector credit growth on the back of improved private sector performance, resilient services supported by steady household demand **(30 percent)**

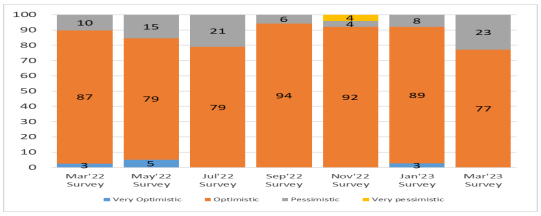
However, risks to expected economic activity include:

- High cost of living **(92 percent)**
- Weak domestic currency, expensive imports , shortage of dollars **(44 percent)**

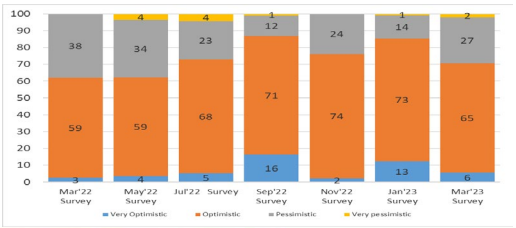
Slide 11

Strong but weaker Optimism in Kenya's economic prospects in the next 12 months, compared to the January survey (%respondents)…

Optimism in growth prospects by banks (% respondents)



Optimism in growth prospects by non-bank private sector (% respondents)



Respondents attributed their optimism about the country's economic prospects to:

- Strategies put in place by the government to improve agricultural production by subsidizing cost of fertilizers, and the hustler fund expected to support businesses and enhance economic activities **(49 percent)**
- Resilience of Kenya's private sector, supported by growth in industry and service sectors including tourism, expected to compensate for the poor weather effects on agriculture **(43 percent)**

The main risks to this optimism include:

- High cost of living **(60 percent)**
- Unfavorable weather conditions **(50 percent)**
- Weakening of local currency **(45 percent)**

www.centralbank.go.ke | www.facebook.com/CentralBankKenya | @CbkKenya

Slide 12

CEOs' Survey

Objective: to capture CEOs' views/perceptions on selected indicators including business confidence and optimism, current business activity, and outlook for business activity in the near term.

The Survey also seeks to establish the key drivers and threats to firms' growth, internal and external factors that could influence the business outlook, and strategic priorities over the medium-term.

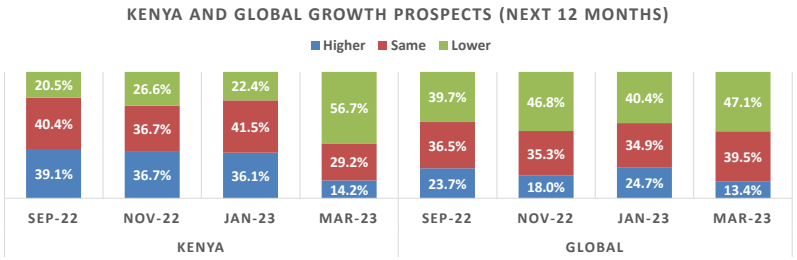
Target: CEOs of key private sector organizations including members of the Kenya Association of Manufacturers (KAM), the Kenya National Chamber of Commerce and Industry (KNCCI) and the Kenya Private Sector Alliance (KEPSA).

Methodology: questionnaires administered via a direct online survey.

www.centralbank.go.ke | www.facebook.com/CentralBankKenya | @CbkKenya

Slide 13

Weaker growth prospects for the Kenyan and global economy

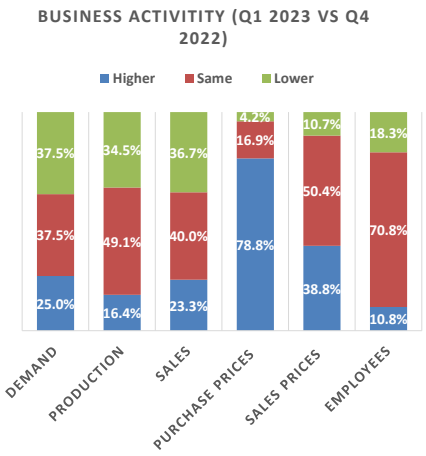


- Kenyan economy concerns:
  - Inflation, weakening Shilling, drought
  - Low consumer spending
- Global economy concerns:
  - Lingering war in Ukraine; interest rate hikes in advanced economies.
  - Effects of the collapse of two banks in the U.S.

Slide 14

Firms reported mixed business activity in Q1 2023 compared to Q4 2022

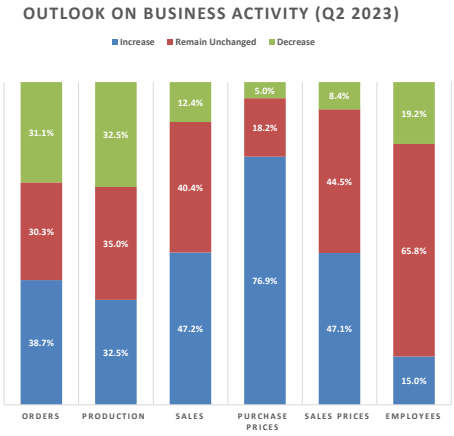
- Demand/orders, production volumes and sales higher were mixed:
  - Higher for business activity for firms in financial, security, and tourism sectors
  - Business activity largely the same for ICT, wholesale/retail trade firms
  - Subdued business activity for professional services, real estate manufacturing – inflation, availability of forex, seasonal factors
- Across all sectors, firms reported persistence of elevated prices of goods and services purchased



Slide 15

Business activity in Q2 2023 expected to mirror Q1 2023

- Demand/orders, production volumes and sales all expected to increase or remain the same for majority of respondents
  - Domestic economic conditions to remain largely the same
  - Easing of inflation
  - Increased government spending associated with close of government financial year expected to benefit some sectors
  - Seasonal factors may support agriculture, transport and storage firms
- Concerns:
  - Reduced consumer spending
  - Cost of inputs (electricity, foreign exchange rate, farm inputs)
  - Global conditions



Slide 16

Agriculture Sector Survey

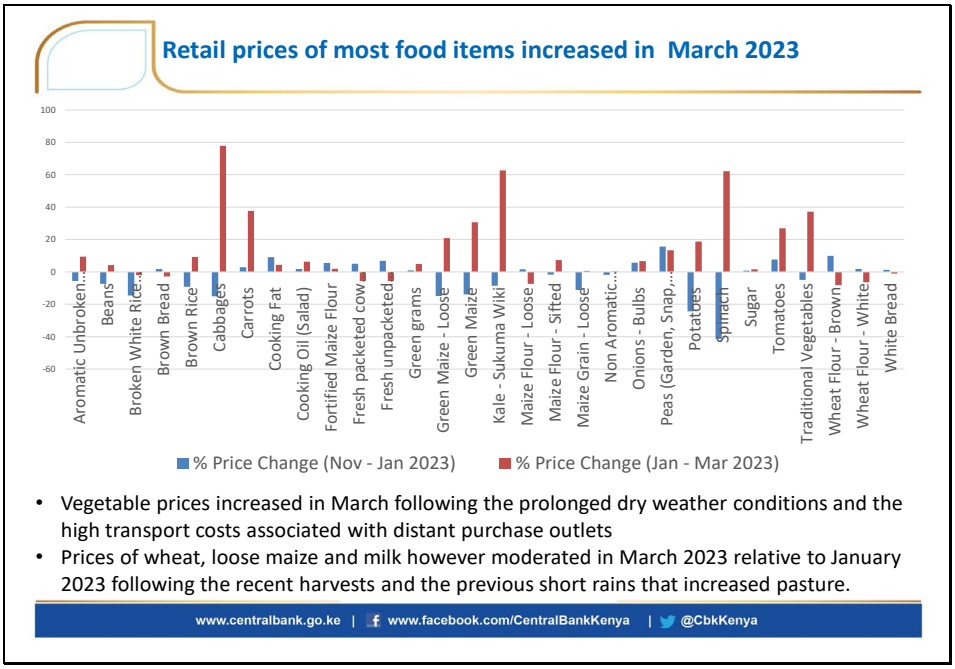
Objective: to generate high frequency agriculture sector data to support monetary policy decision process.
Aims to obtain indicative information on recent trends in prices and output of agricultural commodities in various markets and farms across the country.

Focus for the Survey:
- Prices of key agricultural commodities and their expectations
- Agricultural output, acreage, and expectations
- Use of farm inputs in agricultural production
- Factors affecting agricultural production
- Proposals to improve agricultural production

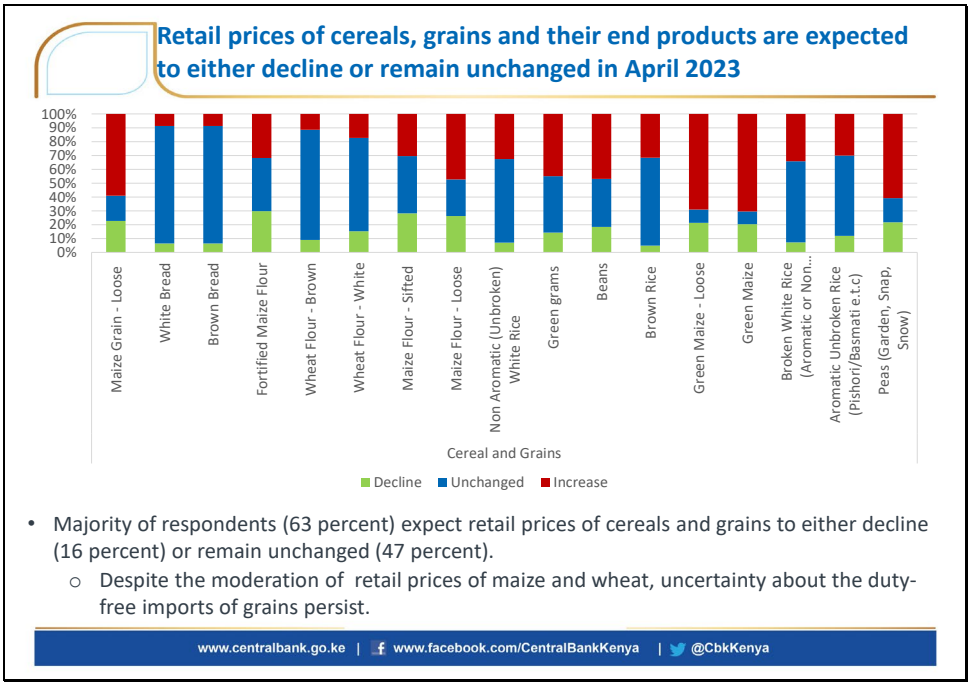
Target: wholesale markets, retail markets, and farms in major towns across the country including Nairobi, Nairobi Metropolitan area, Naivasha, Gilgil, Nakuru, Narok, Bomet, Nyandarua, Nyahururu, Kisumu, Mombasa, Kisii, Eldoret, Kitale, Meru and Nyeri.

Methodology: face to face interviews.

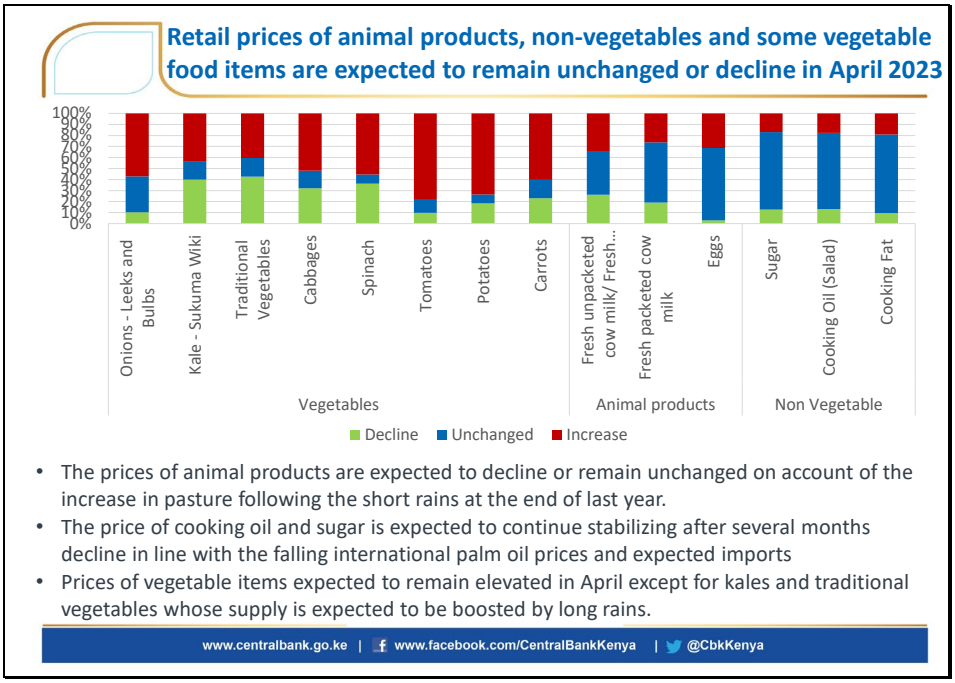
Slide 17



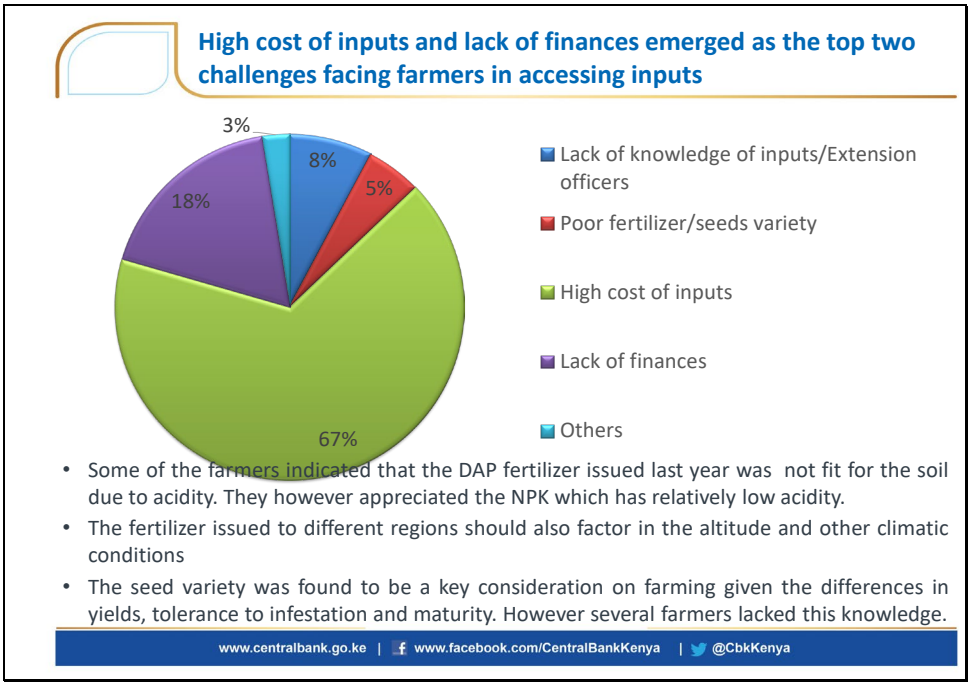
Slide 18



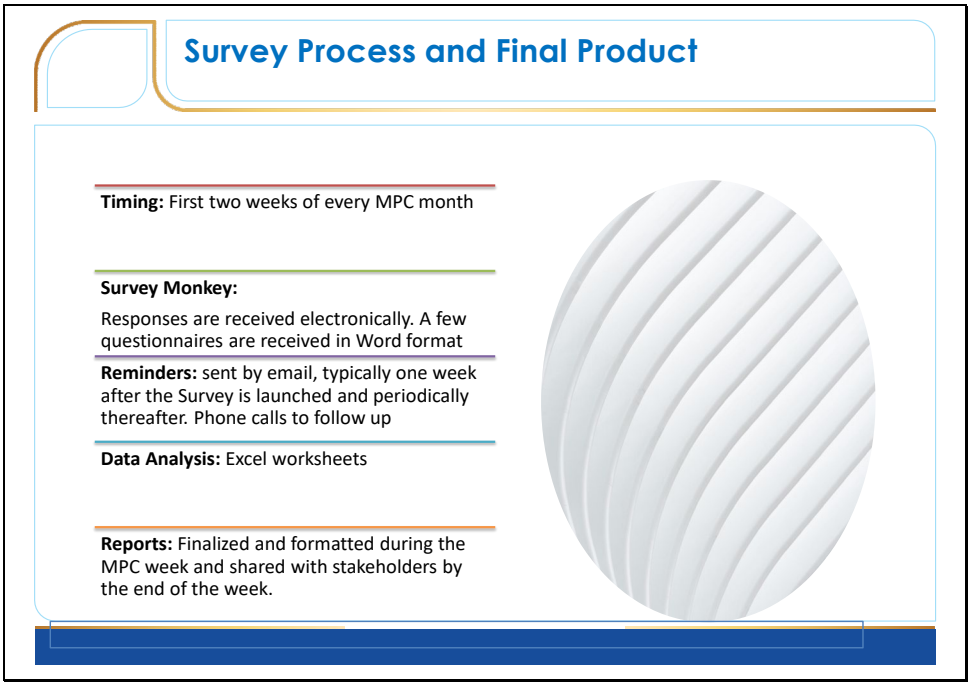
Slide 19



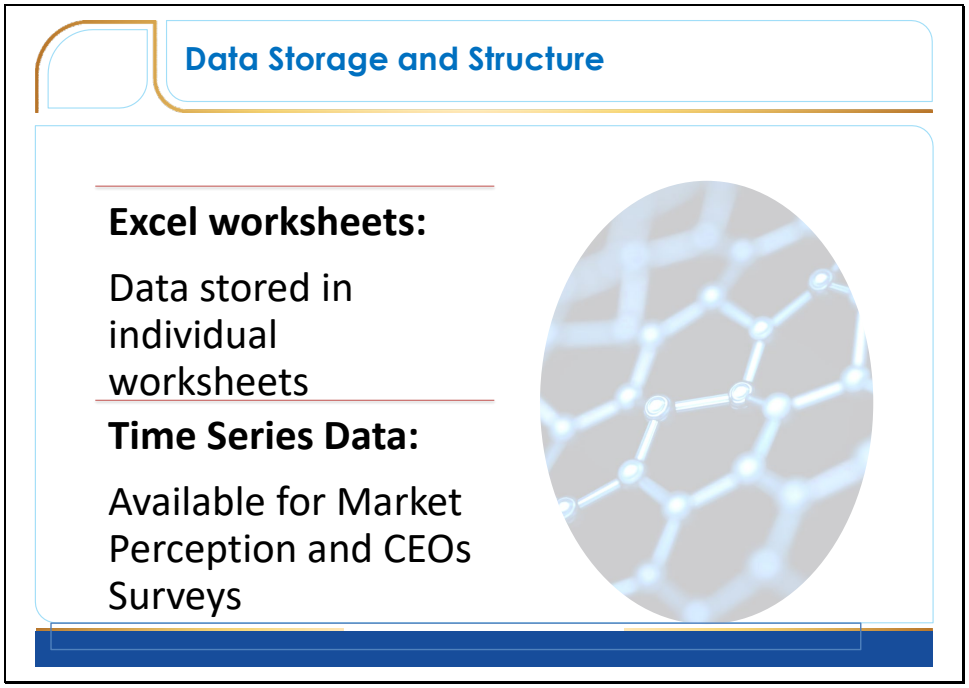
Slide 20



Slide 21



Slide 22



Slide 23

Issues and Challenges

Response rate

Data Storage – need for centralization

Target audience – which survey to respond to?

Suitable software

Presentation

Slide 24

Other Adhoc Surveys

Survey of Flower Farms

Objective: to assess the extent of recovery in the flower sector, particularly after the resurgence of the third wave of COVID-19 globally and discovery of new variants of the virus in some countries

Focus: status of operations of flower farms; levels of employment before and during the COVID-19 pandemic; and an assessment of the implications of subsequent wave of the pandemic

(discontinued in March 2021 after evidence of post-COVID recovery).

Survey of Hotels

Objective: to assess levels of operations in the sector

Focus: accommodation, restaurant and conference services, levels of employment, and forward bookings

Target: hotels (top rated 5-star hotels and small-scale outlets) and restaurants; selected randomly from hotels operating in Nairobi and surrounding towns (Machakos, Kiambu, and Kajiado) and the rest of the country, particularly in towns where the Bank has a presence.

(discontinued in May 2022 after evidence of post-COVID recovery; merged with Market Perceptions).

Annex III. Survey Questionaries

CEOs SURVEY

Every two months since March 2021, the Central Bank of Kenya (CBK) conducts a survey of leading private sector Chief Executive Officers (CEOs), intended to gauge their expectations, perceptions, and issues of concern. The responses are invaluable in providing CBK a sharper picture of the evolving economy, complementing information from other sources, thereby facilitating better decisions by the Monetary Policy Committee (MPC).

We would greatly appreciate if the Chief Executive/Managing Director in your organization could participate in the **current edition of the Survey** being conducted **between May 13 and 24, 2024**. The Survey will take less than 15 minutes to complete, and the information is not used for any other purpose. The information received from the Survey is treated with utmost confidentiality and presented in aggregate form, thus concealing individual responses.

Your participation in the Survey is greatly appreciated and any queries may be directed to Grace Okara (+254-20-2863209) or by email to: ceosurvey@centralbank.go.ke.

General information

i. What is your **title (Job Role)?**

_____

ii. Please provide your **contact information**

Email: _____

iii. Have you previously participated in the CBK CEOs Survey?

Yes ☐

No ☐

If YES, proceed to Section A. If NO, proceed to next question.

iv. What is the **size** of your company in terms of:

a) The **number of employees?**

Less than 100 ☐

Between 100 - 250 ☐

Between 251 - 500 ☐

Between 501 - 1000 ☐

Over 1000 ☐

Other (please specify) _____

b) **Annual turnover in 2023?**

Less than KSh 250 million ☐

Between KSh 250 million and KSh 750 million ☐

Between KSh 751 million and KSh 1 billion ☐

Between KSh 1 billion and KSh 5 billion ☐

Over KSh 5 billion ☐

Other (please specify) _____

v. What is the **ownership structure** of your company? Select one

Privately-owned Domestic ☐

Privately-owned Foreign ☐

Publicly listed Domestic ☐

Publicly listed Foreign ☐

Government-owned ☐

Other (please specify) _____

vi. What is the **main sector** that your company operates in? Select one

Agriculture ☐

Manufacturing ☐

ICT & Telecommunications ☐

Media ☐

Wholesale and Retail Trade ☐

Transport and Storage ☐

Real Estate ☐

Tourism, Hotels, Restaurants ☐

Professional Services ☐

Healthcare/Pharmaceuticals ☐

Education ☐

Building and Construction ☐

☐

Security ☐

Other (please specify) _____

vii. How **long** has your company been operating in Kenya?

Less than 1 year ☐

1 – 5 years ☐

6 – 10 years ☐

11 – 15 years ☐

16 – 20 years ☐

21 – 30 years ☐

Over 30 years	☐

A. Business Confidence/Optimism

1. In terms of **growth prospects**, please indicate your level of confidence in the following over the next 12 months, compared to the current situation. (Please select one option per statement).

	Higher	Same	Lower
Growth prospects for your company	☐	☐	☐
Growth prospects for your sector	☐	☐	☐
Growth prospects for Kenya	☐	☐	☐
Growth prospects for the global economy	☐	☐	☐

Reasons for these views on growth prospects?

_____

B. Outlook on Business Activity

2. a) How would you rate the following performance indicators during **Quarter 2, 2024 (April - June)** compared with **Quarter 1, 2024 (January - March)**?

	Higher	Same	Lower
Demand/ Orders	☐	☐	☐
Production volume	☐	☐	☐
Growth in sales	☐	☐	☐
Prices of goods and services purchased	☐	☐	☐
Prices of goods and services sold	☐	☐	☐
Number of full-time employees	☐	☐	☐

Reasons for these views on business activities?

_____

b) How do you expect the indicators below to develop in **Quarter 3, 2024 (July - September)** compared to **Quarter 2, 2024 (April – June)?**

	Increase	Remain Unchanged	Decrease
Demand/ Orders	☐	☐	☐
Production volume	☐	☐	☐
Growth in sales	☐	☐	☐
Prices of goods and services purchased	☐	☐	☐
Prices of goods and services sold	☐	☐	☐
Number of full-time employees	☐	☐	☐

Reasons for these views on expectation of business activities?

_____

3. Currently, what is the **potential level of difficulty** in meeting an unexpected increase in demand or sales?

No difficulty (operating below capacity)	☐	
Some difficulty (operating near full capacity)	☐	
Significant difficulty (operating at full capacity)	☐	Reasons for these views on operating capacity?
Other (please specify)	_____	

_____

C. Outlook on the Business Environment

4 a) What do you consider to be **the top three drivers of your business expansion/growth** over the next 12 months?

	1	2	3
Technological Innovation	☐	☐	☐

Reassessment of business models	☐	☐	☐
Customer-centric approach	☐	☐	☐
Additional financing	☐	☐	☐
Effective risk management	☐	☐	☐
Improved operational efficiency	☐	☐	☐
Talent management and reward strategy	☐	☐	☐
Partnerships and strategic acquisitions	☐	☐	☐
Development of more/new products	☐	☐	☐
Expansion into new markets	☐	☐	☐

Other (please specify) _____

b) What do you consider to be **the <u>top three domestic constraints</u> to your business expansion/growth** over the next 12 months?

	1	2	3
Business environment/cost of doing business (delayed disbursements, cost of inputs, etc.)	☐	☐	☐
Increased taxation	☐	☐	☐
Factors related to Covid-19 (availability of vaccines, increased infections, lockdowns etc.)	☐	☐	☐
Constraints in business financing (inability to secure credit, cost of credit etc.)	☐	☐	☐
Reduced consumer demand (reduced consumer purchasing power)	☐	☐	☐
Political uncertainty	☐	☐	☐
Economic environment (inflation, economic slowdown etc.)	☐	☐	☐
Depreciation of the Kenya Shilling	☐	☐	☐
Supply chain disruptions	☐	☐	☐
Regulatory issues	☐	☐	☐

Weather conditions	☐	☐	☐

Other (please specify) _____

c) How concerned are you about the following **external (non-domestic) threats negatively impacting your business expansion/growth** over the next 12 months?

	Slightly concerned	Concerned	Not Concerned	Very Concerned	Extremely Concerned
Global Inflation	☐	☐	☐	☐	☐
Global Recession	☐	☐	☐	☐	☐
Geopolitical tensions	☐	☐	☐	☐	☐
Macroeconomic volatility	☐	☐	☐	☐	☐
Climate change	☐	☐	☐	☐	☐
Energy Prices	☐	☐	☐	☐	☐
Cyber Risks	☐	☐	☐	☐	☐

Other (please specify) _____

d) What **top three** things is your company doing to **mitigate the risks to your business expansion/growth?**

	1	2	3
Managing costs/risks	☐	☐	☐
Lobbying with relevant stakeholders (governments, business membership organizations etc.)	☐	☐	☐
Digitization/innovation/enhanced use of technology	☐	☐	☐
Skills development/hiring/talent retention	☐	☐	☐
Covid-19 mitigation measures (vaccinations, employee safety, complying with MOH guidelines etc.)	☐	☐	☐
Increased sales and marketing	☐	☐	☐
Restructuring/relocation	☐	☐	☐

Diversification (expansion into new markets, developing new products etc.)	☐	☐	☐
Increased marketing/better branding	☐	☐	☐
Research and development	☐	☐	☐
Other (please specify)			

5. What **<u>top three</u> internal factors** could strengthen your company's outlook over the next 12 months?

	1	2	3
Improved efficiency/innovation	☐	☐	☐
Skills retention and talent development	☐	☐	☐
Strengthen product portfolio/develop new products	☐	☐	☐
Diversification of revenue streams	☐	☐	☐
Internal measures to contain costs (restructuring, outsourcing etc.)	☐	☐	☐
Digitization/increased automation	☐	☐	☐
Strong supply chains	☐	☐	☐
Union relationships	☐	☐	☐
Increased marketing/better branding	☐	☐	☐
Strengthen corporate governance	☐	☐	☐
Other (please specify)			

6. What **<u>top three</u> external factors** could strengthen your company's outlook over the next 12 months?

	1	2	3
Containment of the Covid-19 pandemic	☐	☐	☐
Stable economic environment (controlled inflation, economic growth etc.)	☐	☐	☐
Enabling business environment/easing of the cost of doing business	☐	☐	☐

Global economic recovery	☐	☐	☐
Political stability	☐	☐	☐
Stability of the Kenyan Shilling	☐	☐	☐
Taxation issues (reduced taxation, tax refunds, tax incentives etc.)	☐	☐	☐
Reduced corruption	☐	☐	☐
Government stimulus programs	☐	☐	☐
Regulatory issues (licensing, county regulations, proportionate regulation, approvals etc.)	☐	☐	☐
Weather conditions	☐	☐	☐

Other (please specify) _____

7. What were your company's main sources of funding in **Quarter 2, 2024 (April – June)**?

Funding	**Approximate Percentage**
Own resources	
Bank loans	
Private equity	
New share issue/IPO	
Other	
TOTAL	

Comments (if not applicable or other sources of funding) _____

D. Strengths and Strategic Priorities

8. What are your company's **top three strengths**?

	1	2	3
Technical capabilities/skilled workforce	☐	☐	☐
Trusted brands/product quality	☐	☐	☐
Corporate governance/board/management experience	☐	☐	☐
Effective supply chains	☐	☐	☐
Company values	☐	☐	☐

Thought leadership	☐	☐	☐
Being customer-centric	☐	☐	☐
Diversified business	☐	☐	☐
Technological advancement	☐	☐	☐
Long presence in the market/history of operations	☐	☐	☐

Other (please specify) _____

9. What are the **top 3 strategic priorities** for your company over the next 3 years?

	1	2	3
Improved efficiency	☐	☐	☐
Cost optimization	☐	☐	☐
Diversification (market expansion/new products)	☐	☐	☐
Invest in talent/skills development	☐	☐	☐
Improve corporate governance	☐	☐	☐
Sustainable business growth	☐	☐	☐
Mergers and Acquisitions	☐	☐	☐
Mobilization of resources	☐	☐	☐
Digital transformation/technological advancements	☐	☐	☐
Partnerships/engagement	☐	☐	☐

Other (please specify) _____

E. Any other comments

10. Do you have any other comments that you would like to give?

_____

CENTRAL BANK OF KENYA

MONETARY POLICY COMMITTEE
MARKET PERCEPTIONS SURVEY QUESTIONNAIRE

Non-bank Private Sector

MAY, 2024

Name of establishment…..……..……..

Location (Town) ……

Sector ……

Total number of employees ……..

Please check the boxes that best answer each question in your opinion.

Q1a. How would you describe your demand for **credit/ funds/ financing** for the next 12-month period, compared with the last 12-month period?

Very high	High	Moderate	Low	Very low
☐	☐	☐	☐	☐

Q1b. Please give reasons, for this **demand for credit,** in order of importance.

……
……..

Q1c. Do you consider the present situation concerning ***access to bank credit*** as

very easy ☐ easy ☐ Moderate ☐ difficult ☐ very difficult ☐

Please give reasons in order of importance.

……
……

Q1d. What are your company's current **sources of financing**? Please number those that apply to your company from number 1-8, number 1 being the most important:

Bank loans	☐
Shares	☐
Retained profits	☐
Sale of assets	☐
Family members	☐
Credit suppliers	☐
Government programs	☐
Other (please specify)	☐

Reasons ……

Q2a. From your perspective, **economic activity** (provision, making, buying or selling goods or services) in the country in the last three months including the current one (i.e. **March, April and May 2024**) was…(please tick)

	Very strong	Strong	Moderate	Weak	Very weak
March 2024					
April 2024					
May 2024					

Please provide the reason(s) in order of importance.

……
……

Q2b. What is your company's expectation of **economic activity** in the country in the next three months **June – August 2024**? (Please tick)

	Very strong	Strong	Moderate	Weak	Very weak
June 2024					
July 2024					
August 2024					

Please provide the reason(s) in order of importance.

……
……

Q3a. How does the current number of **employees (permanent or contract)** in your company compare with those at a similar period in 2023? Please tick as appropriate.

	Higher	About the same	Lower
Permanent			
Contract			
Casual			

Q3b. What would be the reason for this trend? Please tick as appropriate.

Grow business/expand		Cost reduction	
Attracting New talent		Improved efficiency	
Diversify skills		Increase profits by reducing overheads	
Replacing exiting staff		Technological advancements	
Improve morale		Industry decline	
		Mergers and acquisition	

Q3c. Does your company expect **to hire** more **in 2024** compared to **2023**? Please tick.

Definitely will	
Probably will	
Probably won't	
Definitely won't	

Q3d. Please give reasons

……
……

Q4. What are your company's **economic growth rate** (increase in the production of economic goods and services in the country) **expectations** for the year?

2024	
2025 - 2027	

Please provide reasons

2024: ……

2025-2027: ……

Q5. April 2024 **inflation rate** was 5.0 **percent**.

a. What is your expected inflation rate **in the next 3 months (percent)**?

May-24	**Jun-24**	**Jul-24**

Please give reasons for the expected inflation, in order of importance:

May 2024:

……
……

June 2024:

……
……

July 2024:

……
……

b. What would be your company's expectation for **average inflation rate** over the next **one, two and five - year periods**:

Next 1 year (May 2024 - April 2025)	
Next 2 years (May 2024 - April 2026)	
Next 5 years (May 2024 – April 2029)	

Please give reasons for the expected inflation in order of importance:

Next 1 year: ……

Next 2 years: ……

Next 5 years:
……

Q6a. What is your expectation on the direction of change of the average exchange rate of the Ksh/USD **in the next two months (June – July 2024)**?

Weaken	Weaken slightly	Same Level	Strengthen slightly	Strengthen

Please provide reason(s) in order of importance.
……
……

Q6b. What is your expectation on the direction of change of the average exchange rate of the Ksh/USD **in the next 12-months (June 2024 – May 2025)**?

Weaken	Weaken slightly	Same Level	Strengthen slightly	Strengthen

Please provide reason(s) in order of importance.
……
……

Q7a. How optimistic/ pessimistic are you regarding **Kenya's economic prospects**, in the next **12 months**? (Confidence levels resulting from reactions to expected economic events)

Very optimistic	
Optimistic	
Pessimistic	
Very pessimistic	

Q7b. Please give reasons informing your **optimism,** in order of importance:

……
……

Please give reasons informing your **pessimism,** in order of importance

……
……

Q8. Please provide any suggestions on how your business environment could be enhanced.

……
……
……

(i) Name and position of person completing the questionnaire……..
……
(ii) Address: ……
(iii) Date on which questionnaire was filled……..
(iv) E-mail address …….
(v) Telephone Number ……
(vi) Town/Location ……

CENTRAL BANK OF KENYA

MONETARY POLICY COMMITTEE
MARKET PERCEPTIONS SURVEY QUESTIONNAIRE

Commercial and Microfinance Banks

MAY, 2024

Name of establishment ……

Please **check the box** that best answers each question in your opinion.

Q1. How do you expect your **bank's lending rates** to change in the **next 1 year** (**June 2024 – May 2025**)?

Increase	Remain the same	Decline

Please give reasons for the expected direction of lending rates, in order of importance,

Increase: ……..

Decline: ……

Q2a. By what percentage does your bank **expect to grow (+ve) or shrink (-ve)** credit to the private sector in **2024** relative to **2023?**

Q2b. Please give reasons in order of importance

……
……

Q3a. How would you describe the **demand for credit** experienced by your bank in **April and May 2024**?

Very high	High	Moderate	Low	Very low

In order of importance, please give reasons for the above

……
……

Q3b. Your bank expects **demand for credit** for **June and July 2024** to be

Very high	High	Moderate	Low	Very low

In order of importance, please give reasons for the above

……
……

Q4. April 2024 **inflation rate** was 5.0 **percent**.

a. What is your expected inflation rate **in the next 3 months (percent)**?

May-24	**Jun-24**	**Jul-24**

Please give reasons for the expected inflation, in order of importance:

May 2024:
……
……..

June 2024:
……
……

July 2024:
……
……

b. What would be your bank's expectation for **average inflation rate** over the next **one, two and five - year periods**:

Next 1 year (May 2024 - April 2025)	
Next 2 years (May 2024 - April 2026)	
Next 5 years (May 2024 - April 2029)	

Please give reasons for the expected inflation in order of importance:

Next 1 year: ……

Next 2 years: ……..…

Next 5 years:
……..

Q5a. What is your expectation on the direction of change of the average **exchange rate** of the Ksh/USD **in the next two months (June – July 2024)**?

Weaken	Weaken slightly	Same Level	Strengthen slightly	Strengthen

Please provide the reason(s) in order of importance
……..……
……

Q5b. What is your expectation on the direction of change of the average **exchange rate** of the Ksh/USD **in the next 12-months (June 2024 – May 2025)**?

Weaken	Weaken slightly	Same Level	Strengthen slightly	Strengthen

Please provide the reason(s) in order of importance
……..……
……

Q6a. From your perspective, **economic activity** (provision, making, buying or selling goods or services) in the country in the last three months including the current one (i.e. **March, April and May 2024**) was…(please tick)

	Very strong	Strong	Moderate	Weak	Very weak

March 2024						
April 2024						
May 2024						

Please provide the reason(s) in order of importance
……
……

Q6b. What is your bank's expectation of **economic activity** in the country in the next three months **June – August 2024**? (Please tick)

	Very strong	Strong	Moderate	Weak	Very weak
June 2024					
July 2024					
August 2024					

Please provide the reason(s) in order of importance
……
……

Q7a. How does the current number of **employees (permanent or contract)** in your bank compare with those at a similar period in 2023? Please tick as appropriate.

	Higher	About the same	Lower
Permanent			
Contract			

Q7b. What would be the reason for this trend? Please tick as appropriate.

Grow business/expand		Cost reduction	
Attracting New talent		Improved efficiency	
Diversify skills		Increase profits by reducing overheads	
Replacing exiting staff		Technological advancements	
Improve morale		Industry decline	
		Mergers and acquisition	

Q7c. Does your bank expect **to hire** more **in 2024** compared to **2023**? Please tick.

Definitely will	
Probably will	
Probably won't	
Definitely won't	

Q7d. Please give reasons

……
……

Q8. What are your bank's **economic growth rate (**increase in the production of economic goods and services in the country) **expectations** for the year?

2024	
2025 - 2027	

Please provide reasons

2024: ……

2025-2027: ……

Q9a. How **optimistic/ pessimistic** are you regarding **Kenya's economy** in the next **12 months**? (Confidence levels resulting from reactions to expected economic events)

Very optimistic	
Optimistic	
Pessimistic	
Very pessimistic	

Q9b. Please give reasons informing your **optimism, in order of importance**:

……
……

Please give reasons informing your **pessimism, in order of importance**:

……
……

Q10 . Please provide any suggestions on how your business environment could be enhanced, in order of importancee.

……

(i) Name and position of person completing the questionnaire

……

(ii) Date on which questionaire was filled

(iii) Address:

(iv) E-mail address (if any)

(v) Telephone Number

Annex IV. Kenya – Program files

FILES FOR IMPROVING SURVEY DATA MANAGEMENT:

Name	What	Purpose	Created
BoO_worksheet.xlsx	Excel	Provides examples of analysis, calculations using survey data, and Useful charts using BoP	April 2023
Firm_registry.xslx	Excel	Template of a firm registry	April 2023
Boo_workfile	Eview	Workfile converting survey data to quarterly and calculating correlations with GDP	April 2023
Calculaltion of BoO and Frequency Conversion	Excel	Tutorial spreadsheet for calculating Balance of Opinion and Frequency Conversion	April 2023
import_survey_data_agri.prg	Eviews	Proof-of-concept program to pull in SurveyMonkey data from Agricultural Survey	April 2023
Import_survey_data_mps.prg	Eviews	Proof-of-concept program to pull in SurveyMonkey data from MPS	April 2023

FILES FOR NOWCASTING FRAMEWORK:

Name	What	Purpose	Created
Nowcastsys_101_updated.prg	EViews program	Updated nowcasting platform that now has (a) a model evaluation system (b) easier disaggregated forecasts (c) a tool to combine disaggregated forecasts to total GDP	April 2023
Subroutines_updated.prg	EViews program		April 2023
Bottom_up_gdp.prg	EViews program		April 2023
results	folder	Folder containing all outputs of disaggregate analysis and forecast evaluation	April 2023
inputs	folder	Folder containing updated data input files	April 2023