The Money Market and Monetary Policy II

Money and Interest Rate

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Overview

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What's wrong with inflation?

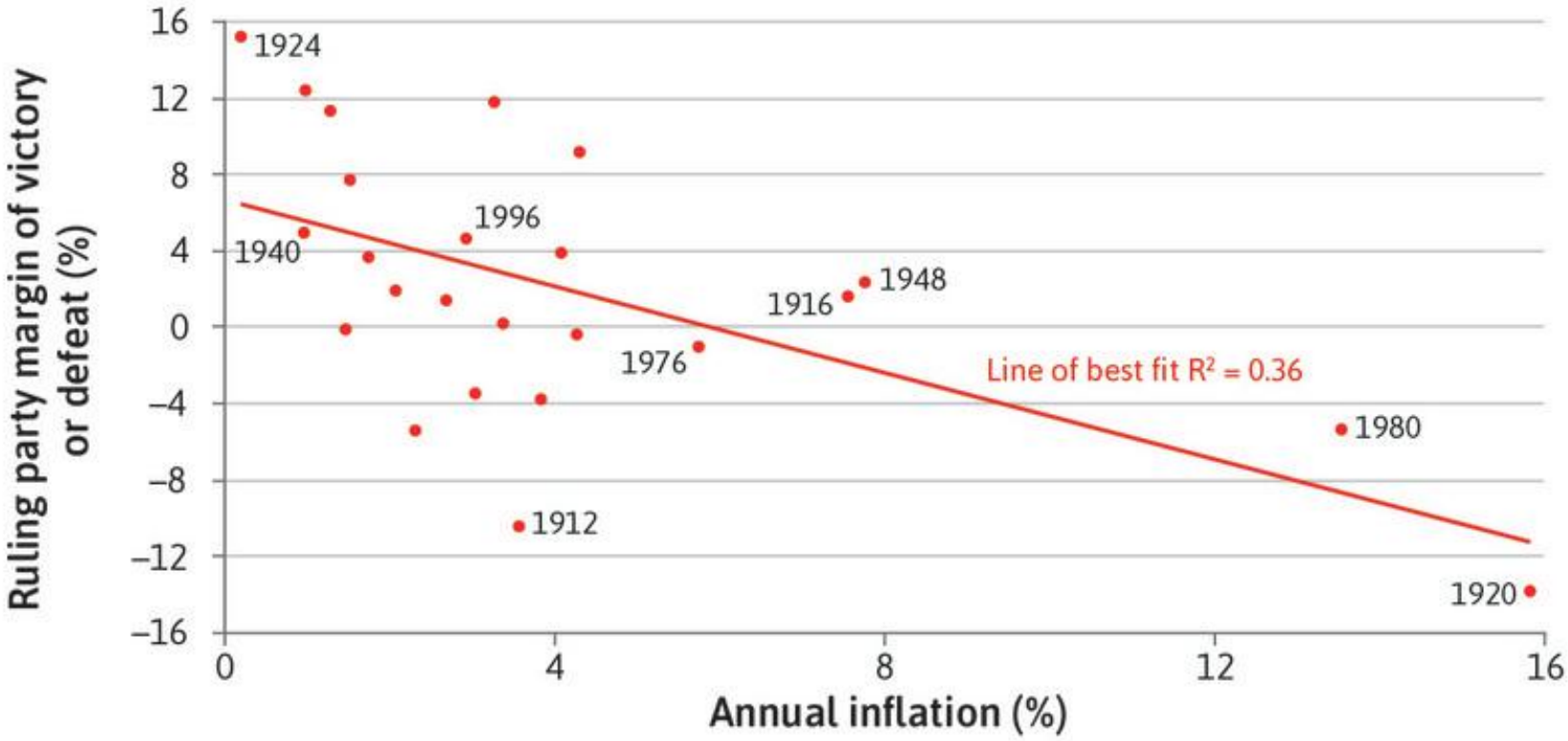
An Important Tradeoff: Unemployment vs. Inflation

Before we get into discussions about interest rates, we need to consider once again – inflation. We have defined, calculated, and discussed both unemployment and inflation. A question follows:

Is there a trade-off between unemployment and inflation?

- When unemployment rate is **low**, inflation tend to **rise** – and vice versa.
- We may not be able to have both?
- Research suggests that there is a *inflation-stabilising rate of unemployment*.
- Monetary policies can affect interest rate through inflation targeting policies – a responsibility of BoT.

Inflation and presidential election victory in the US, 1912-2012



So if you are a politician – who worry both for your own career and for people's wellbeing – you should limit both unemployment and inflation. **Is that possible?**

Clarifying a few terms!

We will first look at inflation, and how they are determined in a simple model (Keynesian). Then, we will come back later to the relationship between inflation and unemployment.

- zero inflation: a constant price level from year to year means that inflation is zero. *A stationary car.*
- inflation: an increase in price. *A car traveling forward.*
- deflation: a decrease in price. *A car traveling backward.*
- Rising inflation: a rising inflation rate. *An accelerating car.*
- disinflation: a decreasing inflation rate. *A decelerating car.*
- hyperinflation: inflation rate of more than 50% in a month. Typically, *an insanely fast and accelerating car*.

Why some people dislike inflation

For some people in the economy, such as pensioners, their incomes are fixed on *nominal terms*. If price rises, they can buy fewer things.

For the credit market, it depends on which side you are on.

- *Borrowers with nominal debt will benefit*;
- *Lenders with nominal assets will lose*.

Inflation, nominal, and real interest rate

To take into account inflation when analysing borrowing and lending, we use real interest rate – defined by the Fisher equation

$$\begin{aligned} \text{real interest rate (\% per annum)} &= \text{nominal interest rate (\% per annum)} \\ &\quad - \text{the inflation rate (\% per annum)} \\ \text{Standard notations: } r &= i - \pi \end{aligned}$$

Intuition: Toey borrows \$50 from Princess, and will pay back \$55 next year. The nominal interest rate is ?%.

But if prices also increase by 6%, what Princess could buy with the repayment is not ?% more than what she lent to Toey, but instead only ??% – the real interest rate.

What people dislike even more: volatile prices

When inflation is high and volatile,

1. it is difficult to separate signal about scarcity of resources (*relative prices*) and erratic noises of rising prices;
2. Higher menu costs – need to change the prices on the menu

But would households benefit from lower prices? **No!**

1. Household will postpone consumption today since they expect prices to be falling tomorrow;
2. Higher debt burden on the borrowers, the same reason why inflation reduces it;
3. Weaker aggregate consumption will tend to depress price further (lower demand), causing a spiral into economic stagnation.

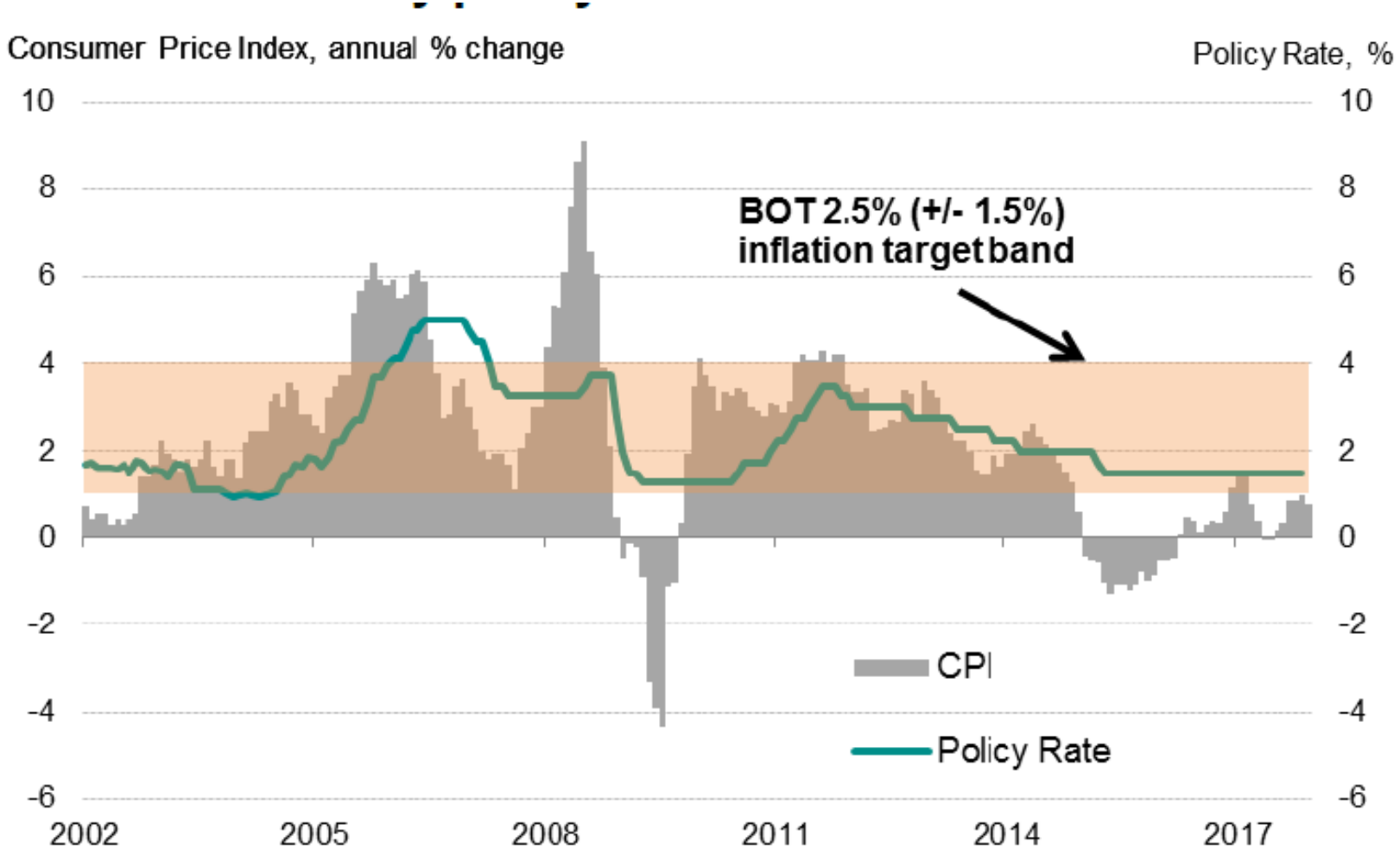
The Keynesian Demand for Money

Inflation and Interest Rates

But why are we talking about inflation. Aren't we talking about the money market and interest rates?

1. Interest rates and inflation are closely linked;
2. By controlling the policy rate, the Bank of Thailand could try to affect inflation (*inflation targeting*);
3. And we do care a lot about inflation;
4. As a result, we must first understand how interest rates are determined in the money market in order to consider and understand monetary policies.

Thailand's monetary policy and inflation



Sources: Ministry of Commerce, Bank of Thailand

Remember, we are still discussing the Keynesian School of Thought. There are other schools of thoughts on every macroeconomic issues.

Keyne's Liquidity Preference Theory – understanding interest rates

In order to formulate the aggregate demand for *money*, Keyne considered the preference of having liquidity.

- Liquidity refers to how easily assets can be converted into a mean of exchange.
- Money, such as coins and banknotes, is the most liquid asset.
- The theory is about people's decision to store wealth in forms of either (i) **money** or (ii) **bond**.

Keyne's Liquidity Preference Theory [cont.]

But why would people hold bonds instead of money?

- When you buy bonds, you are "lending" to the government (gov. bonds) or companies;
- Thus, you earn some interest payments from bonds!
- However, money is more liquid than bonds;
- There is therefore a trade-off, once again.

Why would we want money instead of bonds?

1. **Transaction demand**: buying food in the cafeteria;
2. **Precautionary demand**: for unexpected uses;
3. **Speculative demand**: waiting for the right time to invest!

Therefore, we have **a negative relationship** between interest rates and speculative money demand! The sum of the three types of demand – *for all sectors in the economy* – makes the "**money demand curve**"

Deriving the money demand curve

Deriving the money demand curve

The Money Demand Curve

We have discovered a few things here:

1. **The movements *along* the money demand curve** is due to changes in the interest rates;
2. **Shifts in the money demand curve** are due to factors other than interest rates;
3. Especially the factors that affect transaction demand and precautionary demand of money such as *price levels, income, preferences, banking technologies, etc.*

Money Market Equilibrium: Shocks and Adjustments

What about money supply and the money market equilibrium!

Money supply is determined by the central bank!

- As such, we often take the money supply as *given*;
- Thus, money supply does not depend on the interest rate;
- Therefore, the money supply curve is . . . ?
- As such, the central bank can control the equilibrium interest rate, i^*, through changes in the money supply
- **Expansionary monetary policy** is when . . .
- **Contractionary monetary policy** is when . . .

Graph: Movements towards the equilibrium?

Graph: sudden changes in prices

Monetary Policy and Interest Rates

Graph: Monetary policy and interest rates

How the Central Bank can control the money supply

The Bank of Thailand has 3 main tools to control the money supply (thus the interest rate).

1. **Open-market operations**: selling and buying government securities (such as T-Bills in the US).
2. **Policy rates**: setting how much it costs for commercial banks to borrow CB's reserves.
3. **Reserve ratios**: how much of deposits must be kept as reserves.

The Zero Lower Bound Problem (Liquidity Trap)

Can monetary policy be uneffective? *It can* – for instance, after the Global Financial Crisis in 2007-2008. Unemployment was high, and interest rates were very low.

- It is impossible for nominal interest rates to be below zero – cash offers zero interest rate
- Thus, this is called the "zero lower bound" for interest rates
- It sets the limit of monetary policy – increasing money supply *will not* be effective. It ran out of room to operate because interest rates are almost zero.

Graph: the Zero Lower Bound Problem

From Policy Rate to Inflation

The Quantity Theory of Money (QTM)

Long history from *Copernicus*, David Hume, John Stuart Mill, Ludwig von Mises, Irving Fisher, Karl Marx, Keynes, to Milton Friedman.

The main simple idea is that
"general price level of goods and services are proportional to the money supply"

A very detailed, technical, mathematically-driven, and long debate.

The Quantity Theory of Money (QTM) [Cont.]

$$MV = PQ$$

$$\begin{aligned} M &= \text{the money supply} \\ V &= \text{money velocity} \\ P &= \text{price level} \\ Q &= \text{total output} \end{aligned}$$

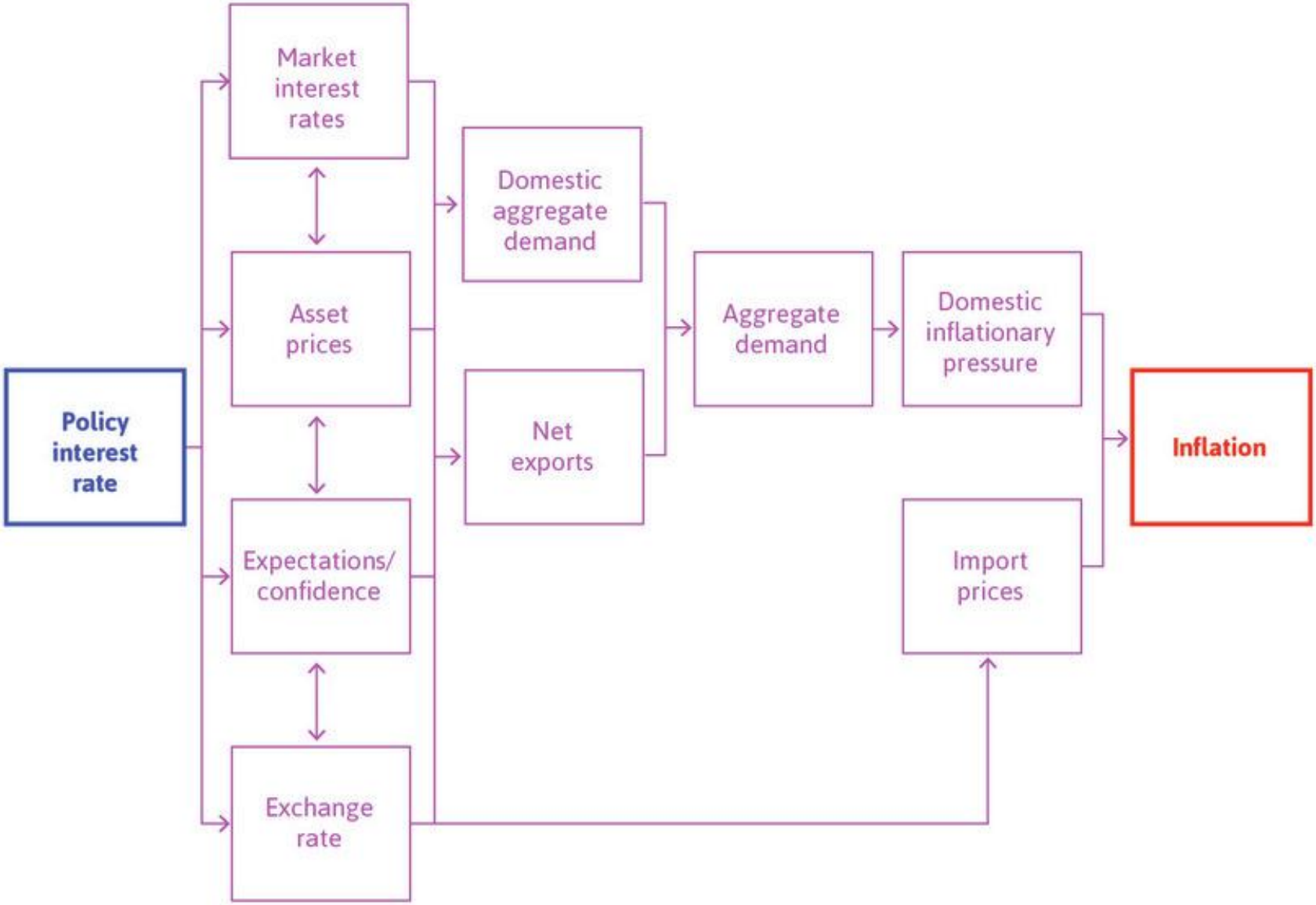
Money velocity is how fast money changes hand, and it is generally assumed to be constant (in some cases). As such, an increase in money supply $\Rightarrow$ higher price (inflation).

Karl Marx to Friedman

$$MV = PQ$$

- Marx and Keynes accepted the theory in general as fundamental;
- Marx believes that the quantity of money are determined by P and Q – with price level determined by the *socially necessary labour-time* need to produce the commodity;
- Keynes, meanwhile, believe that the quantity of money is based on aggregate demand, and accept the QTM to be true in the long run, but not short run – he assumed that prices are sticky.
- The monetarists (like Friedman) believe that V is not constant, and that it follows the changes in money supply!
- Different emphasis: Marx on production, Keynes on income and demand, and Friedman the money supply.

From Policy Rate to Inflation – to be continued…



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