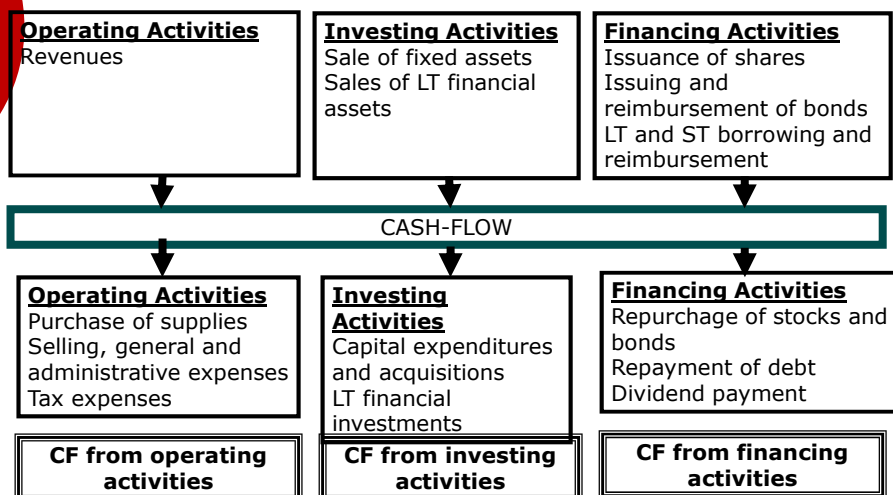


## Assessing cash-flow generation

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## Cash-flow statement structure



## Main differences between IFRS and GAAP

Transaction	IFRS	U.S. GAAP
interest received	operating or investing activities	operating activities
interest paid	operating or financing activities	operating activities
dividends received	operating or investing activities	operating activities
dividends paid	operating or financing activities	financing activities
taxes paid	mainly operating activities, but a portion of tax expense can be allocated to investing or financing activities if it can be directly assigned	operating activities

Source: CFA Chartered Financial Analysts

Note: In this course we follow the IFRS

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## A simplified example

Income statement	Y1	Balance sheet	Y0	Y1	Variance
Sales	1 000,00	Net fixed assets	1 000,00	1 400,00	400,00
Variable expenses	250,00	Inventories	150,00	180,00	30,00
Fixed expenses	150,00	Trade accounts receivable	120,00	140,00	20,00
Operational expenses	400,00	Cash	200,00	150,00	-50,00
EBITDA	600,00	Total assets	1 470,00	1 870,00	400,00
Depreciation rate	10,0%				
Amortization and depreciation	140,00	Equity	1 320,00	1 537,44	217,44
EBIT	460,00	LT debt	0,00	120,00	120,00
Cost of debt	5,0%	ST debt	0,00	20,00	20,00
Financial expenses	7,00	Trade accounts payable	150,00	192,56	42,56
Earnings Before Taxes	453,00	Total equity and liabilities	1 470,00	1 870,00	400,00
Income taxes rate	20,0%				
Income taxes	90,60				
Net profit	362,40				
Pay-out ratio	40,0%	Net Liquid Balance	Y0	Y1	
Dividends	144,96	Equity	1320,00	1537,44	
Retained earnings	217,44	LT Debt	0,00	120,00	
		Long term financing	1 320,00	1 657,44	
		Fixed assets	1 000,00	1 400,00	
		Working Capital	320,00	257,44	
		Working Capital Requirements	120,00	127,44	
		Net Liquid Balance	200,00	130,00	

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## How to calculate operational cash flow from accounting statements

Income statement	Income Year 1	Working Capital Requirements Variance			Cash-Flow Year 1
		Inventories	Trade Receivable	Trade Payable	
Sales	1000,00		20,00		980,00
Operational expenses	400,00	30,00		42,56	387,44
EBITDA	600,00				
Amortization and depreciation	140,00				
Operational income	460,00				
Financial expenses	7,00				
Earnings Before Taxes	453,00				
Income taxes	90,60				90,60
<b>Net profit</b>	<b>362,40</b>				
<b>Operational cash flow</b>					<b>501,96</b>

Conciliation	
+Operational income	460,00
+Depreciation & Amortization	140,00
-Increase in WCR	7,44
-Income taxes	90,60
<b>Operational cash flow</b>	<b>501,96</b>

## How to calculate cash flow statement from accounting

Cash Flow Statement	Year 1
Cash receipts from customers	980,00
Cash payment of operating expenses	387,44
Income taxes	90,60
<b>Operational cash flow</b>	<b>501,96</b>
-Capex	540,00
<b>Cash flow from investing</b>	<b>-540,00</b>
Dividends	144,96
Financial expenses	7,00
Equity issue	0,00
Long term debt variance	120,00
Short term debt variance	20,00
<b>Cash flow from financing</b>	<b>-11,96</b>
<b>Net cash flow</b>	<b>-50,00</b>
<b>Also note that:</b>	
Free cash flow to the firm (FCFF)	-38,04
Cash flow from long term financing	-31,96
Net cash flow from long-term decisions	-70,00 = NLB Variance

## How to easily forecast the cash flow

Notations used in the next slides

Income	Itens	Balance Sheet	Itens
R	Revenues	FA	Fixed assets
CGS	Cost of Goos Sold	AR	Accounts Receivable
SGA	Selling, general and administrative expenses	INV	Inventories
Dep	Depreciation and amortization	CASH	Cash & Equivalents
EBIT	Earnings Before Interest and Taxes	E	Equity
Fexp	Financial expenses	D	Debt
Tax	Income taxes	LTD	LT Debt
Tc	Taxe rate	STD	ST Debt
NI	Net Income	AP	Accounts payable
p	Pay-out ratio		
DIV	Dividends		
RE	Retained Earnings		

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## The structure of income and balance sheet

### Income Statement

$$EBIT = R - CGS - SGA - Dep$$

$$TAX = T_c \times (EBIT - Fexp)$$

$$NI = EBIT - Fexp - TAX$$

$$RE = NI - DIV$$

### Balance Sheet

$$FA + INV + AR + CASH = E + LTD + STD + AP$$

### Managerial Balance Sheet

$$FA + WCR + CASH = E + D$$

$$WCR = INV + AR - AP$$

$$D = LTD + STD$$

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## Cash Flow from the indirect method

This my preferred method for forecasting cash flow

$$(EBIT + Dep - \Delta WCR - TAX) - (CAPEX) + (\Delta E + \Delta D - Fexp - DIV) = \Delta CASH$$

Cash-Flow from Operations + Cash-Flow From Investing + Cash Flow from Financing

$$\Delta FA + \Delta WCR + \Delta CASH = \Delta E + \Delta D$$

$$\Delta WCR = \Delta INV + \Delta AR - \Delta AP$$

$$CAPEX = \Delta FA + Dep = \text{Acquisitions and Disposals}$$

$$\Delta E = \text{New issues of equity}$$

## Cash Flow from the direct method

$$R - \Delta AR = \text{Cash collection from customers}$$

$$CGS + \Delta INV + SGA - \Delta AP = \text{Cash Payment of operational expenses}$$

$$Fexp = \text{Cash paid for interest and bank fees}$$

$$TAX = \text{Cash paid for income taxes}$$

$$= \text{Cash-Flow from Operations}$$

$$= \text{Cash-Flow from Investing } CAPEX$$

$$= \text{Cash Flow from Financing } (\Delta E + \Delta D - Fexp - DIV)$$

## Free Cash Flow to the Firm

Free Cash Flow to the Firm = Cash Flow from Operations - CAPEX

### Free Cash Flow to the Firm for the all equity firm:

$$FCFF = EBIT(1 - T_c) + Dep - \Delta WCR - CAPEX$$

This is used for corporate and business valuation

## Financial planning assumptions

Operational assumptions:	
g - Sales growth	5%
m - Contribution margin ratio	75%
FE - Fixed expenses	150,00
WCR (in days of sales):	
Wi - Inventory Days of Sales	65,0
Wr - Receivable Days of Sales	50,0
Wp - Payables Days of Sales	70,0
Financial and accounting policy:	
Capex	200
Cx - Minimum cash to expenses	30,0%
LTDPay - LT Debt reimbursement	60,00
Ei - Equity issue	0,00
p - Pay-out ratio	40,0%
d - Depreciation rate	10,0%
Fiscal and financial context:	
Tc - Income taxes rate	20%
$k_{D, \text{actual LT}}$ - Cost of LT Debt	5%
$k_{D, \text{actual ST}}$ - Cost of ST Debt	6%
$k_{D, \text{new}}$ - Cost of new debt	6%

## Income Statement Forecasted

Income statement	Y1	FY2
<b>Sales</b>	<b>1 000,00</b>	<b>1 050,00</b>
Variable expenses	250,00	262,50
Contribution margin	750,00	787,50
Fixed expenses	150,00	150,00
Operational expenses	400,00	412,50
<b>EBITDA</b>	<b>600,00</b>	<b>637,50</b>
Amortization and depreciation	140,00	145,45
<b>EBIT</b>	<b>460,00</b>	<b>492,05</b>
Financial expenses	7,00	3,00
<b>Earnings Before Taxes</b>	<b>453,00</b>	<b>489,05</b>
Income taxes	90,60	97,81
<b>Net profit</b>	<b>362,40</b>	<b>391,24</b>
<b>Financial notes:</b>		
Dividends	144,96	156,49
Retained earnings	217,44	234,74

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## Balance Sheet Forecasted

Balance sheet	Y1	FY2
Net fixed assets	1 400,00	1 454,55
Inventories	180,00	186,99
Trade accounts receivable	140,00	143,84
Cash	150,00	123,75
Excess cash	0,00	124,43
<b>Total assets</b>	<b>1 870,00</b>	<b>2 033,55</b>
Variance of cash	-50,00	98,18
Equity	1 537,44	1 772,18
LT debt	120,00	60,00
ST debt	20,00	
New Debt		
Trade accounts payable	192,56	201,37
<b>Total equity and liabilities</b>	<b>1 870,00</b>	<b>2 033,55</b>

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## Cash Flow Statement Forecasted

<b>Cash Flow - Indirect Method</b>	<b>Y1</b>	<b>FY2</b>
+Operational income	460,00	492,05
+Depreciation & Amortization	140,00	145,45
-Increase in WCR	7,44	2,01
-Income taxes	90,60	97,81
<b>Operational cash flow</b>	<b>501,96</b>	<b>537,68</b>
<b>Cash Flow - "Direct Method"</b>	<b>Y1</b>	<b>FY2</b>
Cash receipts from customers	980,00	1 046,16
Cash payment of operating expenses	-387,44	-410,68
Income taxes	-90,60	-97,81
<b>Operational cash flow</b>	<b>501,96</b>	<b>537,68</b>
-Capex	-540,00	-200,00
<b>Cash flow from investing</b>	<b>-540,00</b>	<b>-200,00</b>
Dividends	-144,96	-156,49
Financial expenses	-7,00	-3,00
Equity issue	0,00	0,00
Long term debt variance	120,00	-60,00
Short term debt variance	20,00	-20,00
New debt financing		0,00
<b>Cash flow from financing</b>	<b>-11,96</b>	<b>-239,49</b>
<b>Net cash flow</b>	<b>-50,00</b>	<b>98,18</b>