Executive dashboards for commercial and central banking – complementary views for decision-making

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LEARNING ACTIVITY DESCRIPTION

- The original idea of **two complementary writing assignments** selected from course deliverables.
- Designed for a graduate course in **Money, Banking, and Financial Institutions**.
- The course is an elective for MBA in Business Administration and in Master of Science in Finance program, both offered in online delivery mode.
- With professional appeal of **executive dashboards**.
- Recognizing a **dual perspective** of the economic environment for banking.
- Exhibiting the importance of **market expectations**.

OBJECTIVES OF THE STUDY

The design of these two assignments was motivated by the following objectives:

- To **create experience** with **exploring financial databases** for data-supported decision-making.
- To **apply theoretical** concepts in real-life problem solving in banking.
- To actively engage with the course contents in a professional activity in the real setting.
- To initiate the **interest** in the topic students can **relate to** in a **comprehensive approach**.
- To create a long-lasting challenging and well-motivated learning **experience**.
- To focus on the **learning goals** of: disciplinary knowledge, strategic thinking, managerial communication, ethical reasoning, and global understanding.

RATIONALE FOR THE STUDY

**These assignments were inspired by following considerations:**

- These two assignments **replicate professional** approach to constructing executive **dashboards**.
- They serve as a practical and applied **experiential learning** opportunity in the economics and finance curriculum.
- Students are expected to follow a **theoretical rigor** supporting their recommendations while searching **real-time data** sources from a variety of financial databases.
- These two assignments combined, constitute **complementary view for decision-making in banking**.
- This active learning approach provides for **discovery** of other players' views and incorporates recognition of market expectations.
- These two assignments **integrate** a comprehensive picture for decision making, with application of **current information**.
- This learning strategy puts students in the **key role** with little risk involved but with a lot of interest and excitement about the economic environment.
- These assignments stimulate **innovativeness**, supports students' independent thinking and **problem-solving** while engaging purposefully in the intense faculty-supported research.
- They support skillful, exploratory, and effective use of scrutinized data sources.

LEARNING ACTIVITY DESIGN

Writing Assignment 1: Bank Executive Dashboard - Input Variables.

Design the contents of the Dashboard listing external real-time data important for a bank executive to follow on a daily basis to be able to make decisions about bank's activity. List the data you recommend to include as the variables you will be looking at because they have critical impact on bank performance, but the bank as a financial intermediary, has no control of them due to their external character. To establish the list of the input variables in question, please refer to the peer-reviewed papers in the literature, theory of banking; consider drivers of the banking industry and risk factors for banking activity as well. You need to include data from the financial market but also relevant macroeconomic variables. To correctly define the variables please verify the availability of these variables in the financial databases. Along with each variable, please list the defining and listing information, such as frequency, range, unit of measurement, and discuss the transmission mechanism of each variable's impact on banking activity. Supplement each variable with historical charts from the financial databases exhibiting the pattern of fluctuations.
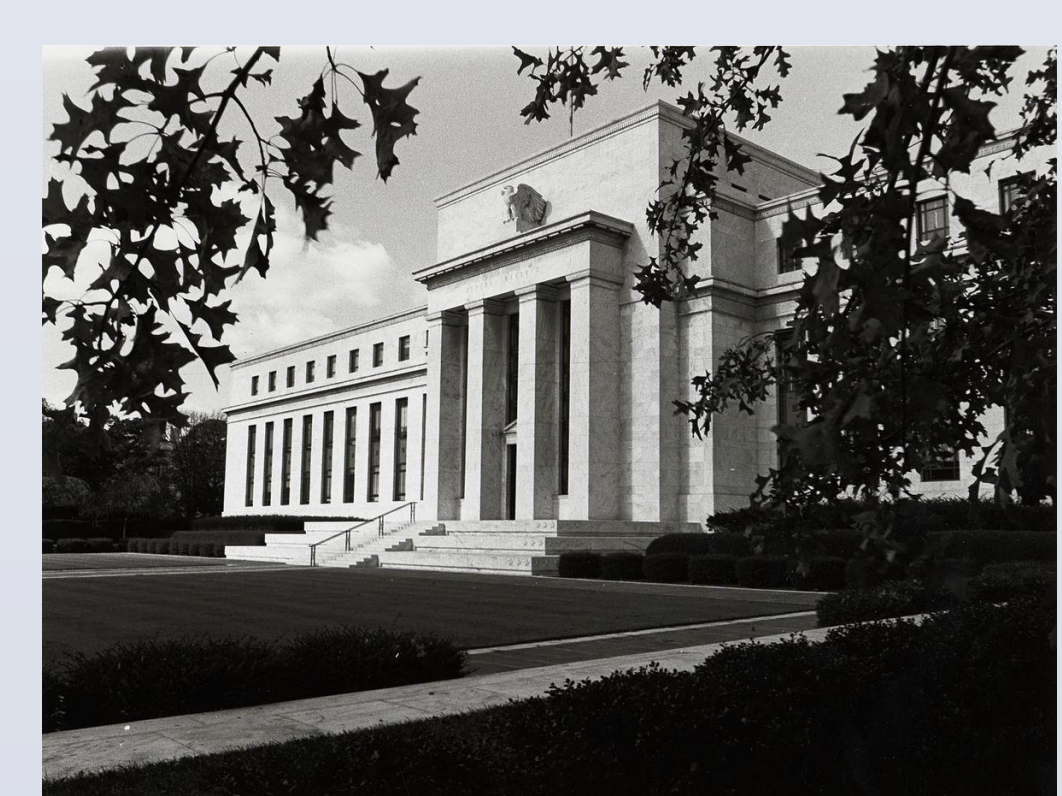
Writing Assignment 2: Central Bank Dashboard - Input data for monetary policy decision with consideration of Dual Mandate and Policy Trilemma.

Design the contents of the Dashboard listing external real-time data required as an input for monetary policy decision makers in the Fed to follow on a daily basis. The data has to support decisions about the monetary policy tools to be applied but with consideration of the conflicting objectives of Dual Mandate and Policy Trilemma. List the data you recommend to include as the variables you will be looking at, because they have critical impact on the monetary policy effectiveness, but the Fed has no control of them due to their external character. To establish the list of the input variables in question, please refer to the peer-reviewed papers in the literature, theory of central banking, tools and challenges of monetary policy. You need to include data from the financial market, the international financial market, but also relevant macroeconomic variables. To correctly define the variables please verify the availability of these variables in the financial databases. Along with each variable, please list the defining and listing information, such as frequency, range, unit of measurement, and discuss the transmission mechanism of each variable's impact on the objectives of Dual Mandate and Policy Trilemma and validity for respective tools of monetary policy. Supplement each variable with historical charts from the financial databases exhibiting the pattern of fluctuations.

ASSESSMENT CRITERIA

Each writing assignment is assessed by a corresponding grading rubric specifying the breakdown of maximum points for the components in each assignment serving as criteria of assessment.

Writing Assignment 1 Bank Executive Dashboard - Input Variables	20 total
Discuss with convincing and supportive narrative, based on theory (textbook) and peer-reviewed journals from the literature, the selection of the Input Variables for the Bank Executive Dashboard, according to the instructions (drivers and risk factors).	3
Build a comprehensive collection of market drivers for banking industry including: money supply, money market interest rates with relevant measures (including international markets), price change measures (inflation), currency markets (exhibiting global understanding), stock indexes, the consumer confidence index, central bank operations, public debt data, government bonds like treasury bills (you could also add data for other relevant countries), and many other key economic indicators you should consider (about national accounts, bank lending, labor market, import-exports, industrial activity, price of crude oil, and other vital commodities like gold).	5
Correctly name the variables, as they are used because of the critical impact on bank performance and prioritized for their importance and avoiding overlapping.	3
Prove the availability of the data from the provided resources with elaboration on data characteristics (such as frequency, range, unit of measurement) and discuss the transmission mechanism of each variable's impact on banking activity while recommending them for a dashboard evidencing that they really exist as collected data from various sources.	3
Formulate full names of the quoted variables to let you search for them in daily news and professional financial databases, and to communicate efficiently in the professional field. Predict the implications (impact) of these variables on a bank's activity.	3
Include references, supporting material, and a graphic presentation with a compelling and coherent narrative in accordance with the instructions supporting your narrative on determining and recommendations for dashboard contents listing external real-time data important for a bank executive to follow on a daily basis to be able to make decisions about bank's activity.	3

Writing Assignment 2 Central Bank Dashboard - Input data for monetary policy decision with consideration of Dual Mandate and Policy Trilemma	20 total
Discuss with convincing and supportive narrative, based on theory (textbook) and peer-reviewed journals from the literature, the selection of the Input Variables for the Central Bank Dashboard, according to the instructions (monetary policy decision with consideration of conflicting objectives of Dual Mandate and Policy Trilemma).	3
Build a comprehensive collection of input variables important to consider key variables under the dual mandate and the policy trilemma, with much broader view than monitoring inflation, unemployment and exchange rates.	5
Elaborate on inflation and unemployment based on the expectation theory and indicators from the respective markets in the economy (not only the money market) and pricing derived from future markets. Recognize the predictions of inflation on data from aggregate supply and aggregate demand and inflation drivers both cost-push inflation and demand-pull inflation. Discuss unemployment as affected by changes in the labor market and consumer and industry sectors with factors inducing seasonality.	3
Propose the exchange rate prediction metrics while recognizing government sector and foreign trade balance (external sector) with commodities prices (especially crude oil) and financial futures having a significant impact on all considered variables.	3
Name the quoted variables to let you search for them in daily news and professional financial databases and predict their critical impact on monetary policy effectiveness while identifying the transmission mechanism of each variable's impact on the objectives of Dual Mandate and Policy Trilemma and applicability for respective tools of monetary policy.	3
Include references, supporting material, and a graphic presentation with a compelling and coherent narrative in accordance with the instructions supporting your narrative on determining and recommendations for dashboard contents listing real-time data required as an input for monetary policy decision makers in the Fed to follow on a daily basis.	3

CONCLUSIONS

- **The presented set of two writing assignments was very effective at achieving stipulated course and program learning outcomes.**
- **Designing dashboards stimulated a discovery process and development of reality and rationality-check skills, assisted by data visualization.**
- **These professionally oriented, practical research assignments increased student's satisfaction and encouraged engagement.**
- **Comprehensive approach to the complex problem facilitated better understanding of interdependence, expectations, and real-time data interpretation.**

DASHBOARDS IN THE LITERATURE

- Dashboards are vital for decision-making **in business** for strategic alignment and to address data complexity (Guni, 2014, Ballou et al., 2010; Yigitbasioglu & Velcu, 2012; Bumblauskas et al., 2017; Mishra et al., 2019).
- Dashboards with web-based tools and point-in-time globally integrated data are critical **in finance and banking** (Warsop III, 2009; Hanselman, 2009).
- Most dashboards are **focused on performance metrics**, although real-time input data should be of a key concern (Hanselman, 2009; Allio, 2012; Chattopadhyay, 2016; McKeen et al., 2005).
- Dashboards are successfully prototyped **in education** for data visualization in managerial accounting courses (Kokina et al., 2017; Miller-Nobles et al., 2019) and in a business analytics course (Mutigwe et al., 2017).
- There are many **challenges** associated with dashboards design (Ballou et al., 2010; Yigitbasioglu & Velcu, 2012):
  - input accuracy, validity, and relevancy,
  - measurement error and misinterpretation of data,
  - key input assumptions,
  - usefulness of data,
  - stress testing (such as by Federal Reserve for banking industry),
  - overlying on the numbers with a distorted view,
  - missing supplemental information and context.
- Following **recommendations** for designing effective dashboards should be considered (Ballou et al., 2010; Allio, 2012):
  - balancing both external and internal forces-related metrics, including big data,
  - prioritizing and systemizing the contents, including key stakeholders,
  - filtering and scrutinizing process for data compliance and recognizing limitations,
  - individual and unique approach for the company,
  - providing actionable knowledge,
  - determining format, detail, and access to data,
  - practical and with unified terminology,
  - supported by technical abilities.

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