MONETARY POLICY
Commentary for teachers

1 Overview

1.1 Topic and contents
This unit deals with monetary policy, the core task of a central bank. The most important goals of modern central banks (guaranteeing price stability while taking economic activity into account), the significance of the monetary policy instrument (key rate) and the most important correlations between the instrument and the target variables (inflation and economic activity) are conveyed to the students in a fun way using a simulation tool.

The unit is well suited both as an introductory and as an advanced learning tool. Students are, however, required to have some previous knowledge of the topic. The **Mopos 3.0** simulation tool is the core element of the unit and can be played in two different ways:[1]

▸ **Scenario mode:** Simulation of monetary policy using predefined situations. The task is easier or harder to complete, depending on the scenario selected (cf. chapters 2 and 3). It is recommended to begin with Mopos in this mode.

▸ **Random mode:** Simulation of monetary policy using randomly generated situations.[2] The level of difficulty in this mode depends on the structure of the randomly generated situation. Each random situation is automatically created and can therefore be replicated at any time, i.e. the exact situation can be repeated. The random mode is particularly suited to advanced apprentices and students.

1.2 Didactic format
Role play: The main focus is a role play based on the Mopos 3.0 simulation tool which can be carried out either in the classroom or in the computer room. In the classroom, a computer with internet access and a projector are all that is needed. Mopos can be started via **www.iconomix.ch/en/mopos**. Technical requirements are an internet connection and an up-to-date browser (Internet Explorer, Safari, Firefox, Chrome).

1.3 Time required
Two to three lessons, depending on the degree of detail with which the topic is addressed.

1.4 Suitable subjects
The unit is suitable for use in the following subjects: economics and related topics in Swiss upper secondary schools with a commercial or technical focus (e.g. Maturitätsschulen and Berufsmaturitätsschulen).

1.5 Level
Intermediate to demanding.

1.6 Documentation
The unit consists of this commentary for teachers, the Mopos simulation tool and the following teaching material:

- 'Introduction to Mopos' presentation
- Worksheets for the scenario modes:
    - ▸ 'Soft landing' scenario
    - ▸ 'Calm waters' scenario
    - ▸ 'Threat of deflation' scenario
    - ▸ 'Stagflation' scenario
- Teacher evaluation
- Knowledge sheet (specialist text)
- Knowledge test
- Advanced question
- Sample answers

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[1] Mopos stands for 'Monetary policy simulation'.
[2] The situations are chosen as such so that nobody has to take the helm in a crisis.

1.7 Targeted skills

The unit aims to develop the following economic skills:

	Attitude	Know-how	Ability
Personal skills	Prepared to discover a challenging subject matter by means of a simulation tool.	Knowledge of reporting and associated procedures.	Able to recognise conflicts of interest and deal with them in a productive manner.
Social skills	Prepared to work alone, in pairs or in a group, to check various decisions and provide reasoning to third parties.	Able to critically examine (monetary policy) decisions made by others (other groups) and comment on them.	
Professional skills	Willing to analyse open-ended economic scenarios and weigh up monetary policy options against each other.	Able to name the primary mandates and main instrument of monetary policy. Able to describe the monetary policy decision-making process. Optional: Able to describe the effect of incomplete or incorrect information on the monetary policy decision-making process.	Able to describe the effect of monetary policy decisions and the basic correlations between interest rates, inflation and economic developments. Able to recognise and classify the challenges of monetary policy in different economic situations.

2 Notes regarding this unit

2.1 The Mopos 3.0 simulation tool

Mopos is a computer-based simulation tool using a simple virtual economy. The students assume the role of central bankers. They run through several monetary policy assessments, each of which results in an interest rate decision (1 round = 1 quarter). Every interest rate round consists of the following phases:

▸ **Phase 1** (analysis, but with reference to the last interest rate decision): What is the state of the overall economy at present? Is the decision considered appropriate in retrospect? Is it still considered appropriate?

▸ **Phase 2** (interest rate decision): What interest rate decision would be appropriate right now? Should the forecast point to a breach of price stability over the next few quarters for instance (on the assumption that interest rates remain unchanged), monetary policy action is required.

Upon completion of both phases, the next interest rate round starts. It consists of the same two phases.

The 'Evaluation' tab enables the students to leave the simulation tool at any time and to see how they have performed as central bankers up to the current stage of the game. They

can return to the simulation tool via the 'Simulation' tab. To create a screenshot (e.g. for an 'Evaluation'), use the print function in the browser. To start the simulation tool again, the 'Refresh' function in the browser should be used.

2.2 Economic background

Mopos uses an economic model that reflects the most important economic issues in a realistic manner. The data in Mopos reflect (or simulate) the real life situation and do not relate to any specific country. However, the economic model behind Mopos has been designed in such a way that certain statistical regularities from the Swiss economy come to the fore if the game is played repeatedly or over a long period of time.

The current model is a simplified version of the standard model used until recently for macroeconomic research. It is a 'stylised' model, because it does not contain certain features: It does not deal with the interaction between various industries, makes no difference between the key interest rate and other interest rates,[3] contains no equity or real estate market – not even the labour market is listed explicitly. All these 'details' have been left out, which in turn means that we can better recognise the dynamics of the economy.

What has changed in comparison with the earlier version of Mopos?

Mopos 3.0 features the following changes in comparison with Mopos Basic and Mopos Plus (from 2007 until March 2012):
- The earlier version of Mopos could only be played in random mode, with randomly generated situations. This made it difficult not only for the teacher to regulate what happened but also to set the students a precise task and provide targeted feedback. In comparison, Mopos 3.0 makes it possible to **choose from four predefined scenarios**. For each scenario, there is a task with a description of the situation, the task, and a results sheet.
- Only one type of disruption (demand shock) was effective in the former Mopos version. Mopos 3.0 allows for additional random influences (supply shock, inflation shock, exchange rate shock) which vary in length and impact. This means that the simulation of monetary policy is now more realistic, but also more challenging.
- User friendliness in Mopos 3.0 has generally improved from the previous version (including only two phases of the monetary policy decision-making process instead of three, and the interest rate regulator is blocked at 20%).

3 Possible lesson plan

The iconomix units are designed with a proactive and problem-solving approach in mind. These units do not begin by imparting knowledge on the subject, but by arousing curiosity, motivation and interest, for example using a strategy game, role play or similar. In the monetary policy unit, however, the situation is slightly different as **students are required to have previous knowledge of the economy**.

The targeted skills can be developed during the following three steps:

Phase 1: Getting involved

The Mopos 3.0 simulation tool is the main component of phase 1. We recommend using the 'scenario mode' and thus the following procedure:
- **Introduction:** Introduction to how Mopos works using the set of slides. (Time: approx. 10 minutes)
- **Introduction to simulation:** As a warm-up, the teacher can present a centrally controlled simulation of one of the four scenarios in Mopos, e. g. the 'Calm waters' scenario. The teacher can refer to the scope of the simulation as well as the structure of the worksheets on the various scenarios as part of the introduction. (Time: approx. 10 minutes)
- **Task:** Moving on to partner or groupwork using the worksheets on the scenario mode. From a didactic point of view, it makes no difference if the students work through different scenarios or if all the groups work on the same one. (Time: approx. 40 minutes)

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[3] In reality, there are different interest rates with different time horizons and risk categories, and the transmission of changes in the (nominal, short-term) key rate to (real, long-term) interest rates (which are crucial for consumption and investment decisions by households and companies) is an indirect and by no means mechanical process.

Option to increase the level of ability: The uncertainty of the monetary policymaker

One of the goals of Mopos is to demonstrate the uncertainty with which monetary policymakers have to deal. They constantly have to ask themselves which shocks are currently having an effect. For example, it makes a difference whether a slowdown in growth is due to a change in potential (in which case the interest rate should not be changed) or if the cause can be traced back to a short-term demand shock (in which case the interest rate should be lowered). This uncertainty means that monetary policy is exceptionally challenging.

It therefore also makes a difference if the shocks are visible in Mopos or not. If they are not visible, then steering monetary policy is even more demanding. If the option **'Demand shock and supply shock visible with lag'** is selected, Mopos no longer provides a data point for the 'output gap' economic indicator for the current and previous quarter, but a margin of fluctuation (a range of variation, an interval) instead.[4] The 'inflation' and 'output gap' forecasts will be indicated as ranges of variation instead of point estimates. The likelihood of the actual values lying in the covered area is 90% (with a tendency to fall in the mid-range and not be extreme). In 10% of cases, it is outside this range. The exact results of what makes the mark and what doesn't can only be seen afterwards.

As monetary policymakers are not aware of the precise economic situation and any underlying disruptions at the time the interest rate decision is made, it is necessary to be all the more careful when evaluating the available data.[5] Moreover, the central bank thinks in terms of scenarios. Since extreme situations are not unheard of, a cautious central bank moves in small steps.

Notes on the four scenarios

- **'Calm waters' (easy):** Takes place under normal economic conditions and with no significant risks. The mandate can be fulfilled without any major problems, but hitting the benchmark can be quite difficult.

- **'Soft landing' (easy to intermediate):** If the interest rates are not raised fast enough, inflation threatens; if they are raised too quickly, then the economy will slide into recession. The mandate can be fulfilled without difficulty and meeting the benchmark should be possible.

- **'Threat of deflation' (intermediate to demanding):** Interest rate policy has to be reoriented several times, with timing being the decisive factor. Fulfilling the mandate is challenging and the benchmark can only be met with difficulty.

- **'Stagflation' (demanding):** Students have to choose between returning to price stability or fighting a severe recession. The mandate cannot be fulfilled and meeting the benchmark is challenging.

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[4] In reality, the quarterly estimates by Switzerland's State Secretariat for Economic Affairs (SECO) on economic growth are subject to regular review. The calculations of gross domestic product (GDP) by the Swiss Federal Statistical Office (SFSO) only become available in late summer of the following year. By contrast, the information on price development (inflation) becomes available after around three weeks, which is almost instant by comparison.

[5] In Mopos, this information is limited to the 'output gap' economy indicator, whereas in reality, economic observers have access to a multitude of additional indicators.

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Notes on the tasks
Worksheets are available for each of the four economic scenarios. Each worksheet is designed as follows:

1. The 'introduction' provides technical help on how to load the respective scenario.

2. The 'current situation' chapter describes the economic situation and indicates some of the challenges of monetary policy. A screenshot of the entry portal also provides a didactic link between the economic analysis and the simulation.

3. The 'task' specifies exactly what to do and gives target values that students should aim to reach during the simulation.

4. The 'results sheet' at the end contains the benchmark so that students can compare their results. To make the comparison easier, iconomix provides an Excel sheet which calculates one single value from the four key figures taken from Mopos. This value is rated using a scale (cf. annex 2).

5. Every task comes with a log sheet in which the students can quickly and clearly make notes on their monetary policy decisions and how they reached them.

Notes on presenting in class
We recommend you open the browser in full screen mode when presenting Mopos on a video projector in class.

Phase 2: Discussion and reflection
The second phase starts with an evaluation and an assessment of the course of the simulation with the class. Afterwards, the students work through the knowledge sheet (in class or for homework).

Presentations in class
Part of the task which students have to complete is to present a report summarising their term of office to the parliament and government (i.e. to the class) after the simulation. This should include:
- A general report on how inflation and the economy developed during the term of office.
- An evaluation of their own performance with regard to inflation and the economy using the benchmarks for each of the specific scenarios.
- A detailed assessment of individual interest rate decisions which seem delicate or crucial in retrospect (wherever necessary).

As well as the log sheet for note-taking, the students are also given a printout (or an electronic version in PDF) of the 'Evaluation', which includes all the important data from the simulation. A video projector or overhead projector may come in useful when presenting the report.

Knowledge sheet
Working through the knowledge sheet (in class or at home) helps students understand the economic concept behind the conduct of monetary policy. It also explains once again the technical terms used in the unit.
The knowledge sheet prepares the students for phase 3 of the unit.

Phase 3: Practice and use
This phase serves to consolidate (strengthening the skills gained through practice) and transfer (expanding the skills and making them more flexible by tackling more difficult problems). A 'knowledge test' and a more demanding 'advanced question' are also available.

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4 References to other teaching resources

In this section, the German, French and Italian versions of the commentary for teachers provide references to textbooks used in Swiss upper secondary schools in the respective language regions. They also list other recommended resources from the same language regions. Please refer to the corresponding language versions.

As for all iconomix teaching resources, there are also links available for this subject on the respective unit webpages.

Annex: Rating scale

Rating scale for the four scenarios

	Calm waters	Soft landing	Threat of deflation	Stagflation
🙂	77%+ + M	95%+ + M	75%+ + M	95%+ – M
🙂	70–76% + M	88–94% + M	68–74% – M	88–94% – M
😐	60–69% + M	74–87% + M	58–67% – M	70–87% – M
🙁	0–59% – M	0–73% – M	0–57% – M	0–69% – M
M = Mandate	M: 60	M: 74	M: 75	M: 125