Semester-Long Central Banking Project in Monetary Theory and Policy Course*

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Abstract

This paper describes a semester-long project in an undergraduate monetary theory and policy course where each student selects a central bank whose policies they research and present to their colleagues throughout the semester. This approach expands the traditional approach of focusing on the U.S. Federal Reserve monetary policy and transforms the learning experience to include central banks from other countries and economic blocs. We find that the project increases student engagement and creates a unique environment where students eagerly learn from each other in a more egalitarian and horizontal environment in addition to strengthening research skills, improving the connection between the theoretical and applied components of the course, and advancing presentation skills.

Keywords: Teaching monetary theory and policy, central banking, semester-long project
JEL classification: A20, A22, E00, E50

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1 Motivation

Courses about monetary economics, such as monetary theory and policy courses or money and banking courses, are common at undergraduate institutions (Bosshardt and Walstad 2017). In the U.S., they typically focus on monetary policy conducted by the Federal Reserve System, the U.S. central bank. This paper argues that much can be gained pedagogically, and with enhanced student interest and commitment, by expanding the coverage to include central banks of other countries and economic blocs.

This international coverage is achieved in a semester-long, fact-finding, project where students select a central bank, complete research about it and present the results of their work to the class.[1] In addition, the project increases student engagement, builds research skills, connects the research to the class material, strengthens presentation skills and leads to learning from other students.[2]

The literature on teaching monetary courses has focused on teaching specific theoretical and applied topics. For example, Miller (2010) focuses on teaching long-run monetary neutrality using equity markets. Kapinos (2010) and Duffy and Jenkins (2019) discuss teaching the New Keynesian model using Excel and a classroom experiment, respectively. Friedman (2013) and Gertler (2013) focus on teaching monetary policy after the 2007-2008 financial crisis. Buttet and Roy (2014) show how to use a reduced-form New Keynesian model of short-run dynamics to teach the zero lower bound. Waters (2022) uses the Taylor rule and the Fisher relation to teach the zero lower bound and other topics. Hook (2022) explains how

[1]This fact-finding project is resilient to the uncritical use of AI chatbots in as much as the answers those online services can provide to the project prompts are prone to be factually incorrect.

[2]The opportunity cost of adopting this project can be minimized by leveraging the flipped teaching techniques described by Yamarik (2019).

to teach the money creation process, Ihrig and Wolla (2022) provide instructions for teaching monetary policy in the ample reserves regime, and Junior, Garcia-Cintado, and Junior (2022) share a framework for teaching interactions between monetary and fiscal policy.

In addition, several papers provide instructions on using data in teaching monetary topics. Whiting (2006) describes homework assignments to prepare for a mock Federal Open Market Committee (FOMC) meeting, Mendez-Carbajo, Taylor, and Bayles (2017) show how to build a graph of the Taylor rule using data in the Federal Reserve Economic Data (FRED) database, Staveley-O'Carroll (2018) describes six FRED data homework assignments where students in a money and banking course learn about inflation, bonds and stocks, monetary aggregates, Taylor rule, employment, and policy recommendations for the FOMC, and Croushore and Kazemi (2019) show how to use the Bloomberg terminal platform to teach macroeconomics and monetary policy topics in economics and finance courses. This paper contributes to the scholarly literature on teaching and learning by showing how monetary theory and policy courses can be expanded by adding an international dimension to the curriculum. The novelty of the semester-long central banking project lies in the comparative, international scope with each student following a different central bank, which fosters an analysis of monetary policy mandates, instruments, crisis responses, and communication strategies of the various central banks.

Section 2 describes the course to provide context for the semester-long central banking project described in Section 3. Section 4 discusses resource requirements, benefits, and student feedback. Section 5 concludes.

2 Course Information

This monetary theory and policy course was taught in the fall of 2022 and in the fall of 2023 in the economics department at a four-year liberal arts college as a three-credit elective that meets twice a week for 80 minutes in a 13-week semester. The course has four prerequisites: introduction to microeconomics, introduction to macroeconomics, calculus I, and intermediate macroeconomics[3]. The maximum number of students in the course is 18. Typically, students are in their third or fourth year. Most of the students are economics majors, although some of them might major in other disciplines.

The course covers topics related to both monetary theory and policy. The course begins with a five-equation New Keynesian macroeconomic model consisting of an output equation (relating current output to the natural output, current real interest rate, and natural real interest rate), the Fisher equation (relating nominal interest rate, real interest rate, and expected inflation rate), the Phillips curve equation (relating current inflation rate to previous expectations of the current inflation rate, deviation of current output from natural output, and an exogenous supply shock), the expected inflation equation (showing how inflation expectations are formed), and a monetary policy rules (relating the nominal interest rate to inflation rate, real interest rate, deviation of inflation rate from the target inflation rate, and deviation of current output from natural output). We begin with this five-equation model for two reasons. First, it serves as a review of the material that students learned in the prerequisite intermediate macroeconomics, and second, it provides a simplified version of more complicated models that underlie central banking throughout the world.

[3]The intermediate macroeconomics course at our institution uses a standard intermediate macroeconomics textbook that includes topics such as the economy in the short run, the economy in the long run, and open economy. Knowledge beyond the intermediate level of macroeconomics is not required for this project.

After introducing the five-equation model, the course covers various other theories such as the theory behind money creation and theories of the interest rates term structure as well as monetary policies before, during, and after the 2007-2008 financial crisis. Students can then use the theoretical relationships from the five-equation model to understand the monetary policies implemented by their central banks. For example, students can use the monetary policy rule to discuss how their central banks adjusted nominal interest rates due to the deviation of inflation rate from the target inflation rate and deviation of current output from natural output during and after the 2007-2008 financial crisis and the COVID-19 pandemic.[4]

The readings include selected chapters from two standard textbooks (Mankiw (2022) textbook for the five-equation model and Mishkin (2022) textbook for topics about financial markets), journal articles, monetary policy statements (for example, the FOMC statements and projection materials), and current news. The course is graded with a midterm exam (20%), a final exam (20%), a research paper (25%), journal article discussions (15%), and the central banking project (20%) described in Section 3.

3 Semester-Long Central Banking Project

This section describes the semester-long central banking project. During the first week of the semester, students submit their preferences about the central bank they would like to research. Since multiple students might be interested in the same central bank, students are asked to submit their top three choices. The instructor then assigns the central banks

[4]The five-equation theoretical framework can be enriched by including extensions from open economy macroeconomics. For example, an uncovered interest parity condition and an open-economy Phillips curve can be added to provide a connection from the five-equation model to the exchange rate and external-sector considerations faced by central banks.

to the students, accommodating their preferences as much as possible. For example, in the fall of 2023, fifteen students enrolled in the course and the following fifteen banks were assigned: Banco Central do Brasil, Banco de México, Bank of Canada, Bank of England, Bank of Japan, Central Bank of Armenia, Central Bank of the Republic of Türkiye, European Central Bank, Monetary Authority of Singapore, State Bank of Pakistan, People's Bank of China, Reserve Bank of Australia, Reserve Bank of New Zealand, Sveriges Riksbank, and Swiss National Bank.[5] Since the course material covered during class meetings primarily focuses on the U.S. central bank, no students are assigned the U.S. central bank to avoid duplicating discussion of this central bank.

Each student then researches their assigned central bank and presents the findings to the class. Since the scope of the project is quite large, the project is broken down into three presentations, following previous literature on scaffolding assignments in economics courses (for example, Green, Bean, and Peterson (2013) and Cohen and Williams (2019)). Prompts shown in Table 1 are provided for each presentation to focus the research on relevant topics. Students prepare slides for each presentation and present them to the class.

The first presentation takes place during the third week of the semester to make sure that students get started on the project immediately. Because the course has not covered many monetary theory and policy topics at that point, this first presentation is a short, approximately five-minute presentation that provides students with background for their research. Prompts 1 and 2 guide students to learn general information about the economy.

[5]To help students with this selection process, it is helpful to provide students with the Bank for International Settlements (BIS) website that lists central bank and monetary authority websites (Bank for International Settlements 2025). In addition to the BIS website, the International Monetary Fund and the World Bank websites can be useful, especially for students researching central banks with scarce English language resources.

Table 1: Prompts for the Central Banking Project Presentations

Presentation 1 (Week 3)	1)	Information about your country and its economy (for example, map, currency, is the economy currently in a recession or expansion, etc.)
	2)	What seems to be the most pressing issues in the economy and/or monetary policy?
	3)	Does the central bank do its own research? If so, what does the central bank research?
	4)	Anything else that you want to share with your colleagues!
Presentation 2 (Middle of semester)	5)	Describe the organizational structure of the central bank.
	6)	Is the central bank independent? Show evidence for your answer.
	7)	Does the central bank have a mandate? If so, where does the mandate come from? If so, how similar or different is it compared to the U.S. Federal Reserve Bank mandate?
	8)	What is the central bank's target? Some common examples are inflation, money supply, and exchange rate.
	9)	Does the central bank have a reserve requirement? If so, what is the required reserve ratio?
Presentation 3 (End of semester)	10)	Does the central bank have a "discount window" similar to the U.S. Federal Reserve Bank to act as the lender of last resort? If so, how does it work?
	11)	What is the name of the key interest rate? How does the central bank influence it?
	12)	Does the central bank use open market operations? If so, provide information about it.
	13)	What did the central bank do during/after the 2007-2008 financial crisis?
	14)	What did the central bank do during/after the COVID-19 recession?
	15)	Has the central bank used quantitative easing? If so, provide information about it.
	16)	Has the central bank used negative interest rates? If so, provide information about it.
	17)	How does the central bank communicate with the financial markets/the public?

This table shows the timeline and prompts for tbree scaffolded presentations implented during a 13-week semester. The prompts progress from easier prompts to more challenging prompts and are aligned with the class material topics.

Prompt 3 asks students if the central bank does its own research, so that students locate this useful source of information. Prompt 4 is an open-ended prompt that allows students to pursue their interests and share them with the class.

For the second presentation (in the middle of the semester) students research more details about their central bank. Prompt 5 asks students to research organizational structure of the bank, which leads to Prompt 6 that asks students to consider whether the central bank is independent of the government. Before delving into details of the monetary policy, prompt 7 asks students to find out what mandate the central bank has. This is followed by prompt

8 to learn about the targets that the central bank uses to achieve its mandate.

Prompt 9 as well as prompts 10, 11, and 12 in the third presentation (at the end of the semester) are about specific tools related to the reserve requirement, "discount window," interest rates, and open market operations. Prompts 13 and 14 focus on researching monetary policies implemented during the last two recessions (2007-2008 financial crisis and COVID-19 recession). To research more details about the ample reserves regime implemented in some economies during the 2007-2008 financial crisis, prompt 15 asks about the quantitative easing. Prompt 16 focuses on negative interest rates. The research concludes with prompt 17 about the central bank communications.[6] Because presentations 2 and 3 are more in-depth than presentation 1, they are approximately 10 minutes long.

Topics of the prompts align with the topics of the course curriculum. For example, the class meeting material covers monetary policies in the United States before, during, and after the 2007-2008 financial crisis and the COVID-19 pandemic. Students then have background for researching prompt 13 about monetary policies of their central bank during and after the 2007-2008 financial crisis and prompt 14 about monetary policies of their central bank during and after the COVID-19 pandemic. In this manner, the project builds on and expands learning from the class meetings. To further integrate material learned in the class meetings with the material learned during the project, it is useful to include prompts that ask students to compare their selected central bank to the U.S. Federal Reserve Bank, such as prompts 7 and 10 asking for comparisons about the mandate and lender of last resort, respectively.

[6]If a student selects a central bank where some of the prompts listed in Table 1 are not relevant (for example, quantitative easing or negative interest rates in prompts 15 and 16, respectively), the student and the instructor can discuss additional topics that the student should include to replace the irrelevant prompts such as interesting topics that are specific to the student's central bank. The grading is then adjusted accordingly, so that the irrelevant prompt is not graded and instead the new topic is graded. This maintains equity, so that students are not disadvantaged for some prompts not being relevant to their central bank.

Similarly, comparative questions could be asked for other prompts, such as comparing policy responses of the selected central banks and the U.S. Federal Reserve Bank.

These presentations reveal interesting differences among central banks. The first round of presentations with prompts about the current state of the economy and most pressing issues show that while all countries and economic blocs are exposed to the same global events, such as the 2007-2008 financial crisis and the COVID-19 pandemic, their economies differ, for example, in economic growth rates and inflation rates. This sets the stage for the second and third presentations that reveal differences in monetary policies, such as in prompt 16 where students learn that the Bank of Japan, the European Central Bank, and Sveriges Riksbank implemented negative interest rates, which contrasts with the U.S. central bank studied during class meetings that did not implement this monetary policy.

Upper-level electives in our department are required to include a substantial research paper. In the fall of 2023, this research paper was aligned with the central banking research project.[7] The paper was a 5,000-word paper about the central bank selected by the student and included the same prompts listed in Table 1. This paper was due at the end of the semester after the central banking research project was completed. Students were placed in teams of two and reviewed each other's paper drafts. To provide an incentive to complete the peer review, 20% of the research paper grade was based on peer-reviewing the teammate's paper with the remaining 80% being based on the research paper itself. Aligning the research paper with the central banking research project allowed students to explore the material in greater depth by describing their project findings in writing instead of only presenting them

[7]In the fall of 2022, the research paper was on a topic of student's choice, which was not necessarily related to the semester-long central banking research project.

in the class presentations. However, as student feedback in Section 4.3 indicates, the benefits of the central banking research project maintain both in the versions with and without the written paper and therefore the written paper can be considered optional.

4 Required Resources, Benefits, and Student Evaluations

This section elaborates on required resources, benefits, and student feedback. Section 4.1 considers required resources for preparation time, grading time, and class time. It also discusses potential implementation in courses taught remotely and courses taught in larger classes. Section 4.2 discusses benefits and shows how the project supports student learning outcomes. Section 4.3 presents comments from student evaluations related to the project.

4.1 Required Resources

Strasser and Wolfe (2014) emphasize that pedagogy ideas can be successful only if they are feasible for the instructor. In this central banking project, the resource constraints involve the preparation time, grading time, and class time.

The preparation time is minimal, involving only providing instructions. General instructions (for example, the presentation dates) are provided in the syllabus at the beginning of the semester and instructions specific to each presentations are provided as prompts listed in Table 1. Student questions about the project are typically brief and can be quickly answered by email or in office hours.

Table 2: Grading Rubric for the Central Banking Project Presentations

	Percent
Presenters introduced themselves and their topic.	5
Presentation addresses all prompts.	55
Presentation is well-structured.	10
Presentation is interesting.	10
Slides are clear.	10
Presentation has the required timing.	10
Total	100

Grading time is minimal as well. McGoldrick and Peterson (2013) recommend using a grading rubric, which makes grading efficient. Table 2 shows a simple grading rubric that suffices for grading the presentations. Alternatively, instead of this simple rubric, an analytic rubric containing grading criteria (for example, accuracy, evidence, comparative analysis, and clarity) and performance levels (for example, exemplary, proficient, and developing) could be implemented. With either rubric style, the instructor can complete the grading during the presentations, requiring no extra grading time after the class meeting.[8]

The largest resource requirement relates to the class time as the presentations take place during the class meetings. In total, five class meetings are dedicated to the presentations with the first presentation taking up one class meeting, the second presentation taking up two class meetings, and the third presentation also taking up two class meetings. In a course that encompasses a wide range of monetary theory and policy topics, using five out of 26 class meetings for presentations might seem impractical. However, Section 4.2 argues that these five class meetings bring substantial benefits.

The COVID-19 pandemic forced many institutions to teach remotely. In addition, remote teaching might occur as a result of other unforeseen circumstances such as inclement weather.

[8]Additional grading would be required if the project included a written paper component as discussed in Section 3.

It is therefore pertinent to consider how the central banking project could be implemented in remote teaching. The research completed by students about their central banks takes place outside of the class meetings and therefore could still be completed in remote teaching. The presentations could be completed using common applications, such as Zoom, instead of in-person presentations since these applications allow students to screen-share their slides.

Because the central banking project was implemented in a small class capped at 18 students, it is also pertinent to consider how the project could be implemented in larger classes. Instead of researching and presenting individually, students could work in teams.[9] The benefits discussed in Section 4.2 would likely be preserved. If the size of the class made in-class presentations infeasible, students could submit their slides as an assignment graded outside of the class. Students would then not benefit from listening to presentations of other students but other benefits would likely still maintain.

4.2 Benefits

This section describes six benefits of the central banking project. The main benefit is expanding the course internationally and highlighting similarities and differences in central banking around the world. This allows the course to move away from the approach centered on a few countries or economic blocs such as the U.S. and the European Union. It generates a discussion of numerous interesting topics such as differences in the role that central banks are designed to play in various economies, independence of central banks, and involvement

[9]If the project were to be completed in teams, it might be useful to provide guidelines for division of labor. For example, it might be useful to specify that each team member must contribute equally during the presentations to earn the team presentation grade; the grading rubric could then be amended to assess presentation contribution of each team member. In addition, an individual graded component could be included to assess whether each team member contributed to the research. Furthermore, a peer assessment component could be included in the project grade.

of the central banks in managing exchange rates.

This expanded coverage benefits both domestic and international students. International students have an opportunity to select the central bank from their country of origin, bring their unique perspectives into the course and engage with the course material in a more connected way. Domestic students benefit by learning from the international students, engaging in discussions about economies throughout the world and broadening their understanding of the global economy. This approach capitalizes on diversity of the students in the class and brings students from various countries on an equal footing.

The project also brings other benefits. First, since students select the country or economic bloc that they are interested in researching, their motivation and engagement appear to increase. Second, the project strengthens research skills as students analyze data and read materials to answer the prompts listed in Table 1. Third, the project provides opportunities to connect the research on central banks to the class material of monetary theory and policy, which supports the skills of applying knowledge to real-world settings that has been identified as an important skill for college graduates (Hart Research Associates 2013). Fourth, students practice presentation skills including both preparing slides and presenting them to the class, which aligns with economics majors identifying communication skills as skills that undergraduate economics programs should focus on (Jones, Hoest, Fuld, Dahal, and Colander 2010). Finally, students benefit from learning from other students. This "horizontal education" where students learn from each other in addition to learning from their instructor contributes to a collaborative spirit in the classroom. It is especially useful when students come from different countries and describe the similarities and differences in the

economies and monetary policies conducted in those countries.[10]

4.3 Student Feedback

This section provides evidence of effectiveness from student evaluations. Two types of student evaluations are administered for this course. The institution administers quantitative evaluations where students answer a set of question on a scale of 1 (the lowest) to 5 (the highest). The department administers qualitative evaluations where students answer five open-ended questions by hand-writing their answers. All 13 students enrolled in the fall of 2022 and the 15 students enrolled in the fall of 2023 completed both the institution-level quantitative evaluations and the department-level qualitative evaluations.

The institution-level quantitative evaluations were high. For example, the question "Overall, this was an effective course." received an average score of 4.83 and 4.73 in the fall of 2022 and 2023, respectively, and the question "Overall, I learned a great deal from this course." received an average score of 4.92 and 4.6 in the fall of 2022 and 2023, respectively.

The department-level qualitative evaluations were also overwhelmingly positive. Even though the evaluation process does not allow the instructor to ask questions specific to the course, these qualitative evaluations do offer evidence of the effectiveness of the central banking project because students commented on the project in their evaluations. These comments are listed in Table 3. The comments most frequently appeared under Question 4

[10]This monetary theory and policy course has four student learning outcomes: 1) understand the process of money creation, 2) understand the theory behind central banking, 3) understand how central banks in different countries conduct monetary policy, and 4) discuss central bank policy with respect to climate change, diversity and income inequality, and electronic money. The central banking project directly supports the second and third student learning outcomes. The fourth student learning outcome is also indirectly supported, for example, when students comment on the effects of quantitative easing on income inequality.

"What elements of the course were most beneficial to your learning?" where it was the most frequently mentioned element of the course. The project also received two comments in each year under Question 2 "Please comment on the class itself." where both comments were also positive. Finally, the project received comments under Question 5 "What elements of the course could be improved?" In the fall of 2022, one student commented on the timing of the presentations and one student suggested that the presentations be done in groups. All three comments in the fall of 2023 pertained to the new writing component with students suggesting scaffolding of the paper similar to the scaffolding of the presentations, which would be easy to implement following, for example, Green et al. (2013) and Cohen and Williams (2019) who implemented scaffolding in writing assignments in economics. Although the sample size of the student evaluations is relatively small, the high quantitative evaluations combined with the positive qualitative evaluations offer insights into students' opinions and provide evidence of effectiveness.[11]

5 Conclusion

This paper describes a semester-long central banking project in a monetary theory and policy course that expands the course coverage internationally. Students select a central bank, complete fact-finding research about it and present the results of their work to the class. The novelty of the project lies in the comparative, international scope with each student following a different central bank, which fosters an analysis of monetary policy mandates,

[11]In addition to the evidence of effectiveness from student evaluations, evidence based on grades is also available: The average grade in presentations 2 and 3 remained approximately as high as the average grade in presentation 1 in spite of the presentations increasing in length and difficulty.

instruments, crisis responses, and communication strategies of the various central banks. This fact-finding project is resilient to the uncritical use of AI chatbots in as much as the answers those online services can provide to the project prompts are prone to be factually incorrect. There is value in replicating this project in multiple years to reflect the constantly evolving international economic conditions and monetary policies.

Table 3: Comments from Department-Level Qualitative Student Evaluations Related to the Central Banking Project

Fall of 2022, N = 13 students:

Question 2: Please comment on the class itself.
- The central bank presentations were very informative.
- I thought the presentations on the central banks were really fun and taught me a lot from the research process and the class presentations from my classmates.

Question 4: What elements of the course were most beneficial to your learning?
- I thought the presentations were super effective and I learned so much about my country, along with my classmates.
- Central bank presentations. Learning from other students was great.
- I thought that the central bank presentations were the most helpful because I got to learn and be able to think critically about actions taken by a central bank.
- The central bank presentations were beneficial too.
- Central bank presentations. Encourages students to pick more foreign countries!
- Central bank presentations as it also helped on my paper.
- The central bank presentations were very insightful and enjoyable assignments.
- I think the central bank presentations.
- Discussions and presentations.
- Central bank presentations were awesome!
- Researching for the presentations.

Question 5: What elements of the course could be improved?
- Maybe space out the central bank presentations by another week for extra information.
- Possibly doing group presentations.

Fall of 2023, N = 15 students:

Question 2: Please comment on the class itself.
- It was an interesting class. I liked the structure and how it allows you to apply in different contexts/countries what we learned.
- It was a challenging class but I believe I possess greater knowledge after all the readings and research.

Question 4: What elements of the course were most beneficial to your learning?
- The presentations were very helpful for gathering information on our topic for the semester papers.
- I liked the semester project.
- Research paper.
- Bank presentations.
- I really enjoyed the central bank presentations.
- The central bank presentations.
- The central bank project gave me a chance to focus on the country I wanted to. I have a greater understanding of how it works and comparing it to other nations provides context to how it should improve.
- The research project and midterm were both very beneficial.
- Presentations for sure.
- Presentations and research paper.

Question 5: What elements of the course could be improved?
- Multiple drafts/more corrections for the paper other than just peer review.
- 5,000 paper is too long. Could be split into two smaller papers to cover more topics.
- The only thing that could be improved is to have deadline to write up sections of our research paper that coincide with the presentations.

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