

INTERDEPARTMENTAL POSTGRADUATE PROGRAM

IN BUSINESS ADMINISTRATION - MBA



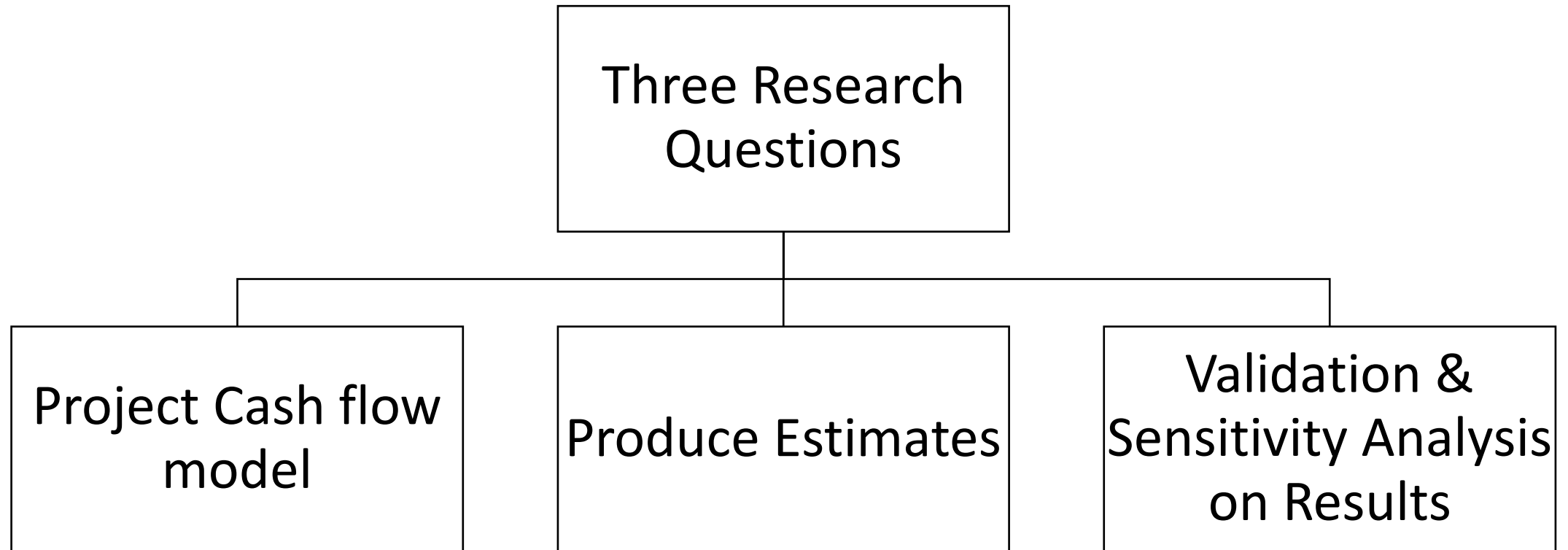
# CASH FLOW FORECASTING IN CONSTRUCTION PROJECTS – A CASE STUDY

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Thesis Presentation by  
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## CASH FLOW FORECASTING IN CONSTRUCTION PROJECTS – A CASE STUDY



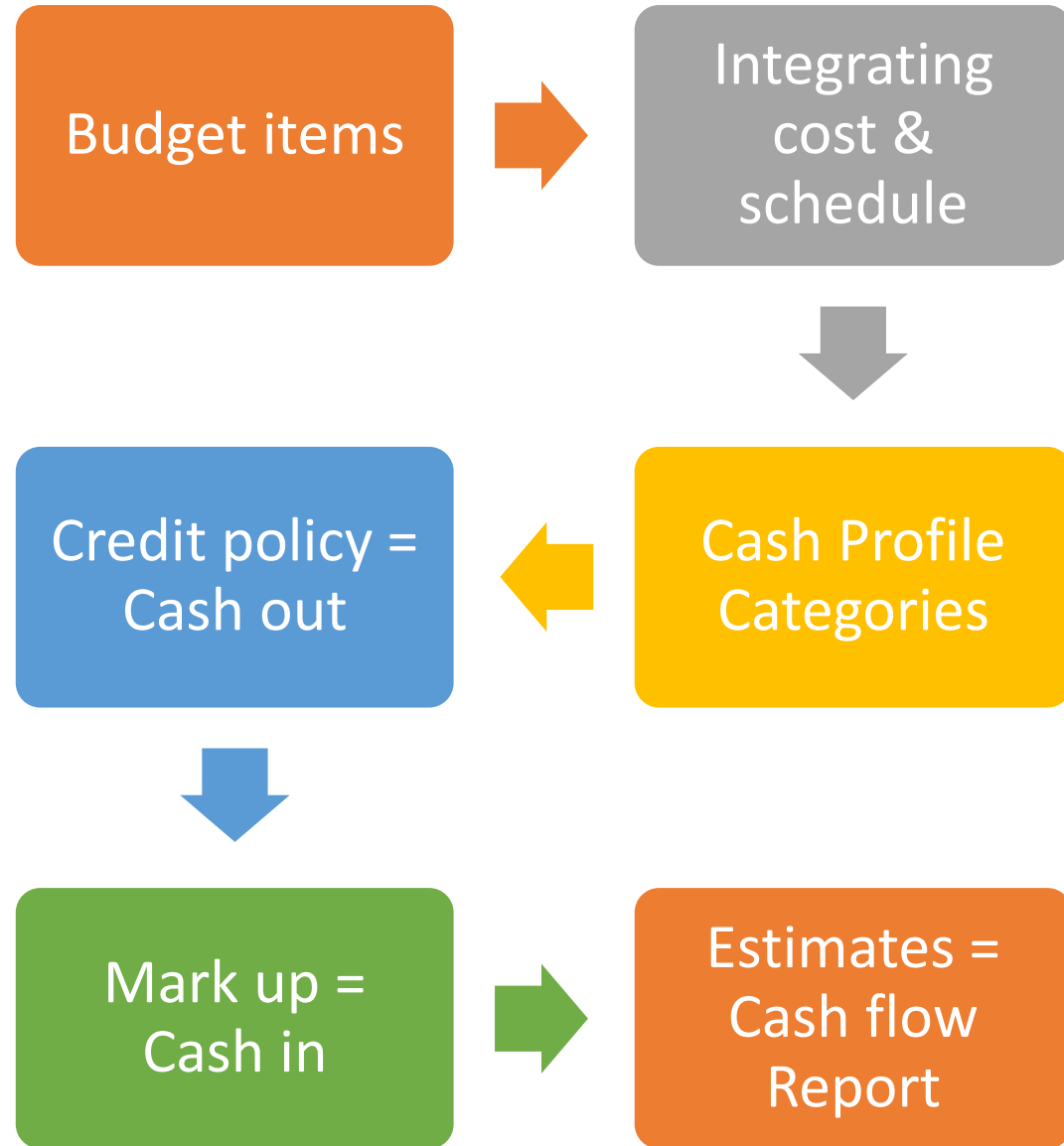
Budget items are grouped into categories

	"Iferror"	"Iferror"	90	91	92
Activity	Activity name	Cost	Labour	Materials	Subcontractors
1	Earthworks	28.800,00 €	0%	10%	90%
2	Foundation	77.330,00 €	20%	40%	40%
3	EM1	9.100,00 €	0%	70%	30%
4	Precast 1	100.000,00 €	0%	20%	80%
5	Floors (precast-ti	50.000,00 €	0%	20%	80%
6	Precast 2	102.000,00 €	0%	20%	80%
7	Frames	78.100,00 €	0%	60%	40%
8	EM2	43.200,00 €	0%	0%	100%
9	Paintings	37.332,00 €	0%	40%	60%
10	Quality controls	8.900,00 €	100%	0%	0%

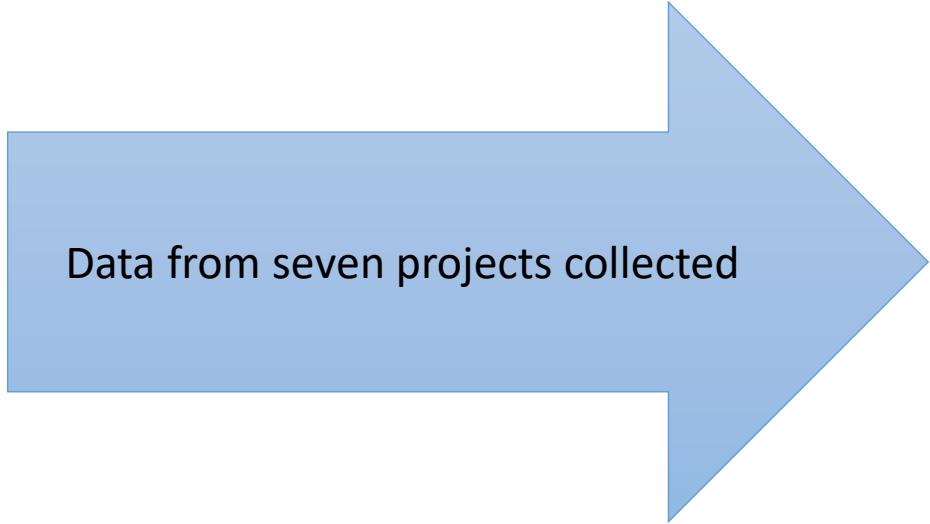
Table ...	Cost Categories				
Activity	Activity name	Cost	Labour	Materials	Subcontractors
1	Earthworks	28.800,00 €	0,00	2.880,00	25.920,00
2	Foundation	77.330,00 €	15.466,00	30.932,00	30.932,00
3	EM1	9.100,00 €	0,00	6.370,00	2.730,00
4	Precast 1	100.000,00 €	0,00	20.000,00	80.000,00
5	Floors (precast-ti	50.000,00 €	0,00	10.000,00	40.000,00
6	Precast 2	102.000,00 €	0,00	20.400,00	81.600,00
7	Frames	78.100,00 €	0,00	46.860,00	31.240,00
8	EM2	43.200,00 €	0,00	0,00	43.200,00
9	Paintings	37.332,00 €	0,00	14.932,80	22.399,20
10	Quality controls	8.900,00 €	8.900,00	0,00	0,00

74.266,00      157.374,80      359.011,20

# Cash flow Model Structure





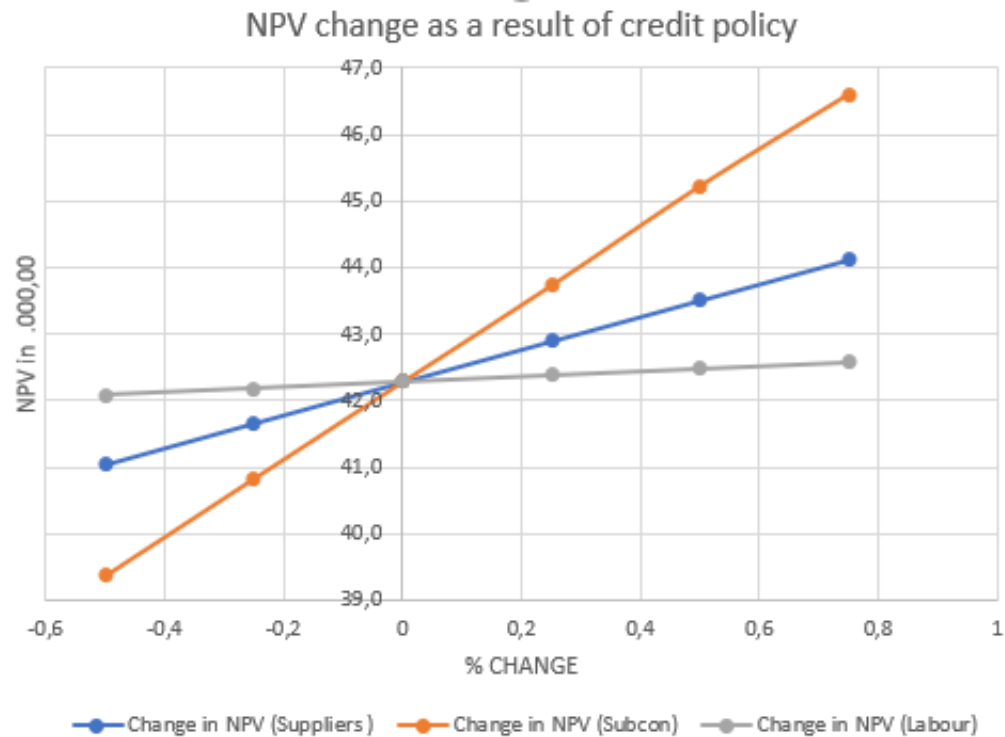


Project	0	Periods	0	1	2	3	4	5
Project 1	<b>Budget</b>	Budget Net cash flow	57.290,00	-3.529,16	69.465,26	112.408,75	-47.782,02	-46.360,72
Project 1_a	<b>Project</b>	Project Net cash flow	57.290,00	-3.529,16	67.577,11	107.839,01	-33.324,12	-54.144,93
	Budget - Project		0,00	0,00	1.888,16	4.569,74	14.457,90	7.784,21
	<b>Mean</b>	<b>5.360,8887</b>						
	<b>Excel STDEV</b>	<b>9.549,60</b>						
Project 2	<b>Budget</b>	Budget Net cash flow	95.407,50	8.221,44	16.589,44	5.118,23	-1.844,04	-4.142,95
Project 2_a	<b>Project</b>	Project Net cash flow	95.407,50	7.288,52	19.231,47	7.561,47	-1.054,43	-1.792,95
	Budget - Proj		0,00	932,91	2642,03	2443,24	789,61	2350,00
	<b>Mean (m)</b>	<b>3.484,98</b>						
	<b>Excel STDEV</b>	<b>11.219,12</b>						
Project 3	<b>Budget</b>	Budget Net cash flow	532.185,00	82.237,64	94.615,39	96.876,00	46.475,47	238.311,75
Project 3_a	<b>Project</b>	Project Net cash flow	521.692,50	81.103,50	94.981,24	92.978,43	42.541,32	231.365,41
	Budget - Proj		10492,50	1134,15	365,85	3897,56	3934,15	6946,34
	<b>Mean (m)</b>	<b>3.635,7138</b>						
	<b>Excel STDEV</b>	<b>5.863,3095</b>						
Project 4	<b>Budget</b>	Budget Net cash flow	99.110,00	37.065,22	-2.826,63	93.472,88	28.703,68	57.775,01
Project 4_a	<b>Project</b>	Project Net cash flow	99.110,00	36.472,17	-3.038,80	94.603,02	27.796,77	59.654,83
	Budget - Proj		0,00	593,04	212,17	1130,14	906,92	1879,82
	<b>Mean (m)</b>	<b>8.794,1100</b>	0	0	0	0	0	0
	<b>Excel STDEV</b>	<b>23.843,8816</b>						
Project 5	<b>Budget</b>	Budget Net cash flow	119.900,00	44.775,33	10.651,10	42.199,88	40.412,97	-17.524,78
Project 5_a	<b>Project</b>	Project Net cash flow	119.900,00	32.063,09	7.627,13	19.367,74	25.020,86	22.670,67
	Budget - Proj		0,00	12712,24	3023,97	22832,14	15392,11	40195,45
	<b>Mean (m)</b>	<b>9.289,5231</b>						
	<b>Excel STDEV</b>	<b>11.549,4842</b>						
Project 6	<b>Budget</b>	Budget Net cash flow	0,00	0,00	5.905,50	12.175,15	5.077,04	-5.874,73
Project 6_a	<b>Project</b>	Project Net cash flow	0,00	0,00	5.905,50	11.921,15	5.331,04	-5.574,73
	Budget - Proj		0,00	0,00	0,00	254,00	254,00	300,00
	<b>Mean (m)</b>	<b>94,9714</b>						
	<b>Excel STDEV</b>	<b>242,2121</b>						
Project 7	<b>Budget</b>	Budget Net cash flow	150.311,00	61.190,52	62.182,61	57.670,96	-45.175,25	-62.957,72
Project 7_1	<b>Project</b>	Project Net cash flow	150.311,00	48.639,43	57.383,40	52.929,60	-6.905,72	-93.187,93
	Budget - Project		0,00	12551,08	4799,21	4741,36	38269,53	30230,20
	<b>Mean (m)</b>	<b>9.341,5623</b>						
	<b>Excel STDEV</b>	<b>9.280,4641</b>						

Subcontractor of large Infrastructure Projects



# Sensitivity Analysis Credit Policy



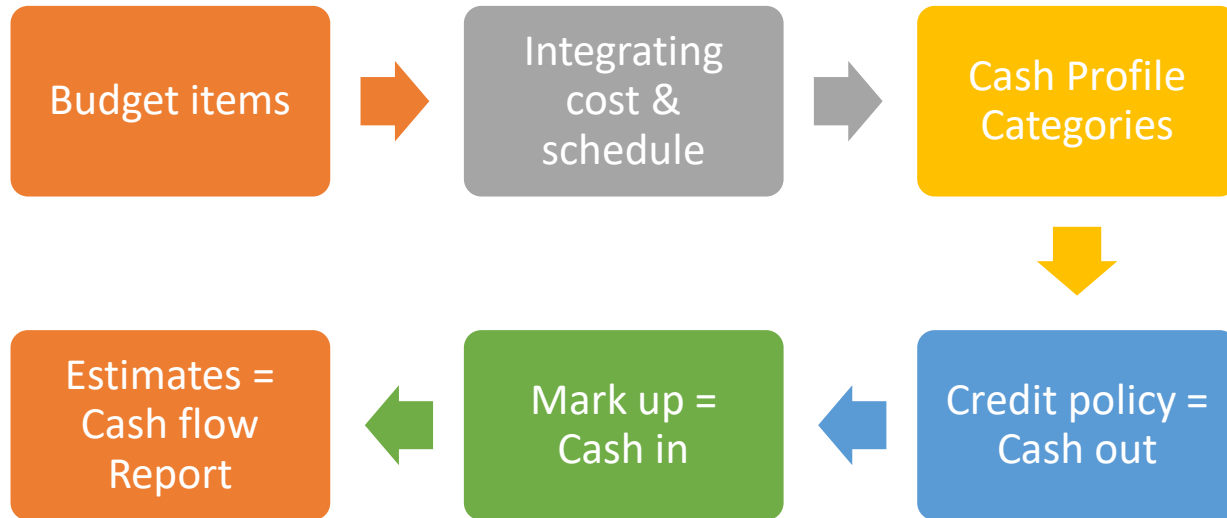
<u>Percentage change in Credit</u>	<u>Change in NPV (Suppliers )</u>	<u>Change in NPV (Subcon)</u>	<u>Change in NPV (Labour)</u>
-0,5	41,0	39,4	42,1
-0,25	41,7	40,8	42,2
0	42,3	42,3	42,3
0,25	42,9	43,7	42,4
0,5	43,5	45,2	42,5
0,75	44,1	46,6	42,6

Table 5.3



# Findings

A stable cash flow forecasting



A useful project selection tool

		0	1	2	3	4	5	6	7	8	
Periods		31/10/2010	30/11/2010	31/12/2010	31/1/2011	28/2/2011	31/3/2011	30/4/2011	31/5/2011	30/6/2011	31/7/2011
Cash flow in		99.990,00	37.065,22	40.269,57	179.803,90	172.924,35	70.902,79	169.805,53	119.600,66	9.548,00	
e	Cash in of invoiced works (net)	999.900,00	46.331,52	50.336,96	224.754,88	216.155,43	88.628,48	212.256,91	149.500,82	11.935,00	
b	Advance payment retention	-99.990,00	-4.633,15	-5.033,70	-22.475,49	-21.615,54	-8.862,85	-21.225,69	-14.950,08	-1.193,50	
c	Retention	-99.990,00	-4.633,15	-5.033,70	-22.475,49	-21.615,54	-8.862,85	-21.225,69	-14.950,08	-1.193,50	
g	Advance payment	99.990,00	99.990,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	
f	Retention repaid	99.990,00									
Cash flow out		0,00	0,00	21.169,81	29.830,19	1.960,00	2.170,00	35.795,65	38.841,20	151.478,16	137,00
90	Labour	59.400,00	0,00	0,00	21.169,81	29.830,19	1.960,00	2.170,00	2.100,00	2.170,00	0,00
91	Materials	345.100,00	0,00	0,00	0,00	0,00	0,00	10.108,70	11.407,61	96.338,77	106,00
92	Subcontractors	412.500,00	0,00	0,00	0,00	0,00	0,00	23.586,96	25.263,59	55.139,38	31,00
Project Net cash flow		99.990,00	37.065,22	19.099,75	149.973,71	170.964,35	68.732,79	134.009,87	80.759,46	-141.930,16	-137,00
Net Present Values of CF		99.990,00	36.911,42	18.941,58	148.114,56	168.144,38	67.318,58	130.707,95	78.442,75	-137.286,64	-132,00
Cumulative net cash flow		99.990,00	137.055,22	156.154,97	306.128,68	477.093,03	545.825,82	679.835,69	760.595,15	618.665,00	480,00
			NPV	189.196,75							
ep	0,05										
p	12		Profit	182.900,00							