

## Lecture 3 practice exercises

### Question 1:

Graham (2022) surveys firms on their capital budgeting techniques in practice. Describe three key conclusions from his survey on capital budgeting techniques in practice.

### Question 2:

Why may conservative hurdle rates be problematic for long-term transition projects?

### Question 3:

Describe the Integrated PV investment decision rule. Discuss its strength and limitation.

### Question 4:

A researcher estimates the following two OLS regressions of investment on Tobin's Q and Total Q for a large sample of firms and years. The numbers in parentheses below each coefficient are t-statistics, while \*, \*\*, and \*\*\* represent statistical significance at the 10%, 5%, and 1% levels.

	<i>Investment/Assets</i>	<i>Investment/Assets</i>
<i>Tobin's Q</i>	0.09*	
	(1.79)	
<i>Total Q</i>		0.32***
		(2.61)
No. of Observations	15,213	15,213
R <sup>2</sup>	0.109	0.211

Interpret each independent variable. What do you conclude about the standard Q-theory and its empirical limitations.

**Question 5:**

Consider a company that currently has cash holdings of 500€, but no access to any further external finance (ever). Cash earns a risk-free return of 0%. The discount rate is 0%.

In year 0, the company has access to one investment project. The project has the following characteristics:

- Upfront investment of €500 in year 0.
- Payoff in year 1: With a probability of 0.8 a return of €800 and with a probability of 0.2 a return of €300.
- The project is neither divisible nor scalable.

In year 1, the company with certainty has access to the following investment project:

- Upfront investment of €400 in year 1.
- Payoff in year 2: With a probability of 1 a return of €800.
- The project is neither divisible nor scalable.

In year 2, the company terminates.

Compare the following two strategies: (A) Invest in the project in year 0. (B) Do not invest in the project in year 0 but save the money. For both strategies, the firm does whatever is optimal in year 1.

**5a.** Calculate the payoff for both strategies.

**5b.** Which strategy is optimal?

**5c.** Give one change in parameter that would tilt the decision toward the other strategy and explain why.

**5d.** What does this problem imply for the validity of Tobin's Q?