ACCT 101, Session 7: Liabilities; Sustainability Reporting

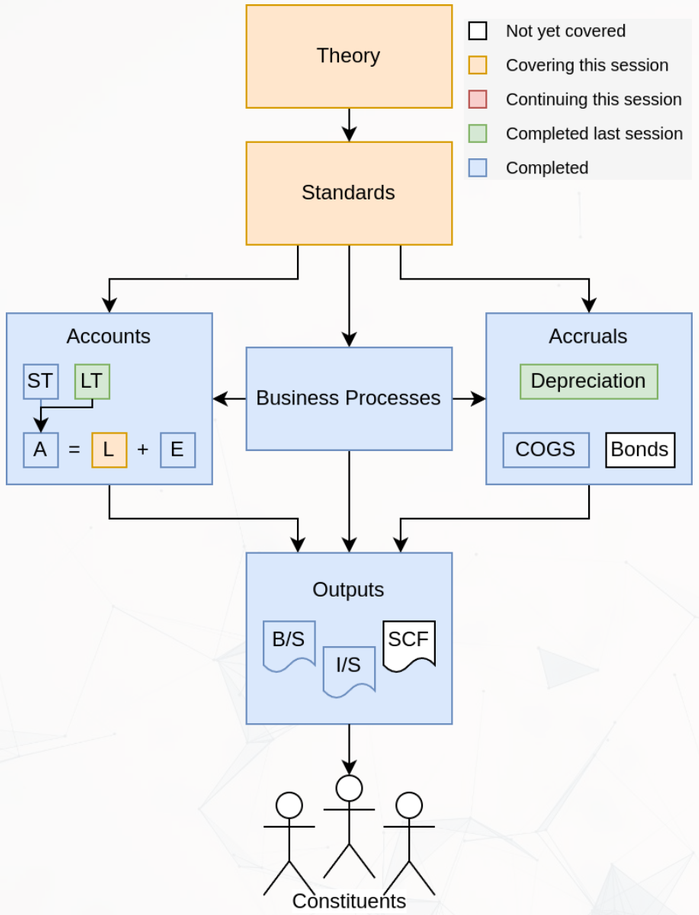
Dr. Richard M. Crowley

rcrowley@smu.edu.sg

https://rmc.link/

Front matter

Learning objectives



Current liabilities (Chapter 8)

1. Account for current liabilities
2. Become familiar with “time value of money”
   - We’ll need this for Bonds

Sustainability reporting

1. Understand the components of a sustainability report
2. Recognize challenges and benefits of sustainability reports
3. Identify sustainability as a core business value

Current Liabilities

Review of liabilities

> Obligation of the enterprise arising from past events, the settlement of which is expected to result in an outflow from the enterprise of resources embodying economic benefits. (FRS 37:10)

- Current liability: Something you owe within the span of one year (the current accounting term)
- Non-Current liability: Something you owe after the current accounting term

> Example current liabilities: Accounts payable, Unearned revenue, Salaries payable, Taxes payable, Notes payable, Interest payable, _____ payable

Sales tax payable

- Also known as GST
- Generally paid quarterly
  - Can pay monthly as well
- Retailers collect this from customers to pass to tax authorities (IRAS)

INLAND REVENUE
AUTHORITY
OF SINGAPORE

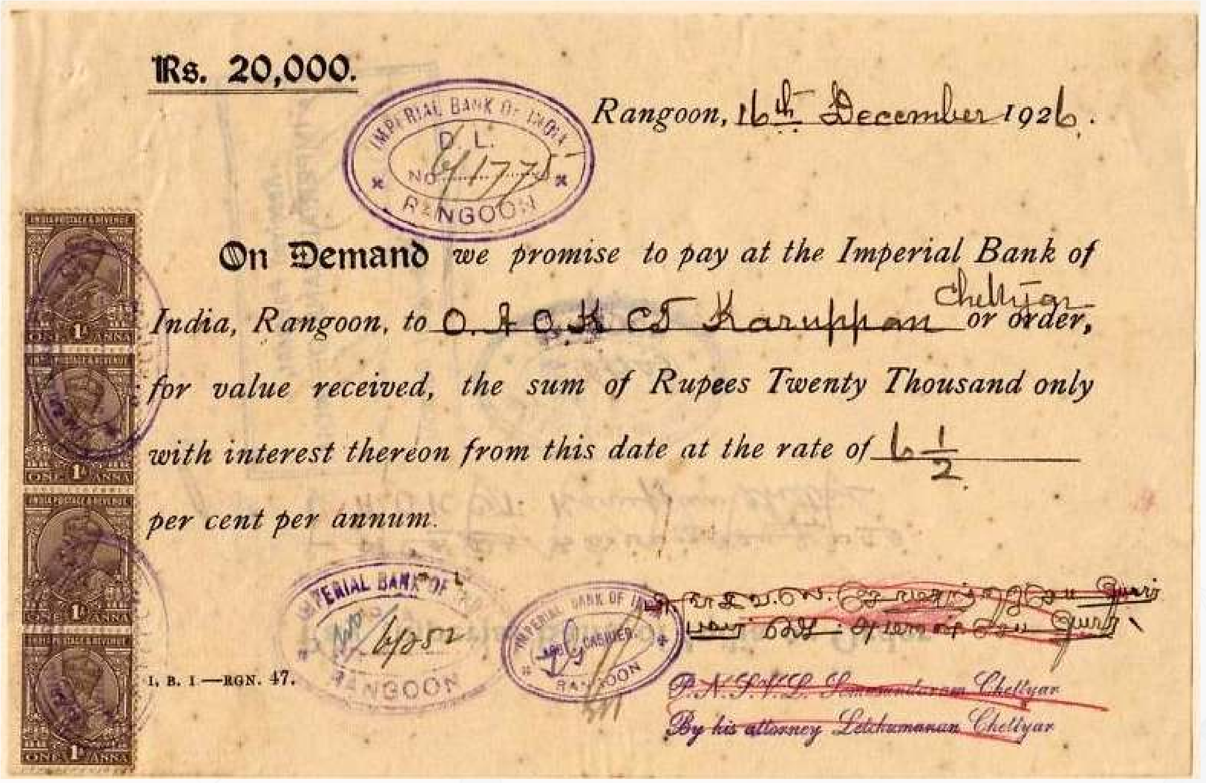
Example: Sales tax

Date	Account	DR	CR
20YY.MM.D1	Cash	20,000	
	Revenue		18,600
	Sales tax payable		1,400
Recorded sales and sales tax for the day			

20YY.MM.D2	Sales tax payable	1,400	
	Cash		1,400
Paid sales tax to IRAS			

Notes payable

- Notes payable is a small, short-term loan
- Similar to A/P, but:
  - More formal
  - Has a stated interest rate
- Can be provided by any party
  - Banks
  - Suppliers



Rs. 20,000.

Rangoon, 16th December 1926.

On Demand we promise to pay at the Imperial Bank of India, Rangoon, to Karuppan Chettyar or order, for value received, the sum of Rupees Twenty Thousand only with interest thereon from this date at the rate of 6 1/2 per cent per annum.

I. B. I —RGN. 47.

By his attorney Letchumanan Chettyar

> This is included in Chapter 5 in the book

Notes payable terms

- *Creditor*: the lender
- *Debtor*: the party that owes money
- *Term*: length of time of the note
- *Maturity date*: when the note is due
- *Principal*: amount of money borrowed
  - We'll record this at the start
- *Interest*: additional payments for borrowing
  - We'll record these as they occur
    - Or when doing adjusting entries
- *Maturity value*: amount owed at maturity
- Interest is usually all paid at the end
  - The interest rate will be given as the *annual* rate

Notes payable debtor

> Received a $2,000 note payable with 9% interest due in 3 months payable to our supplier.

Example: Note payable

Date	Account	DR	CR
20Y8.12.01	Cash	2,000	
	Notes payable		2,000
Received a $2,000 note payable from supplier			
20Y8.12.31	Interest expense	15	
	Interest payable		15
Recorded accrued interest owed on note payable; 2,000 x 9% x 1/12			
20Y9.02.28	Notes payable	2,000	
	Interest expense	30	
	Interest payable	15	
	Cash		2,045
Paid off note payable, including interest of 2,000 x 9% x 3/12 (1 month recorded prior)			

The other side: Notes receivable

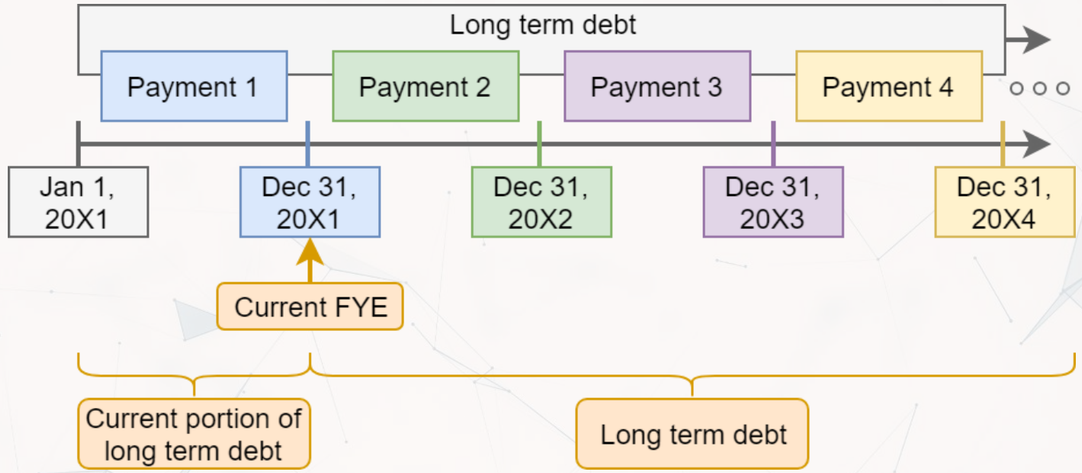
> Gave $2,000 with 9% interest due in 3 months payable to our customer as a note receivable.

Example: Note receivable

Date	Account	DR	CR
20Y8.12.01	Notes receivable	2,000	
	Cash		2,000
Gave $2,000 to a customer as a note receivable from supplier			
20Y8.12.31	Interest receivable	15	
	Interest revenue		15
Recorded accrued interest revenue on note receivable; 2,000 x 9% x 1/12			
20Y9.02.28	Cash	2,045	
	Interest revenue		30
	Interest receivable		15
	Notes receivable		2,000
Got paid for note receivable, with interest of 2,000 x 9% x 3/12 (1 month recorded prior)			

Current long term debt

- We consider any payment owed in the coming fiscal year as a current liability
  - This includes payments on long term debt
- We shift these payments to short term debt when we do our balance sheet
  - Call it “current portion of long term debt”



Check

> Coffee Co. gives $1,000 to Latte Inc. on November 1st, 20X8 as a note with 6% interest over 6 months. Record the journal entries for *both companies*, i.e., the note receivable and the note payable. Assume December 31st is both companies' fiscal year end.

- Hints:
  - Money changes hands on November 1
  - Interest accrues on December 31
  - The note is paid back on April 30th

Check: Note payable

Date	Account	DR	CR
20X8.11.01	Cash	1,000	
	Notes payable		1,000
Received a $1,000 note payable from Coffee Co.			
20X8.12.31	Interest expense	10	
	Interest payable		10
Recorded accrued interest owed on note payable; 1,000 x 6% x 2/12			
20X9.04.30	Notes payable	1,000	
	Interest expense	20	
	Interest payable	10	
	Cash		1,030
Paid off note payable, including interest of 1,000 x 6% x 4/12 (2 months recorded prior)			

Check: Note receivable

Date	Account	DR	CR
20X8.11.01	Notes receivable	1,000	
	Cash		1,000
Gave a $1,000 note to Latte Inc.			
20X8.12.31	Interest receivable	10	
	Interest revenue		10
Recorded accrued interest revenue on note receivable; 1,000 x 6% x 2/12			
20X9.04.30	Cash	1,030	
	Interest revenue		20
	Interest receivable		10
	Notes receivable		1,000
Got paid for note receivable, with interest of 1,000 x 6% x 4/12 (2 months recorded prior)			

Time value of money

Source

This section is based on:

Corporate Finance: An Introduction

by Ivo Welch

Pearson: Boston, MA. 2009.

> It’s a good finance textbook!

The perfect market

- No taxes
- No transaction costs
  - Can find buyers/sellers costlessly
  - Can deliver costlessly
- Everyone has identical beliefs
- Many buyers and sellers (liquid)

> We'll use these assumptions in this class

Basic perspectives: Why we have *time value of money*

1. You can earn interest on $1 today, so it's worth more than $1 tomorrow.
2. Inflation means that $1 tomorrow can buy less than $1 today.
3. $1 today gives me the option to spend today or tomorrow, but $1 tomorrow can only be spent tomorrow. If that option to use the $1 today is valuable to me, $1 today is worth more than $1 tomorrow.

> All three of these are equivalent: a dollar today is worth more than a dollar tomorrow

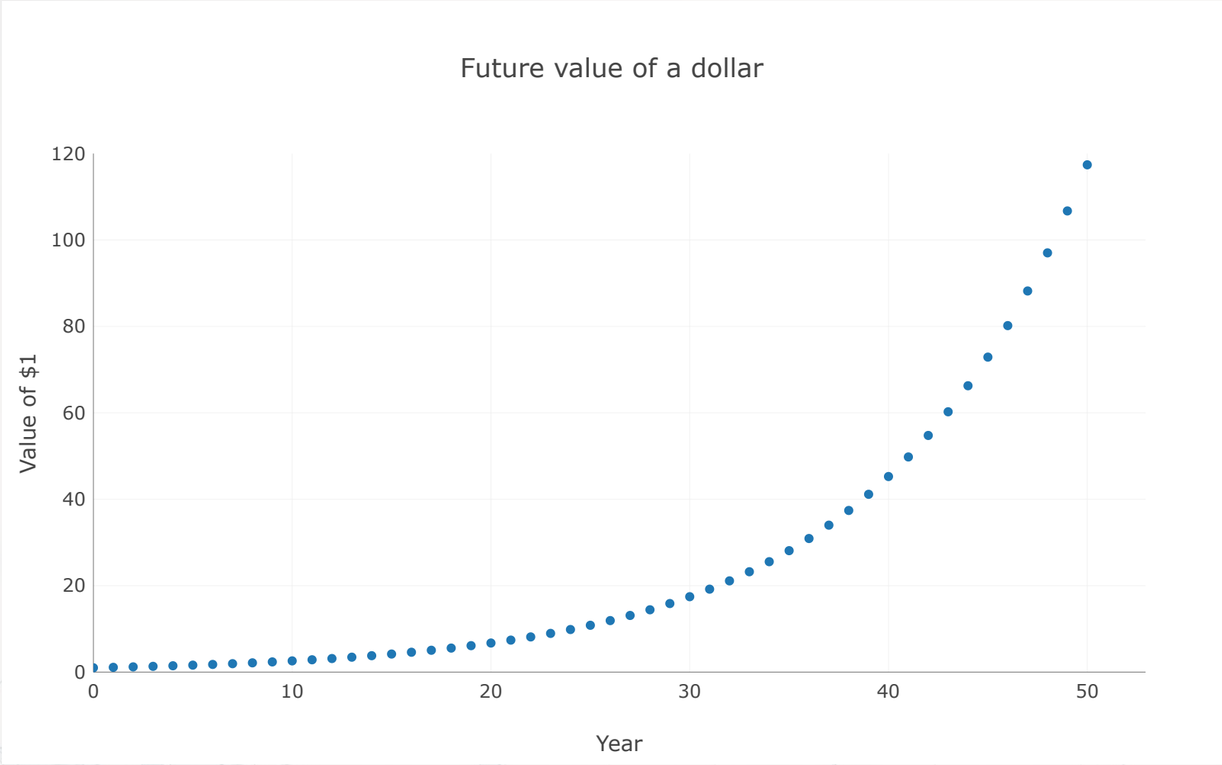
Consequences

- When we talk about returns, we'll talk about *compounded* returns
  - If $1 today is $1.10 next year…
    - then $1.00 in two years is $1.21, not $1.20
      - Return scales with capital
- More explicitly: if the interest rate, r is 10%, and the principal, P_0 is $1, then:
  - Tomorrow P_0 is worth $P_1 = P_0 \cdot (1 + r) = 1 \cdot 1.10 = 1.10$
  - Flipping the equation implies: $P_0 = \frac{P_1}{(1+r)} = \frac{1.10}{1.1} = 1$

Extension: Going forward

- What is $1 worth in two years? Three years? …
  - $P_2 = (1 \cdot 1.1) \cdot 1.1 = 1.21$
  - $P_3 = ((1 \cdot 1.1) \cdot 1.1) \cdot 1.1 = 1.331$
  - $\ldots$
  - $P_{50} = (\ldots(1 \cdot 1.1) \cdot 1.1 \ldots) \cdot 1.1 \approx 106.72$
  - $\ldots$
  - $P_n = P_0 \cdot (1 + r)^n$

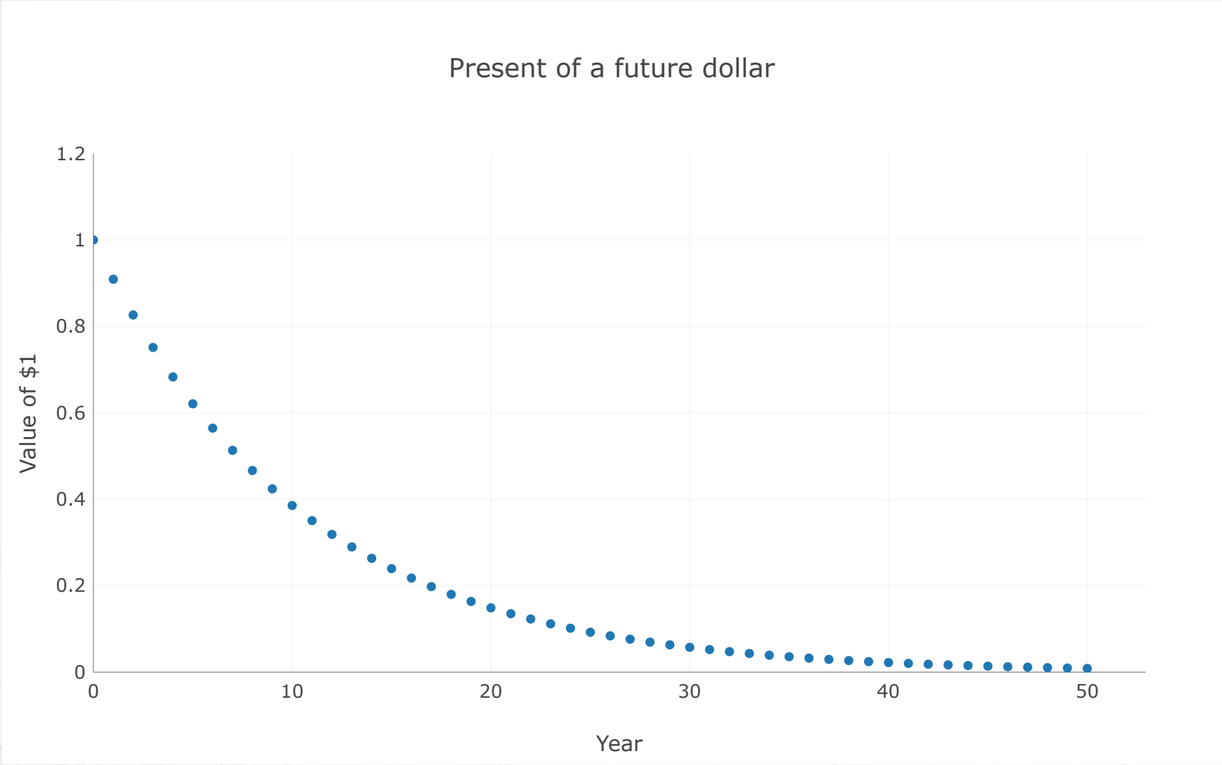
Extension: Going forward



Extension: Going backward

- What is the current value of $1 in two years? Three years? …
  - $P_0'' = (1/1.1)/1.1 = 0.83$
  - $P_0''' = ((1/1.1)/1.1)/1.1 = 0.75$
  - …
  - $P_0^{(50)} = (\ldots(1/1.1)/1.1\ldots)/1.1 \approx 0.0085$
  - …
  - $P_0^{(n)} = \frac{P_n}{(1+r)^n}$

Extension: Going backward



Check

1. What is $10 worth in 20 years, if the interest rate is 5%?

2. What is $10 received 20 years from now worth today, if the interest rate is 5%?

Answers:

1. $10 \times (1 + 0.05)^{20} = \$26.53$
2. $\frac{10}{(1+0.05)^{20}} = \$3.76$

Net Present Value

What is Net Present Value? (NPV)

- What we just did!
- Determine the price *today* of some future (expected) cash flows
- Numerator is the future cash flow, CF
- Denominator is the *discount factor*, R
  - That is, we discount cash flows by the return to get today's value

$$NPV_0 = CF/R$$

- What if there are multiple cash flows?

> $NPV_0 = \sum_{i=0}^{n} \frac{CF_i}{R_i}$

> NPV at time 0 (today) is the sum of all discounted cash flows

Discount factors

- The discount factor is the amount of *cumulated* return or interest you would expect to receive between two period of time.
- We often assume a fixed discount rate for each year of $1 + r$
- Let R_i denote the discount factor from time 0 to time i
  - $R_1 = 1 + r$
  - $R_2 = (1 + r) \cdot (1 + r)$
  - $R_3 = (1 + r) \cdot (1 + r) \cdot (1 + r)$
  - $\dots$
  - $R_n = (1 + r)^n$

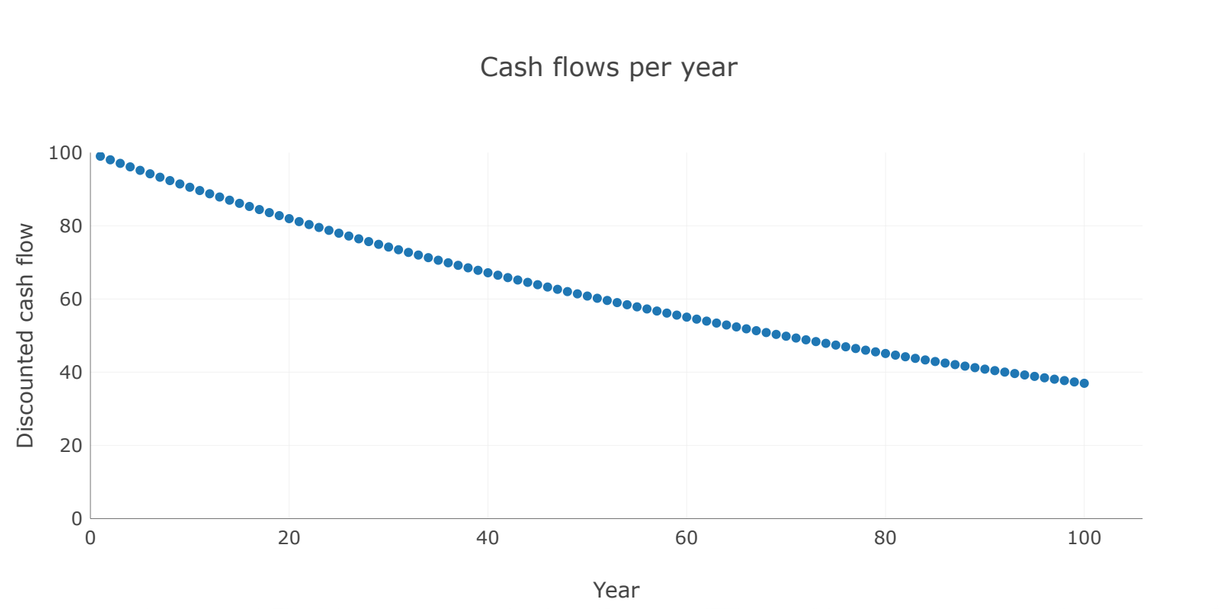
Simple Example

- A project costs $500 today, and is expected to pay out the following:
  - $100 in one year
  - $600 in two years.
- If the interest rate is 10%, what is the NPV of the project?

- $NPV = \frac{-500}{(1+0.1)^0} + \frac{100}{(1+0.1)^1} + \frac{600}{(1+0.1)^2}$
- $NPV = -500 + 90.91 + 495.87$
- $NPV = 86.78$
- What if the interest rate was 5%?
- $NPV = \frac{-500}{(1+0.05)^0} + \frac{100}{(1+0.05)^1} + \frac{600}{(1+0.05)^2}$
- $NPV = -500 + 95.24 + 544.22$
- $NPV = 139.46$

Calculating

- Easy to do a few cash flows with a calculator
- Easy to do any number of cash flows with spreadsheets
- What is the NPV of a project that pays out $100 each year for 100 years, assuming the interest rate is 1%?
  - Value is 6302.8878767



What about for…

- 10 years? 100 years? 1,000 years? 10,000 years?
- Pretty hard by hand
- Trivial to brute force on a computer

```r
NPV <- data.frame(Years=c(10, 100, 1000, 10000),
                  NPVs=c(sum(c(100/1.01^(1:10))),
                         sum(c(100/1.01^(1:100))),
                         sum(c(100/1.01^(1:1000))),
                         sum(c(100/1.01^(1:10000)))))
html_df(NPV)
```

Years	NPVs
10	947.1305
100	6302.8879
1000	9999.5229
10000	10000.0000

What about by hand?

> Formulas!

- Perpetuity: The same cash flow and discount rate forever:
  - $Perpetuity\ NPV = \frac{CF}{r}$
- Growing perpetuity: perpetuity but with a growth in cash flows of g:
  - $GP\ NPV = \frac{CF}{r-g}, g < r$
- *Annuity*: same cash and discount rate for only T periods
  - $Annuity\ NPV = \frac{CF}{r}\left[1 - \frac{1}{(1+r)^T}\right]$

> *We'll need this annuity NPV formula next class*

Revisiting the 10,000 figures

$$
\begin{aligned}
NPV &= \frac{100}{0.01} \cdot \left[1 - \frac{1}{(1+0.01)^{10,000}}\right] \\
&\approx 10,000 \cdot 1 \\
&\approx 10,000
\end{aligned}
$$

- What about for 70 periods?
  -
  -

The last formula…

> A note to those in finance, from the textbook: “I am not a fan of memorization, but you must remember the growing perpetuity formula. It would likely be useful if you could also remember the annuity formula. These formulas are used in many different contexts. There is also a fourth formula, which nobody remembers, but which you should know to look up if you need it.” (p53)

- Growing annuity

Derivation – for those interested in the math

You can derive the other 3 formulas from the fourth:

- Growing perpetuity:
  -
- Annuity:
  -
- Perpetuity
  -

> You don’t need to know this for this class

In class work

1. An investment costs $100 today, and pays out $10 per year for the next 10 years. In the 10th year, it also pays back the original $100. If the interest rate is 10%, what is the NPV?
2. What if the interest rate was 8% instead of 10% in #1?

Question 1

> An investment costs $100 today, and pays out $10 per year for the next 10 years. In the 10th year, it also pays back the original $100. If the interest rate is 10%, what is the NPV?

Question 1

> An investment costs $100 today, and pays out $10 per year for the next 10 years. In the 10th year, it also pays back the original $100. If the interest rate is 10%, what is the NPV?

> Use NPV and the *annuity* formula!

Question 2

- An investment costs $100 today, and pays out $10 per year for the next 10 years. In the 10th year, it also pays back the original $100. If the interest rate is 10%, what is the NPV?
  - The NPV would be 0.

> What if the interest rate was 8%?

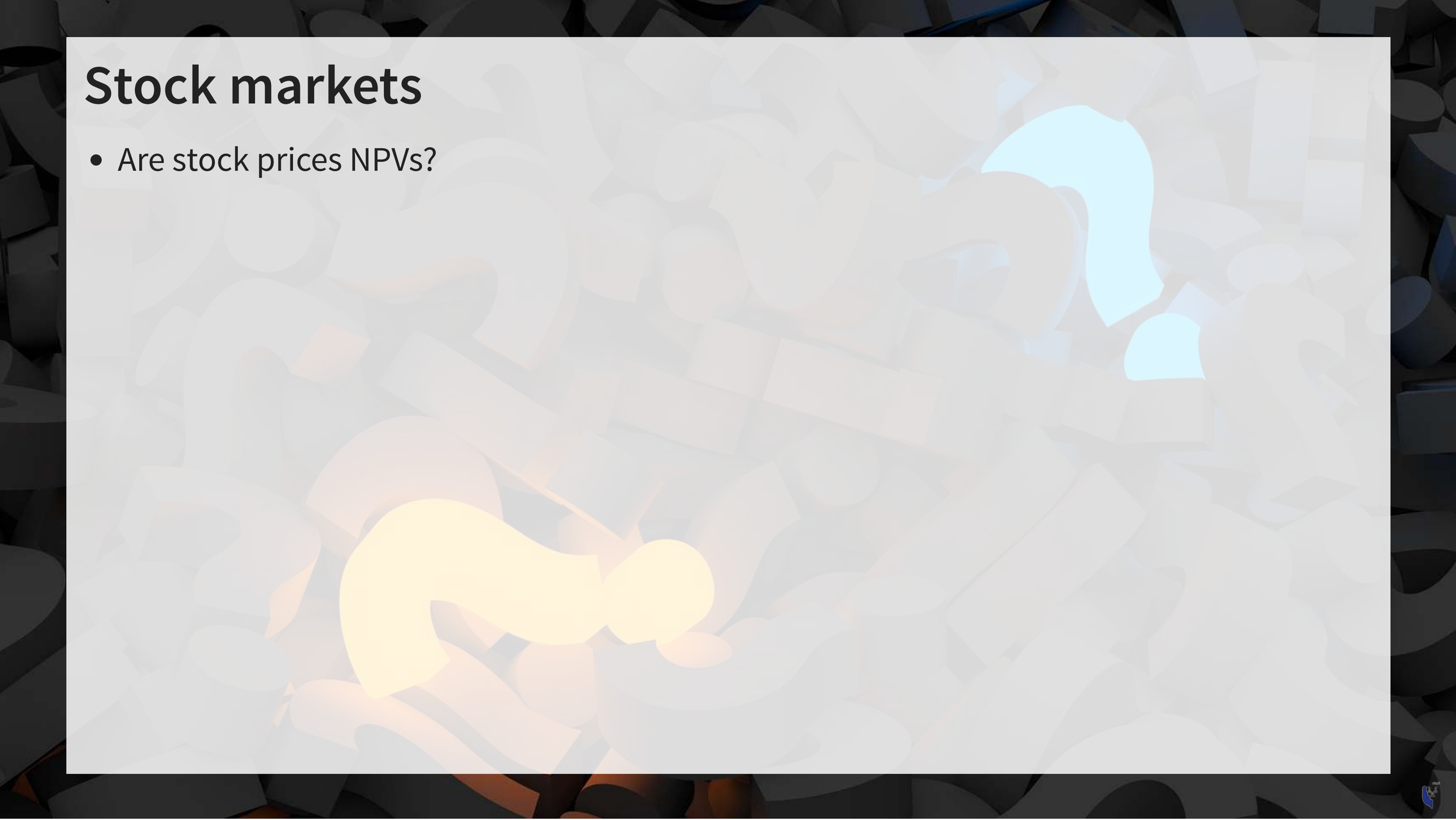
Question 2

> What if the interest rate was 8%?

> Use NPV and the *annuity* formula!

Stock markets

- Are stock prices NPVs?



Stockmarkets are not perfect

- No taxes
- No transaction costs
  - Can find buyers/sellers costlessly
  - Can deliver costlessly
- Everyone has identical beliefs
- Many buyers and sellers (liquid)

Sustainability

CSR or ESG?

CSR

- *C*orporate *S*ocial *R*esponsibility
- The precursor to ESG

ESG

- *E*nvironmental, *S*ocial, & *G*overnance
- Blends governance, CSR, and a broader focus on climate and its risks

ESD

- *E*ducation for *S*ustainable *D*evelopment
- [Up]Skilling future leaders

ESD: UNESCO

ESD is a lifelong learning process and an integral part of quality education. It enhances the cognitive, socio-emotional and behavioural dimensions of learning and encompasses learning content and outcomes, pedagogy and the learning environment itself.

The three pillars of ESG

> **E**nvironmental

- Climate change, effluents and waste, clean energy, energy consumption, carbon emissions, biodiversity degradation, water, …

> **S**ocial

- Diversity, human rights, everyone's health & safety, child & enforced labour, product responsibility, anti-corruption, …

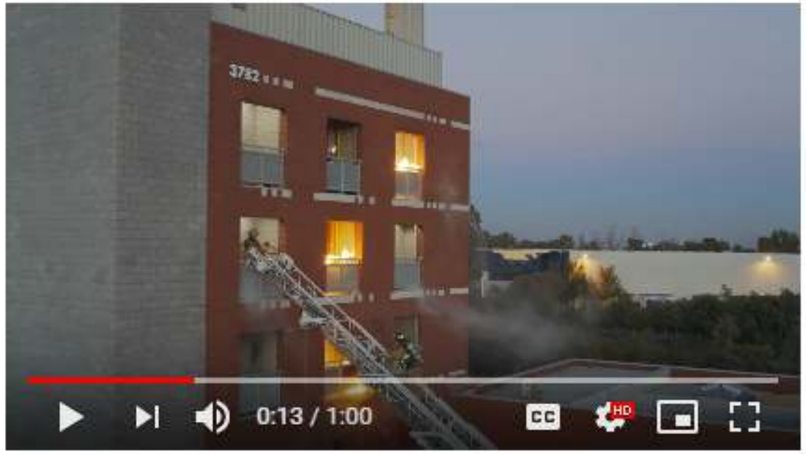
> **G**overnance

- Management structure, employee relations, executive compensation, Board diversity, ethical culture, Board and management competence

TCFD

The above comes from the Task Force on Climate-related Financial Disclosures (TCFD)

Can ESG disclosure mislead?



Enabling heroes

Unlisted

110 LIKE DISLIKE SHARE SAVE ...

Verizon
Published on Oct 5, 2018

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When disaster strikes, communication becomes a lifeline. From a dedicated lane on our network to cell towers on wheels, we are constantly innovating to help keep first

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Follow

From a dedicated lane on our network to cell towers on wheels, we are constantly innovating to help keep first responders connected so they can get their job done. #Humanability

11:05 AM - 8 Oct 2018

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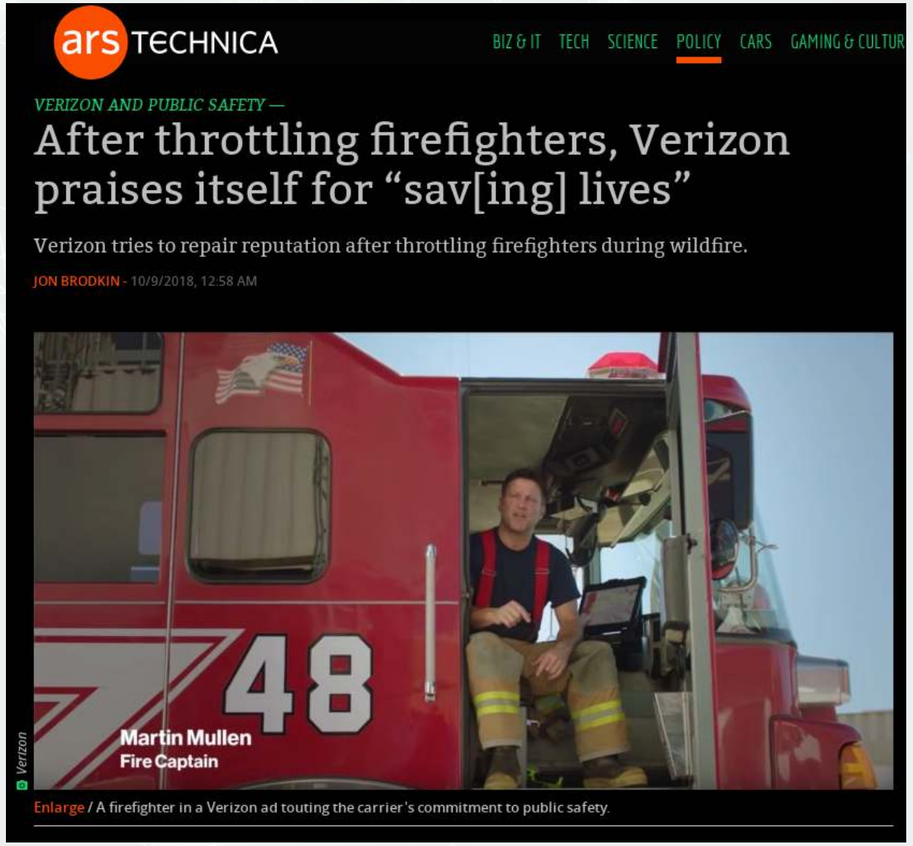
Can ESG disclosure mislead?

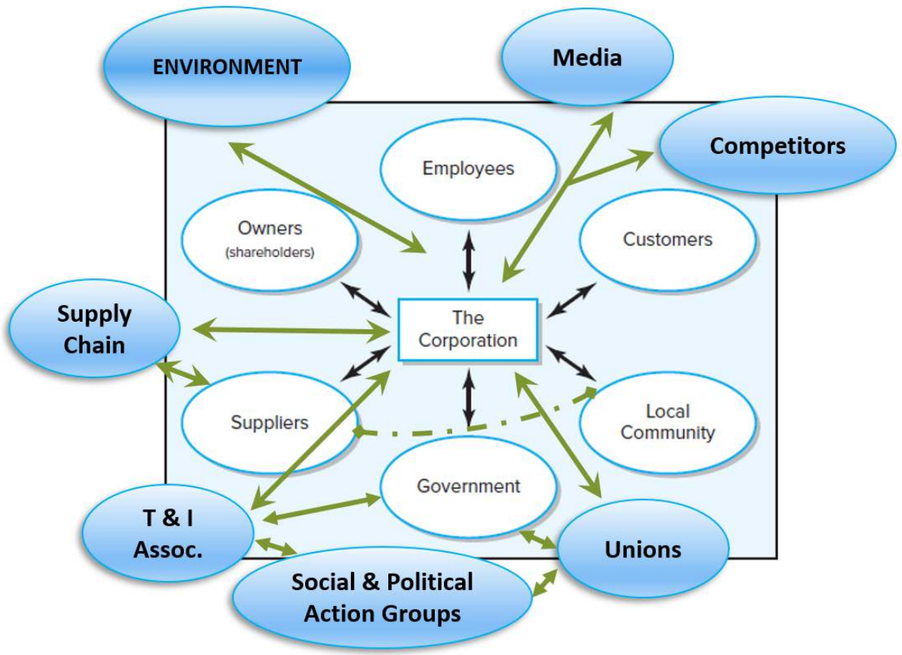
Before the video

After the video



How firms should act

1. Guided by strong *moral* and *ethical* standards in daily interactions with **all** stakeholders
2. Carefully balance *shareholders'* needs with the needs of **other stakeholders**
3. Constantly consider the **environmental impact** of its business operations



U.N. SGDs

The World's Largest Lesson | Global Goals

U.N. SDGs


1 NO POVERTY
2 ZERO HUNGER
3 GOOD HEALTH AND WELL-BEING
4 QUALITY EDUCATION
5 GENDER EQUALITY
6 CLEAN WATER AND SANITATION
7 AFFORDABLE AND CLEAN ENERGY
8 DECENT WORK AND ECONOMIC GROWTH
9 INDUSTRY, INNOVATION AND INFRASTRUCTURE
10 REDUCED INEQUALITIES
11 SUSTAINABLE CITIES AND COMMUNITIES
12 RESPONSIBLE CONSUMPTION AND PRODUCTION
13 CLIMATE ACTION
14 LIFE BELOW WATER
15 LIFE ON LAND
16 PEACE, JUSTICE AND STRONG INSTITUTIONS
17 PARTNERSHIPS FOR THE GOALS
SUSTAINABLE DEVELOPMENT GOALS

Sustainability reporting

What must be reported?

Factors to consider

What needs to be reported often varies by jurisdiction, company size, ownership structure, and industry. In Singapore, rules are determined by SGX

- In Singapore, the following must be reported by *public* companies:
  - Starting FY 2025: Greenhouse gas emissions from their own or controlled operations (*Scope 1*)
  - Starting FY 2026: Greenhouse gas emissions from purchasing electricity, heat, or steam (*Scope 2*)
  - Starting FY 2027: Greenhouse gas emissions from the rest of their supply chain (*Scope 3*)
  - Starting FY 2027: Scope 1 and 2 need an audit
- For large private firms:
  - Scope 1 and 2 disclosure by 2027, Scope 3 by 2029
  - Audit of scope 1 and 2 by 2029

> Material risks must be disclosed already

Materiality and ESG

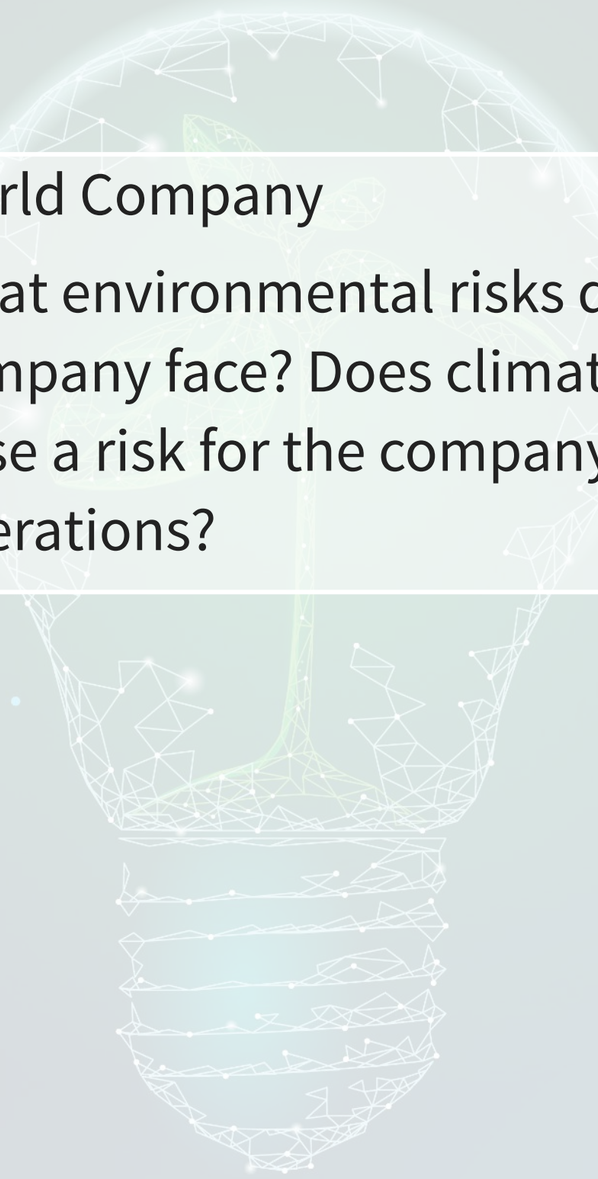
Materiality goes two ways

Company World

- What is the impact of the firm on…
  - The local environment
  - Climate
  - Nearby communities
- What risks does the company's actions pose on the environment and local communities?

World Company

What environmental risks does the company face? Does climate change pose a risk for the company's operations?

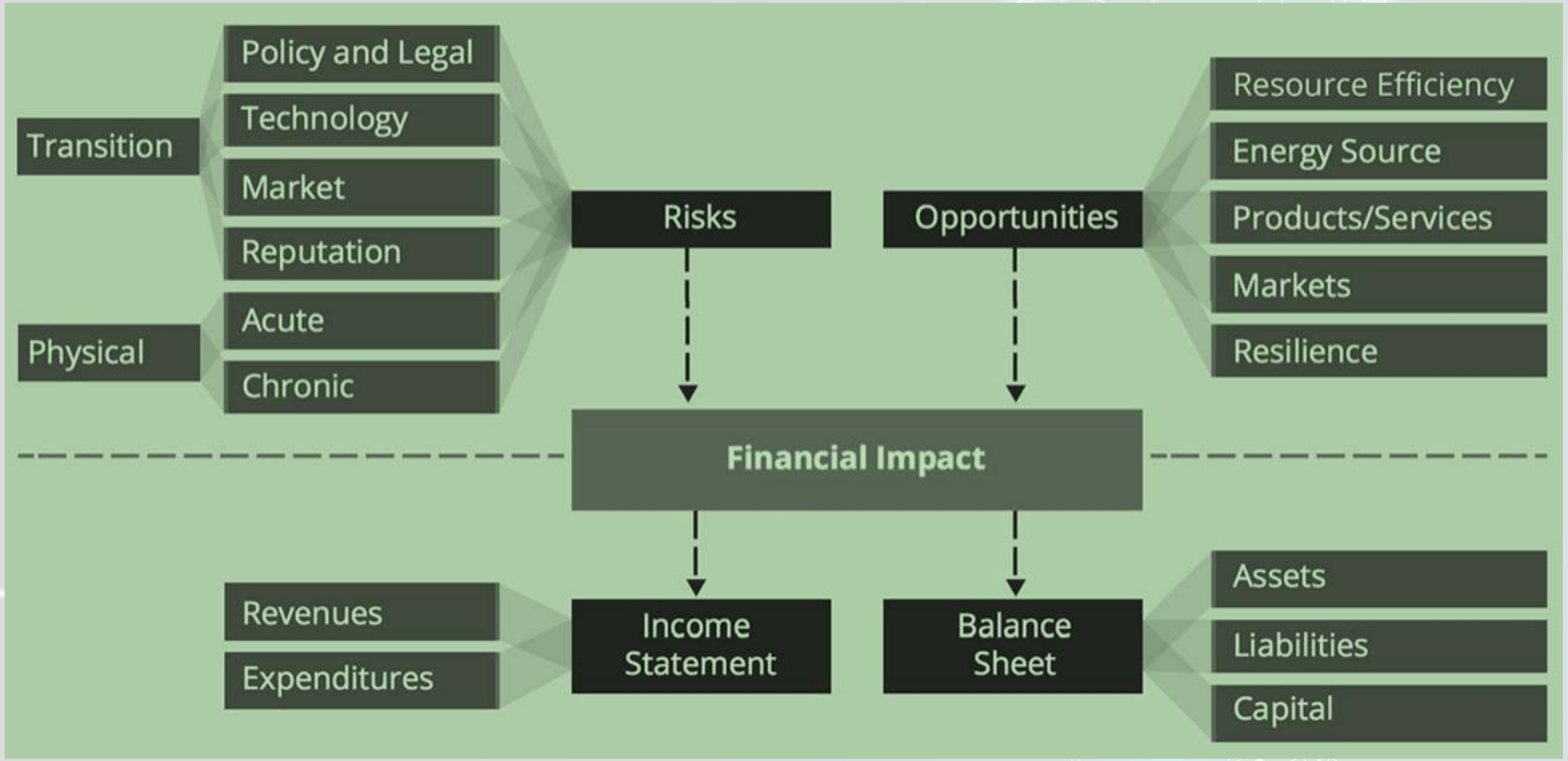


Reporting frameworks

Singapore

SGX' reporting choices are generally in line with TCFD

TCFD reporting



Risks and Opportunities: Company to World

- Consider the following companies:
  1. A Norwegian lumber producer
  2. A Singaporean airline
  3.

Risks and Opportunities: World to Company

- Consider the following companies:
  1. A Norwegian lumber producer
  2. A Singaporean airline
  3.

TCFD: The Game

- We will divide into 9 groups
- Each group needs to pick 1 of the 6 provided company cards

> The task

1. Determine the key risks this firm faces (top 6)
2. Determine the best solution for each of the risks (choose 6 of 16 actions)
3. I will pull 6 event cards, and we will see how your company performs

Additional information for Singapore

- You can find more details on sustainability in Singapore at this links:
  - NEA: Climate Change
  - Green Plan 2030
  - Reduce, Reuse and Recycle
  - Ministry of Sustainability and the Environment

End matter

Wrap up

- For next week
  1. Recap the reading for this week
  2. Read the pages for next week
     - Liabilities (Chapter 9)
  3. Submit last week's homework
     - Available on eLearn
     - Submit on eLearn
  4. Practice on eLearn
     - Practice on Time value of money
     - Automatic feedback provided
- Survey on the class session at rmc.link/101survey7

Packages used for these slides

- kableExtra
- knitr
- revealjs