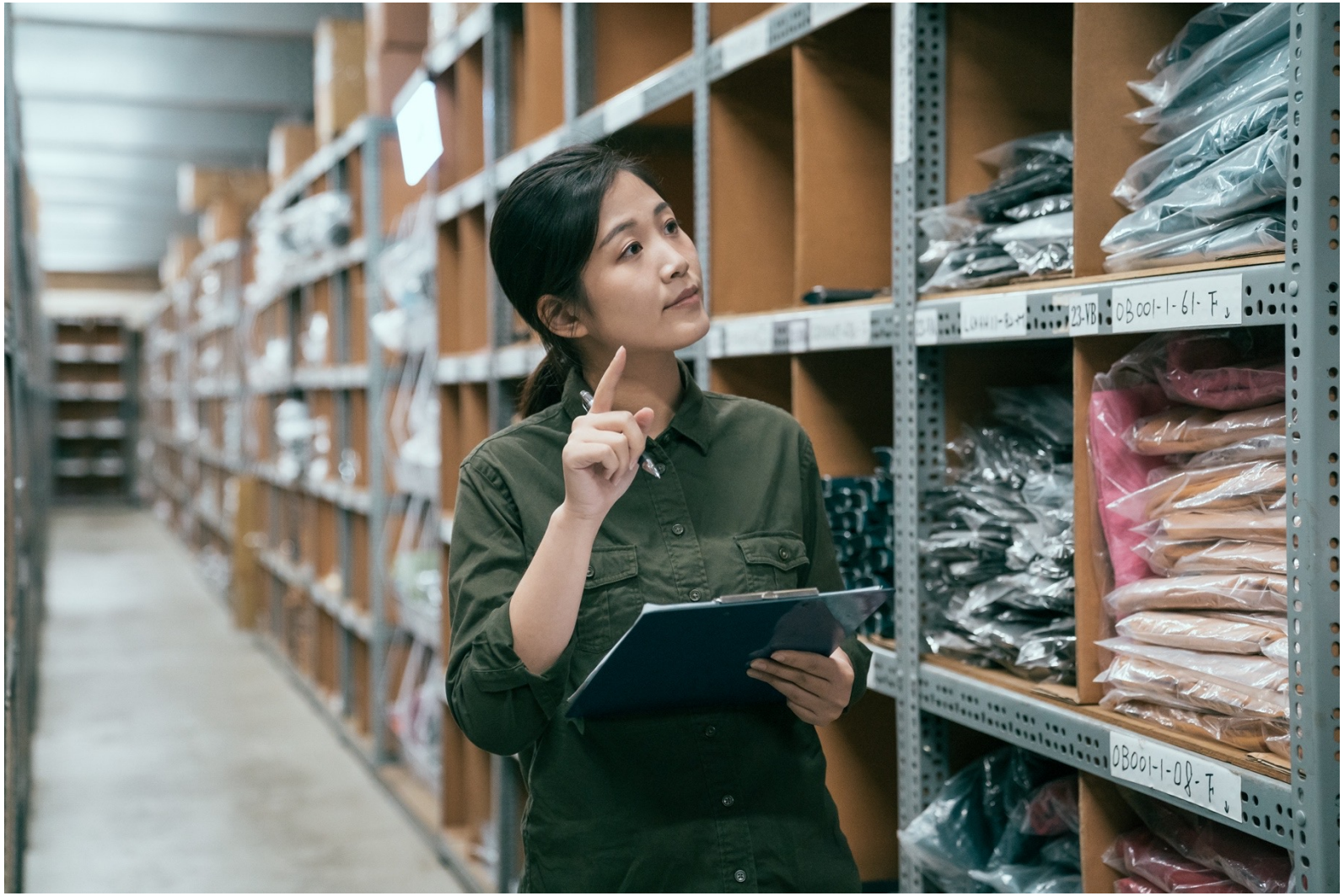
Deep Dive into Net Working Capital



Building the Financial Business Case…

What do we need to determine a Project's NPV, IRR & PBP?

The Project's Cash Flows are given by the combination of:

After-Tax Cash Flows coming from the project's operations…

Cash Flows associated with inventory (Net Working Capital)…

Cash Flows due to capital spending (the CAPEX)…

Once we have these final cash flows, we're ready for our NPV, IRR and Payback analyses!

Net Working Capital and The Balance Sheet

ASSETS

- Current Assets
  - Cash
  - Short Term Investments
  - Accounts Receivable
  - Inventories
- Property, Plant & Equipment
  - Land
  - Buildings
  - Equipment
  - Accumulated Depreciation
- Other Assets

LIABILITIES

- Current Liabilities
  - Current Portion of Long-Term Debt
  - Accounts Payable
  - Accrued Payroll & Other Expenses
- Long-Term Debt

SHAREHOLDER EQUITY

- Paid-In Capital
- Retained Earnings

Current Assets: cash and those assets that can be converted to cash within one year.

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SHAREHOLDER EQUITY

- Paid-In Capital
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Current Liabilities: liabilities (e.g., debts) the company must pay within one year.

Net Working Capital

Net Working Capital, NWC = Current Assets – Current Liabilities

Cash available (or could be available)

Bills that need to be paid in the short-term

NWC is the amount of cash available after the company pays its bills for the year.

+ NWC: the company has plenty of cash available to keep bills paid

- NWC: the company is in trouble…there are more bills than cash to pay them!

Still More Terminology

"Change in Net Working Capital"

$$\Delta NWC = NWC\ (End\ of\ Year) - NWC\ (End\ of\ Previous\ Year)$$

Why is this important?

Companies invest in equipment and plant upgrades (Fixed Assets).

They also invest in Current Assets, such as the inventory needed to build the product!

The ΔNWC is a good measure of the company's investments to keep the day-to-day operations going strong.

Net Working Capital and Inventory

Net Working Capital involves inventory as a current asset.

In order to sell anything, you first need to build it, and in order to build it, you need inventory (raw materials, purchased finished components, etc.)!

Projects often involve an initial investment to build inventory for production.

As sales vary from year to year, inventories typically vary with them, often by some % of sales.

We keep track of the cash flows due to the inventory changes through the ΔNWC.

Net Working Capital and Inventory

Example: A company determines its inventory needs in terms of raw materials and has estimated the costs for the next 3 years.

Based on these inventory levels, what is the Net Working Capital, NWC, and ΔNWC associated with inventory levels below.

	Year			
	0	1	2	3
NWC	$20,000	$50,000	$90,000	$70,000
Δ NWC ($Year_t$ – $Year_{t-1}$)	$20,000	$30,000	$40,000	-$20,000

$50,000 - $20,000 = $30,000

$70,000 - $90,000 = -$20,000

An increase in ΔNWC reflects adding to inventory levels.

A decrease in ΔNWC reflects reducing inventory levels.

Net Working Capital and Cash Flows

Example: A company determines its inventory needs in terms of raw materials and has estimated the costs for the next 3 years.

The Net Working Capital associated with inventory is shown below.

	Year			
	0	1	2	3
NWC	$20,000	$50,000	$90,000	$70,000
Δ NWC ($Year_t - Year_{t-1}$)	$20,000	$30,000	$40,000	-$20,000
Cash Flow from ΔNWC	-$20,000	-$30,000	- $40,000	+$20,000

Cash is spent to build inventory at the beginning of the year

Cash is spent to increase Inventory levels to meet higher sales volumes.

Cash is received as inventory is sold off during the year

Cash Flows from Changes in Net Working Capital

$$\Delta \text{ NWC} = \text{NWC (End of Year)} - \text{NWC (End of Previous Year)}$$

A positive ΔNWC implies inventory was added during the year (a cash outflow)

A negative ΔNWC implies inventory was sold during the year (a cash inflow)

$$\text{Cash Flow} = -\Delta\text{NWC}$$

Main Takeaways…

Net Working Capital, NWC, is formally defined as the company's Current Assets minus its Current Liabilities; it is a measure of the company's ability to pay its bills!

Inventory is part of the current assets, and companies incorporate investments in inventory throughout the project lifetime, and account for it in a project's cash flow analysis.

The Change in Net Working Capital, ΔNWC, reflects inventory changes from year to year.

A positive ΔNWC reflects adding inventory during the year (a cash outflow), whereas a negative ΔNWC reflects reducing inventories during the year (a cash inflow).

The annual cash flows are equal to -ΔNWC!

Next Time…

Building a Simple Pro Forma

	A	B	C	D	E
1	**Project Cash Flow Statement**				
2					
3	**Discount Rate:**	20%			
4					
5		**Year**			
6		**0**	**1**	**2**	**3**
7	Cash Flows from Operations		$51,725	$51,725	$51,725
8	Cash Flows from ΔNWC	-$20,000			$20,000
9	Cash Flows from CAPEX	-$90,000			
10	**Total Project Cash Flows**	**-$110,000**	**$51,725**	**$51,725**	**$71,725**
11					
12	**PV (Year 1-3)**	**$120,532**	*=NPV(B3, C10:E10)*		
13	**Initial Investment (Year 0):**	**$110,000**	*= -B10*		
14	**NPV:**	**$10,532**	*=B12 - B13*		
15					
16	**IRR:**	**25.7%**	*=IRR(B10:E10)*		
17					
18	**Cumulative Cash Flows:**	**-$110,000**	**-$58,275**	**-$6,550**	**$65,175**
19					
20	**Payback Period (Years):**	**2.1**	*=2 + ($6,550/$71,725)*		

Credits & References

Slide : Young woman auditor staff work looking up stocktaking inventory in warehouse store by PR Image Factory, Adobe Stock (273642783.jpeg).