

Exercise walk-through

Nominal v. Real Interest Rates ■ 4.2

eXercise

You must be able to

- distinguish the **nominal interest rate** 名义利率 from the **real interest rate** 实际利率
- apply the **Fisher equation** 费雪方程: $\text{real rate} \approx \text{nominal rate} - \text{expected inflation}$
- explain how expected inflation affects borrowers and lenders

Method — Nominal vs real

The **nominal** rate is the stated rate; the **real** rate is what is left after allowing for inflation — the true change in purchasing power.

Method — The Fisher equation

real rate $\approx$ nominal rate — expected inflation.

Method — Borrowers and lenders

If inflation turns out **higher** than expected, the real rate actually paid is **lower**, so **borrowers gain** and **lenders lose**.

Practice 2.1 ■ 1 mark

State the Fisher equation.

Solution 2.1

Method: The Fisher equation

Worked steps

real rate $\approx$ nominal rate $-$ expected inflation **B1**.

Practice 2.2 ■ 2 marks

A loan has a nominal rate of 7% and expected inflation is 3%. Find the real rate.

Solution 2.2

Method: The Fisher equation

Worked steps

$$7\% - 3\% = 4\% \quad \text{M1} \quad \text{A1}.$$

Practice 2.3 ■ 1 mark

State the difference between a nominal and a real interest rate.

Solution 2.3

Worked steps

the nominal rate is the stated rate; the real rate subtracts inflation to give the true change in purchasing power **B1**.

Exam-style 3.1 ■ 1 mark

The real interest rate equals the nominal rate

- A** plus expected inflation
- B** minus expected inflation
- C** times inflation
- D** divided by inflation

Solution 3.1

A plus expected inflation

B minus expected inflation 

C times inflation

D divided by inflation

Worked steps

B.

Exam-style 3.2 ■ 1 mark

If inflation is higher than expected, the real rate actually paid by a borrower is

- A** higher
- B** lower
- C** unchanged
- D** zero

Solution 3.2

Method: Borrowers and lenders

A higher

B lower



C unchanged

D zero

Worked steps

B.

Exam-style 3.3 ■ 2 marks

A loan has a nominal rate of 8%; expected inflation is 5%.

- (a) Find the expected real interest rate.
- (b) If actual inflation turns out to be 9%, state who gains.

Solution 3.3

Worked steps

(a) $8\% - 5\% = 3\%$ **M1** **A1**. (b) the borrower gains (actual real rate is only $8\% - 9\% = -1\%$) **B1**.