Test 3, Lecture 2-3 Review

CAPITAL BUDGETING

When a Fixed Asset is salvaged at the end of a project, there is typically a tax impact to consider

* When planning a project, any expected tax impacts should be factored into the projects TCFs
	+ Terminal Cash Flow (TCF): cash flow gained when project ends
* An assets Net Salvage Value (NSV) is its MV when salvaged plus any tax impact that may occur at any time
	+ NSV is cash flow gained from selling a fixed asset

$$NSV=MV-Taxes$$

$$NSV=MV-T\*(MV-BV)$$

MV = market value = selling price of asset at end of project = salvage value

BV = book value = balance sheet value of asset = initial cost – depreciation

T = tax rate

* FCF at the end of the project:

$$FCF=\left(S-E-D\right)\*\left(1-T\right)+D-∆NWC-∆GrossPPE+TCF$$

TCF = NSV of fixed assets + recovered NWC

The Relationship Between Market Value and Book Value

* If a firm expects MV < BV, then it expects to have claimed too little in depreciation expenses by the end of the project and it expects to receive a tax credit from the government at project termination
* If a firm expects MV > BV, then it expects to have claimed too much in depreciation expenses by the end of the project and it expects to pay taxes on the capital gain to the government at project termination

Working Capital Issues

* An increase in Inventory increases NWC which decreases FCF
* An increase in Account Receivable increases NWC which decreases FCF
* An increase in Accounts Payable decreases NWC which increases FCF

Incremental Approach to Cash Flow Estimation

* So far, we have looked at the project in a stand-alone approach, but the typical firm will have many on-going projects that are generating their own cash flow streams and capable of using each others fixed assets
	+ For a typical firm, we need to consider additional details and move to an incremental approach to cash flow estimation
* Incremental Cash Flow: the net change in a firms overall cash flow that occurs when we accept a project
	+ The 2 most common ways a project can impact other cash flows generate by the firm are…
1. Opportunity costs
2. Project side effects

Opportunity Costs

* If we accept a project, we may forgo cash flows that would have occurred if we had instead rejected the project
	+ The classic example of this is when the proposed project will borrow equipment or other fixed assets that are no longer needed for an existing project
		- If the borrowed assets could have been otherwise salvaged for cash, then by accepting the new project, the firm forgoes the opportunity to realize this cash flow
		- We need to bill the new projects initial cash flow an OC for the borrowed asset

$$FCF\_{0}=\left(S-E-D\right)\*\left(1-T\right)+D-∆NWC-∆GrossPPE-OC$$

$$opportunity cost=NSV of existing equipment$$

Project Side Effects

* If the new project and some existing projects are dependent projects, then when we accept the new project, the sales of the existing project can be increased or decreased
	+ If accepting the new project increases sales for the existing project, we say the two projects are complements
		- A complement is a positive gain (synergy)
		- Ex: Disney bought the Star Wars brand
	+ If accepting the new project decreases sales for the existing project, we say the projects are substitutes
		- Substitutes involve pulling the customers away from the firms other projects (cannibalization)

$$FCF\_{t}=\left(S-E-D\right)\*\left(1-T\right)+D-∆NWC-∆GrossPPE\pm SECF$$

$$SECF=∆sales\*after-tax operating margin$$