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MANAGERIAL ACCOUNTING

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**CASE STUDY 2 – GROUP ASSIGNMENT
APPLE ICAR**

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INDEX TO APPLE INC ITS ICAR INVESTMENT ANALYSIS CASE STUDY

Answers to the next questions on the Project

1. Accounting Return Analysis

- a. Estimate the operating income from the proposed iCar investment to Apple over the next 10 years.
- b. Estimate the after-tax return on capital for the investment over the 10-year period. Based upon the after-tax return on capital, would you accept or reject this project?
- c. This will require you to make some assumptions about allocation and expensing. Make your assumptions as consistent as you can and estimate the return on capital.

2. Cash Flow Analysis

- a. Estimate the after-tax incremental cash flows from the proposed iCar investment to Apple over the next 10 years.
- b. If the project is terminated at the end of the 10th year, and both working capital and investment in other assets can be sold for book value at the end of that year, estimate the net present value of this project to Apple. Develop a net present value profile and estimate the internal rate of return for this project.
- c. If the iCar division is expected to have a life much longer than 10 years, estimate the net present value of this project, making reasonable assumptions about investments needed and cash flows. Develop a net present value profile and estimate the internal rate of return for this project.

3 Sensitivity Analysis

- a. Estimate the sensitivity of your numbers to changes in at least three of the key assumptions underlying the analysis (You get to pick what you think are the three key assumptions).
- b. Based upon your analysis, and any other considerations you might have, tell me whether you would accept this project or reject it. Explain, briefly, your decision.

4. Attachments to this study

- a. Various supporting calculations and tables
- b. The table of earnings/cash flows by year.
- c. Computation of cost of equity/capital/discount rate
- d. Made assumptions to get to conclusion.
NPV- Longer life: Valued in \$
- e. Final recommendation to the **decision on Investment: `Invest or Do not invest Cost´.**

5. Brief project introduction provided with the study materials

Apple Disrupts the Auto Market: The Apple iCar?

Apple Inc. has had a very good run, both in terms of earnings and stock prices, over the last decade. Based largely on the success of the iPod, the iPhone and the iPad, the company has reported double digit growth in revenues and earnings over the last few years (see exhibit 1) and its stock price has reflected this success (see exhibit 2). It has a substantial cash balance and a strong balance sheet (see exhibit 3 for balance sheet information). However, Tim Cook, CEO of Apple, is concerned that the halcyon days of the iPhone are coming to an end and is under pressure from financial markets to come up a new product in a big market.

The Proposal

Apple is considering entering the automobile market with an innovatively designed electric car, called the iCar, aimed at the premium end of the automobile market. You have been asked to collect the data to make the assessment and have come back with the following information:

1. Accounting Return Analysis

2. Cashflow Analysis

- . Estimated project income (begin to end)
- . Projection of balance sheets related.
- . Projection of Gross Profit
- . Estimated yearly project income.
- . Estimated yearly cashflow.
- . Estimated Net Present Value (NPV)
- . Advice to decision on investment

ICAR its forecasting of total project income (10 years)	start to end
Revenue	
Retail	341,927,222,176
Istore	85,481,805,544
TOTAL REVENUES	427,409,027,720
Costs Of Goods Sold	284,939,351,814
GROSS PROFIT	142,469,675,906
Sales Marketing	38,466,812,495
Advertising	15,848,144,595
General Admin	19,100,090,372
R&D Expenses	5,000,000,000
Operational costs	78,415,047,462
OPERATING INCOME	64,054,628,444
Costs of Deprecation	28,293,886,883
EBIT	35,760,741,561
Costs of Interests	8,471,593,563
EBT	27,289,147,998
Corporate Tax	7,640,961,439
NET INCOME TO COMPANY	19,648,186,559

The hereafter published '10 years projection of balance sheet' does not count with cashing invoices or clearing debts in cash. Further on, its notable that Apple Inc, do cover significant percentage of their existing fixed costs (GA a Plant) by allocation of it to the Icar division. The list includes with reference to this subject 'intercompany debt'.

ICAR != YEARS projection of balance sheet (not consolidated)		year 0	year 10
ASSETS		START	END
Total cash		0	0
Account receivables		158,340,000	2,508,961,484
Other receivables		0	421,226,997,254
Total Receivables		158,340,000	423,735,958,738
Inventory		577,800,000	4,409,208,983
Total current assets		577,800,000	4,409,208,983
Production plant			1,934,504,992
Non-current assets			1,934,504,992
Istores		5,000,000,000	0
Introductory costs		22,000,000,000	2,000,000,000
TOTAL ASSETS		27,736,140,000	432,079,672,713
LIABILITIES		START	END
Accounts payable		346,680,000	2,645,525,389
Corporate tax		0	7,640,961,439
Financial costs		0	8,471,593,563
Suppliers		0	50,040,866,814
Production Icar		0	282,293,826,425
Intercompany debt		0	23,374,180,649
Current liabilities		346,680,000	374,466,954,279
10 years loan		11,336,311,000	13,166,248,156
10 years bond		6,477,892,000	7,523,570,375
Total liabilities		17,814,203,000	20,689,818,531
Apple Input Investment capital		14,575,257,000	17,274,713,344
Retainer		-5,000,000,000	19,648,186,559
Equity		9,575,257,000	36,922,899,903
TOTAL LIABILITIES AND EQUITIES		27,736,140,000	432,079,672,713

Year	Retail Sales	Istore Sales	Revenues	Cost of Goods Sold	Gross Profit
1	6,333,600,000	1,583,400,000	7,917,000,000	5,278,000,000	2,639,000,000
2	13,371,496,320	3,342,874,080	16,714,370,400	11,142,913,600	5,571,456,800
3	21,172,414,725	5,293,103,681	26,465,518,406	17,643,678,937	8,821,839,469
4	29,799,458,638	7,449,864,660	37,249,323,298	24,832,882,199	12,416,441,099
5	39,320,392,137	9,830,098,034	49,150,490,171	32,766,993,448	16,383,496,723
6	41,506,603,315	10,376,650,829	51,883,254,144	34,588,836,096	17,294,418,048
7	43,814,346,487	10,953,586,622	54,767,933,109	36,511,955,406	18,255,977,703
8	46,250,451,188	11,562,612,797	57,813,063,985	38,542,042,656	19,271,021,329
9	48,821,951,576	12,205,487,894	61,027,439,470	40,684,959,647	20,342,479,823
10	51,536,507,790	12,884,126,947	64,420,634,737	42,947,089,825	21,473,544,913
Total	341,927,222,176	85,481,805,544	427,409,027,720	284,939,351,814	142,469,675,906

Shown tables at the next page (page nr 6).

The table published at the right side of page 6 shows the estimated yearly **net profit after corporate tax (income)** upon starting the project for the period of 10 years. The table published on top of page 6 shows the estimated **yearly cash flow** position upon starting the project for the period of 10 years. The table published at the left under side of page 6 shows the estimated **net profit value** per the end of year 10, counting with an initial investment at the start of the project and counting with an investment at the end of year 3 of the project.

Both investments are financed with equity, bonds, and long-term loans. For reference to this subject, I refer to page 20 of this study.

The in the formula of Net Present Value (NPV) used discount rate, include the average country region risk premium as calculated at page 12 of this study with (1) outcome **11.843.070.599**. **If not included the country region risk premium** the (2) outcome would be **21.227.387.118**. Giving in the 2 initial done investments at the start the project and at the end of year 3 of the project with total sum of 17.274.713.344, the outcome of NPV (1) is negative, the NPV outcome of (2) is positive. **The estimated internal rate of return (IRR) for this project is – 26,067.**

Based on both NPV and IRR ratio only, the ICar investment project does not meet Apple Inc its financial expectations.

However, as the CEO stated, Apple need a flashing gadget to renew the interest in Apple its wide ranged portfolio of premium brands and he does consider other arguments then based on NPV calculations only.

year	income	depreciation	Cash Flow
0			
1	-8,882,182,310	2,500,000,000	-6,382,182,310
2	-2,008,863,846	2,500,000,000	491,136,154
3	156,421,751	2,500,000,000	2,656,421,751
4	1,969,190,027	2,970,555,269	4,939,745,296
5	4,626,628,773	2,970,555,269	7,597,184,042
6	4,481,803,143	2,970,555,269	7,452,358,412
7	4,202,047,903	2,970,555,269	7,172,603,172
8	4,626,652,174	2,970,555,269	7,597,207,443
9	5,076,655,642	2,970,555,269	8,047,210,911
10	5,399,833,302	2,970,555,269	8,370,388,571
Total	19,648,186,559	28,293,886,883	47,942,073,442

year	Average Interest	CRP	Discount Rate	NPV
	5%	7%	12	
0	Initial investment		Cashflow	
1	14,575,257,000		-6,382,182,310	
2			491,136,154	
3			2,656,421,751	
				-17.991.314.795
NPV	17.991.314.795			
Inv.	2,699,456,344			
	20.690.771.139			
4			4,939,745,296	
5			7,597,184,042	
6			7,452,358,412	
7			7,172,603,172	
8			7,597,207,443	
9			8,047,210,911	
10			8,370,388,571	11.843.070.599

Year	Gross Profit	Operational Costs	Operational Income	Depreciation	EBIT	Financial Costs	EBT	Tax	Income
1	2,639,000,000	8,260,030,000	-5,621,030,000	2,500,000,000	-8,121,030,000	761,152,310	-8,882,182,310	0	-8,882,182,310
2	5,571,456,800	4,319,168,336	1,252,288,464	2,500,000,000	-1,247,711,536	761,152,310	-2,008,863,846	0	-2,008,863,846
3	8,821,839,469	5,404,265,408	3,417,574,061	2,500,000,000	917,574,061	761,152,310	156,421,751	0	156,421,751
4	12,416,441,099	6,592,676,284	5,823,764,815	2,970,555,269	2,853,209,546	884,019,519	1,969,190,027	0	1,969,190,027
5	16,383,496,723	7,902,293,162	8,481,203,561	2,970,555,269	5,510,648,292	884,019,519	4,626,628,773	0	4,626,628,773
6	17,294,418,048	8,302,679,372	8,991,738,676	2,970,555,269	6,021,183,407	884,019,519	5,137,163,888	655,360,745	4,481,803,143
7	18,255,977,703	8,722,959,804	9,533,017,899	2,970,555,269	6,562,462,630	884,019,519	5,678,443,111	1,476,395,208	4,202,047,903
8	19,271,021,329	9,164,213,874	10,106,807,455	2,970,555,269	7,136,252,186	884,019,519	6,252,232,667	1,625,580,493	4,626,652,174
9	20,342,479,823	9,627,559,573	10,714,920,250	2,970,555,269	7,744,364,981	884,019,519	6,860,345,462	1,783,689,820	5,076,655,642
10	21,473,544,912	10,119,201,649	11,354,343,263	2,970,555,269	8,383,787,994	884,019,519	7,499,768,475	2,099,935,173	5,399,833,302
Total	142,469,675,906	78,415,047,462	64,054,628,444	28,293,886,883	35,760,741,561	8,471,593,563	27,289,147,998	7,640,961,439	19,648,186,559

3. Sensitivity Analysis

When it comes to the answer to the asked question ‘ Based upon your analysis, and any other considerations you might have, tell me whether you would accept this project or reject it. Explain, briefly, your decision`, we would like to answer as follows.

In addition to what has been stated at page 5 ‘ **Based on both NPV and IRR ratio only, the ICar investment project does not meet Apple Inc its financial expectations**’, some positive effects are:

- Apple Inc get thanks to this Division an efficiency boost to its General and Administrational departments. **Hence, 10 % of its current costs are charged to ICar Division, with an estimated total value of 9,905,090,372.00 during the 10 years.** For references, relevant data are published at page 12.
- Cross selling of devices to the produced ICar division for its production of Icars, up to **estimated 8,562,177,334.67 nett profit to gain during 10 years of this project.** For references, relevant data are published at page 20.
- The overcapacity of an Apple Inc production plant, calculated at 60 % has been shared with its ICar Division. The first 3 years of this project, ICar will occupy in average 50 % of the plant its capacity. There is no information available of the costs of the plant thus any financial data cannot be provided but surely, it’s a significant cost saving for Apple Inc. For references, relevant data are published at page 14.

In short notice, at a discount rate of 5 % NPV is positive and thus the project is valuable. Its value, from this point of view only, is Apple Inc unworthy, shareholders do expect much more net return on investment. At minimum level of 12 %, covering both costs of interests and the country region risk premium.

While Apple Inc in addition to the income of ICar do gain from with ICar division shared existing General/Admin costs, with division shared existing costs of a factory in Singapore, do gain for direct selling of Icar through its existing Istore, do gain from cross selling, its merely a pleasant side effect but not providing satisfaction to its with extraordinary net return of investments spoiled group of its shareholders.

We do think that the final decision is based on the CEO of Apple Inc. his belief that ICar is **THE** innovation that fits in the next quote obtained from page 2. **“However, Tim Cook, CEO of Apple, is concerned that the halcyon days of the iPhone are coming to an end and is under pressure from financial markets to come up a new product in a big market.”**

Shareholders may go with him, may accept a lower gain if true indeed, this ICar innovation renew and prolong the premium brand life circle of its other products, such as iPhone etc. without such spinoff effect, ICar maybe a technical beauty, its competition with other top brands is tough and the financial result of its production is not as spectacular as what shareholders experienced with other Apple projects.

If not true, the division is not the gadget that will make the Apple family excited, its surely not the time to think of a life of ICar after 10 years. Electric empowered cars are in a previous stage of developing and designing of its model and production methods. The changes are huge and with great impact to its plants. **For a feasibility of a life after 10 years is much more data needed.**

4. ATTACHMENT TO APPLE INC ITS ICAR INVESTMENT CASE STUDY

This study is based on provided data, from which I extracted the formula's, ratio's without making additional assumptions. The only assumption is related to the discount rate as a part of NPV calculating. Here I used 2 assumptions and explained at page 5 the consequences for the end result on which is concluded.

Building bricks

1. R&D Expenses: Apple has already spent (and expensed) \$ 5 billion on research on the automotive technology and development of the commercial design. None of that money can be recouped at this stage if Apple decides not to go ahead with the iCar. ^[1]_{SEP}

“ Under the United States Generally Accepted Accounting Principles (GAAP), companies are obligated to expense Research and Development ([R&D expenditures in the same fiscal year they are spent](#)). It often creates a lot of volatility in profits (or losses) for many companies, as well as difficulty in measuring their rates of return on assets and investments.”

Its therefor decided to take the loss in the first year of forecasting the operational costs for the 10 years forecasting of the ICar investment. This loss follows the division its Equities.

2. Introductory Costs: If Apple decides to go ahead with the iCar investment, it will have to spend \$22 billion up front (right now) to lock in suppliers, distributors and retailers and to invest in infrastructure. The cost is depreciable over the next 10 years, down to a salvage value of \$ 2 billion, and Apple expects to use straight-line depreciation. ^[1]_{SEP}

As consequences, for 10 years, per annum are the costs of depreciation \$ 200.000.000, with rest value of \$ 2 billion.

3. Market Potential and Share: In the premium auto market (including all cars priced at or above \$60,000) there were 5 million automobiles sold globally in the most recent year and the market is expected to grow approximately 4% a year for the next decade. Apple expects to gain a 2% market share next year if the iCar is introduced and increase that market share by 2% a year (4% in the second year, 6% in the third year, 8% in the fourth year and 10% in year 5) to reach a target market share of 10% of the overall market by the fifth year. It expects to maintain that market share beyond year 6.

global sales annual +4%	global units automotive	apple share Icar	percentage +% share ICar
0	5,000,000.00	0.00	0
1	5,200,000.00	104,000.00	2
2	5,408,000.00	216,320.00	4
3	5,624,320.00	337,459.20	6
4	5,849,292.80	467,943.42	8
5	6,083,264.51	608,326.45	10
6	6,326,595.09	632,659.51	10
7	6,579,658.90	657,965.89	10
8	6,842,845.25	684,284.53	10
9	7,116,559.06	711,655.91	10
10	7,401,221.42	740,122.14	10
	67.431.757	5,160,737	

Take note.

Apple currently uses a manufacturing facility in Singapore. If Apple goes ahead with the iCar, it will use the excess capacity to produce batteries for the iCar. The capacity will meet its limit at the end of year 3. (see the numbers in red) Apple will have to invest a substantial amount to create a new facility of equivalent capacity.

See point 7 of this attachment.

4. Pricing and Unit Costs: Apple expects to price its cars at \$ 75,000 a unit next year and the price will keep pace with inflation after that. Based upon the costs of the materials used in the iCar currently, Apple expects the production cost per unit to be \$ 50,000 next year and grow at the inflation rate thereafter.

Year	ICar unit production	price with inflation 1.5 %	total sales value	costs inflation 1.5 %	production Costs
0	0.00	75,000.00	0	50000.00	0
1	104,000.00	76,125.00	7,917,000,000.00	50750.00	5,278,000,000.00
2	216,320.00	77,266.88	16,714,370,400.00	51511.25	11,142,913,600.00
3	337,459.00	78,425.88	26,465,518,406.18	52283.92	17,643,678,937.46
4	467,943.00	79,602.27	37,249,323,297.76	53068.18	25,303,437,467.51
5	608,326.00	80,796.30	49,150,490,171.02	53864.20	33,237,548,716.35
6	632,659.00	82,008.24	51,883,254,144.20	54672.16	35,059,391,365.13
7	657,965.00	83,238.37	54,767,933,108.81	55492.25	36,982,510,674.87
8	684,284.00	84,486.94	57,813,063,984.43	56324.63	39,012,597,925.29
9	711,655.00	85,754.25	61,027,439,470.44	57169.50	41,155,514,915.96
10	740,122.00	87,040.56	64,420,634,737.44	58027.04	43,417,645,093.96
	5,160,733.00		427,409,027,720.29		288,233,238,696.53

5. Marketing Options and Costs: Apple plans to use two different retailing options.

Marketing A.

In the first, it will sell the iCar through auto retailers and pay the retailers a commission of 10% of the price per unit sold (The retailers will have to follow Apple’s fixed price schedule – no discounting allowed).

Year	ICar Total sales	Marketing A 80% sales contr.	commission 10%
1	7,917,000,000.00	6,333,600,000	633,360,000.00
2	16,714,370,400.00	13,371,496,320	1,337,149,632.00
3	26,465,518,406.18	21,172,414,725	2,117,241,472.49
4	37,249,323,297.76	29,799,458,638	2,979,945,863.82
5	49,150,490,171.02	39,320,392,137	3,932,039,213.68
6	51,883,254,144.20	41,506,603,315	4,150,660,331.54
7	54,767,933,108.81	43,814,346,487	4,381,434,648.70
8	57,813,063,984.43	46,250,451,188	4,625,045,118.75
9	61,027,439,470.44	48,821,951,576	4,882,195,157.64
10	64,420,634,737.44	51,536,507,790	5,153,650,779.00
	427,409,027,720.28	341,927,222,176	34,192,722,217.62

Continue Marketing Options and Costs: Apple plans to use two different retailing options.

Marketing B

In the second, it will sell the iCar through the Apple Auto Stores around the country. To do the latter, Apple will have to spend \$5 billion right now in creating the stores; this expense will be depreciated straight line over the next 10 years to a salvage value of zero. It will also pay its sales people a commission of 5% of the price per unit for every car sold at an Apple Auto store. Apple expects to generate 80% of its revenues from specialty retailers and 20% from Apple Auto Store sales each year for the next 10 years.

Year	Investment 5,000,000,000	20% Sales Contribution	Commission 5%	Total Costs
1	500,000,000	1,583,400,000.00	79,170,000.00	1,212,530,000.00
2	500,000,000	3,342,874,080.00	167,143,704.00	2,004,293,336.00
3	500,000,000	5,293,103,681.24	264,655,184.06	2,881,896,656.56
4	500,000,000	7,449,864,659.55	372,493,232.98	3,852,439,096.80
5	500,000,000	9,830,098,034.20	491,504,901.71	4,923,544,115.39
6	500,000,000	10,376,650,828.84	518,832,541.44	5,169,492,872.98
7	500,000,000	10,953,586,621.76	547,679,331.09	5,429,113,979.79
8	500,000,000	11,562,612,796.89	578,130,639.84	5,703,175,758.60
9	500,000,000	12,205,487,894.09	610,274,394.70	5,992,469,552.34
10	500,000,000	12,884,126,947.49	644,206,347.37	6,297,857,126.37
	5,000,000,000	85,481,805,544.06	4,274,090,277.20	43,466,812,494.83

Resume of total costs Marketing A and B PLUS INVESTMENT related :

Commission Marketing A **34,192,722,217.62**
 Commission Marketing B **4,274,090,277.20**
Investment costs 5,000,000,000.00
Total costs 43,466,812,494.83

6. Geographical breakdown: Apple expects to get its revenues from the iCar globally, with the following breakdown for revenues:

<i>Region</i>	<i>% of Revenues</i>
Africa	2.00%
Asia	30.00%
Australia & New Zealand	8.00%
Central and South America	10.00%
Eastern Europe & Russia	5.00%
Middle East	5.00%
North America	25.00%
Western Europe	15.00%

Exhibit 4: Country Risk Premiums by region (over and above the mature market premium)

<i>Region</i>	<i>Country Risk Premium (GDP Weighted Average)</i>
Africa	5.98%
Asia	1.51%
Australia & New Zealand	0.00%
Central and South America	4.20%
Eastern Europe & Russia	3.33%
Middle East	1.10%
North America	0.00%
Western Europe	1.13%

Apple expects this revenue breakdown for the iCar to be stable over time. The regional country risk premiums (over and above the mature market premium) are provided in exhibit 4. You can assume that the premium for mature markets (Aaa rated countries) is 5.75%.

Its workout is embedded in the next table. Overall weighted average premium countries region risk premium is calculated at 7.1336%

Region Market Share	Africa 2%	Asia 30 %	AU NZ 8%	Central/S America 10%	E.EU Russia 5%	Mid East 5%	North America 25%	West Europe 15%	Weight Average 100%
CRP	5.98	1.51	0.00	4.20	3.33	1.10	0.00	1.13	
MRP	5.75	5.75	5.75	5.75	5.75	5.75	5.75	5.75	
Premium	11.73	7.26	5.75	9.95	9.08	6.85	5.75	6.88	
Weight Average	0.2346	2.178	0.46	0.995	0.454	0.3425	1.4375	1.032	7.1336

7. Production Facilities and Costs: Apple currently uses a manufacturing facility in Singapore to make batteries for its devices (iPhone, iPod and iPad). Apple used only 40% of the facility in the most recent year.

but the device market is expected to grow 12% a year for the next 10 years.

If Apple goes ahead with the iCar, it will use the excess capacity to produce batteries for the iCar, with every 10,000 iCar batteries using 1% of the capacity. (Thus, in a given year, if 200,000 iCars are produced, it will take up 20% of the total capacity of the battery factory).

If the capacity limit is reached, Apple will have to invest a substantial amount to create a new facility of equivalent capacity. The current estimate of the cost of building a new facility is \$ 5 billion, but this cost will grow at the inflation rate.

See next table.

Singapore		Battery production capacity		
year	I phone, etc. 40% capacity + increase annually 12%	I car Usage In %	Capacity Units	
1	44.80	55.20	552,000.00	
2	50.18	49.82	498,240.00	
3	56.20	43.80	438,029	
4	62.94	37.06	370,592	
5	70.49	29.51	295,063	
6	78.95	21.05	210,471	
7	88.43	11.57	115,727	
8	99.04	0.96	9,614	
9	110.92	-10.92	-109,232	
10	124.23	-24.23	-242,339	

The left table shows the capacity of the factory in Singapore and its production use for the next 10 years.

The table shows its limitation to meet its ICar demands in year 4 as it also shows its iPhone etc. demands in year 9.

Used data for calculation of volume of the ICar production is obtained from **point 3** of this attachment to the investment study of ICar.

Hereafter, the table shows the capacity upon investing in year 3.

Continuing Production Facilities and Costs: Apple currently uses a manufacturing facility in Singapore to make batteries for its devices (iPhone, iPod and iPad). Apple used only 40% of the facility in the most recent year.

The next table include the investment in expansion of capacity in the costs of production.

production costs	Investment with inflation	Production costs with investment in plant	
		deprecation	total production costs
0	5,000,000,000.00	0.00	0.00
5,278,000,000.00	5,075,000,000.00	0.00	5,278,000,000.00
11,142,913,600.00	5,151,125,000.00	0.00	11,142,913,600.00
17,643,678,937.46	5,228,391,875.00	0.00	17,643,678,937.46
24,832,882,198.51		470,555,269.00	25,303,437,467.51
32,766,993,447.35		470,555,269.00	33,237,548,716.35
34,588,836,096.13		470,555,269.00	35,059,391,365.13
36,511,955,405.87		470,555,269.00	36,982,510,674.87
38,542,042,656.29		470,555,269.00	39,012,597,925.29
40,684,959,646.96		470,555,269.00	41,155,514,915.96
42,947,089,824.96		470,555,269.00	43,417,645,093.96
284,939,351,813.53	522,839,188.00	3,293,886,883.00	288,233,238,696.53

8. G&A expenses: Apple will *allocate 10%* of its existing general and administrative costs to the new division. These costs total \$ 7.5 billion for the entire firm in the most recent year and are expected to grow 5% a year for the next 10 years, with or without the iCar investment.

In addition, it is expected that Apple will have an increase of \$ 0.5 billion in general and administrative costs next year when Apple iCar is introduced, and this amount will grow with the new division's dollar revenues after that. The latter cost is directly related to the new iCar division.

years	GA increase +5%/Year total APPLE costs	Allocation 10% Icar project	Icar + % per year	Direct GA Costs Icar	GA Total Icar costs
0		0.00	0	0.00	0
1	7,875,000,000.00	787,500,000.00	0	500,000,000.00	1,287,500,000.00
2	8,268,750,000.00	826,875,000.00	33	665,000,000.00	1,491,875,000.00
3	8,682,187,500.00	868,218,750.00	53	765,000,000.00	1,633,218,750.00
4	9,116,296,875.00	911,629,687.50	74	870,000,000.00	1,781,629,687.50
5	9,572,111,718.75	957,211,171.88	98	990,000,000.00	1,947,211,171.88
6	10,050,717,304.69	1,005,071,730.47	104	1,020,000,000.00	2,025,071,730.47
7	10,553,253,169.92	1,055,325,316.99	110	1,050,000,000.00	2,105,325,316.99
8	11,080,915,828.42	1,108,091,582.84	116	1,080,000,000.00	2,188,091,582.84
9	11,634,961,619.84	1,163,496,161.98	122	1,110,000,000.00	2,273,496,161.98
10	12,216,709,700.83	1,221,670,970.08	129	1,145,000,000.00	12,671,670,970.08
	99,050,903,717.45	9,905,090,371.74	*note	9,195,000,000.00	19,100,090,371.74

- **Note**

The growing sales numbers (in percentage shown in table above are obtained from (excluding effect of yearly its 1.5% inflation) point 3 of this attachment to the ICar investment study case.

9. Advertising Expenses: Apple spent \$ 8 billion on advertising in the most recent year. If Apple does not invest in the iCar, it expects this cost to increase 5% a year for the next 10 years.

If the iCar is introduced, the total advertising expenses each year, from years 1 to 10, are expected to be 15% higher than they would have been without the iCar division.

Year	Apple Advert Costs	+ 15% Icar Related
0	8,000,000,000.00	
1	8,400,000,000.00	1,260,000,000.00
2	8,820,000,000.00	1,323,000,000.00
3	9,261,000,000.00	1,389,150,000.00
4	9,724,050,000.00	1,458,607,500.00
5	10,210,252,500.00	1,531,537,875.00
6	10,720,765,125.00	1,608,114,768.75
7	11,256,803,381.25	1,688,520,507.19
8	11,819,643,550.31	1,772,946,532.55
9	12,410,625,727.83	1,861,593,859.17
10	13,031,157,014.22	1,954,673,552.13
	105,654,297,298.61	15,848,144,594.79

10. Working Capital: The iCar will create working capital needs, which you have estimated as follows:

- **A. The sale of iCars to retailers will create accounts receivable amounting to 5% of revenues per year.**
- **B. Inventory (of both the input material and finished iCars) will be approximately 10% of the variable production cost (not including depreciation, marketing costs, allocations or advertising expenses).**
- **C. Accounts payable will be 6% of the variable production cost (not including depreciation, marketing costs, allocations or advertising expenses). All of these working capital investments will have to be made at the beginning of each year in which goods are sold. Thus, the working capital investment for the first year will have to be made at the beginning of the first year.**

Table A Accounts Receivable

Year	Retailers Sales Contribute	Retailers AC Receivables	Average AC Receivables	Mutations AC Balance
1	6,333,600,000	316,680,000.00	158,340,000.00	158,340,000.00
2	13,371,496,320	668,574,816.00	492,627,408.00	334,287,408.00
3	21,172,414,725	1,058,620,736.25	863,597,776.13	370,970,368.13
4	29,799,458,638	1,489,972,931.90	1,274,296,834.08	410,699,057.95
5	39,320,392,137	1,966,019,606.85	1,727,996,269.38	453,699,435.30
6	41,506,603,315	2,075,330,165.75	2,020,674,886.30	292,678,616.92
7	43,814,346,487	2,190,717,324.35	2,133,023,745.05	112,348,858.75
8	46,250,451,188	2,312,522,559.40	2,251,619,941.88	118,596,196.83
9	48,821,951,576	2,441,097,578.80	2,376,810,069.10	125,190,127.22
10	51,536,507,790	2,576,825,389.50	2,508,961,484.15	132,151,415.05
Point 5	341,927,222,176			

10. Continuing Working Capital: The iCar will create working capital needs, which you have estimated as follows:

Table B Inventory

Yr	Production costs Data 3,4,7	Direct GA Admin costs	Total	Inventory 10%	Inventory Mutations
1	5,278,000,000.00	500,000,000.00	5,778,000,000.00	577,800,000.00	577,800,000.00
2	11,142,913,600.00	665,000,000.00	11,807,913,600.00	1,180,791,360.00	602,991,360.00
3	17,643,678,937.46	765,000,000.00	18,408,678,937.46	1,840,867,893.75	660,076,533.75
4	24,832,882,198.51	870,000,000.00	25,702,882,198.51	2,570,288,219.85	729,420,326.11
5	32,766,993,447.35	990,000,000.00	33,756,993,447.35	3,375,699,344.74	805,411,124.88
6	34,588,836,096.13	1,020,000,000.00	35,608,836,096.13	3,560,883,609.61	185,184,264.88
7	36,511,955,405.87	1,050,000,000.00	37,561,955,405.87	3,756,195,540.59	195,311,930.97
8	38,542,042,656.29	1,080,000,000.00	39,622,042,656.29	3,962,204,265.63	206,008,725.04
9	40,684,959,646.96	1,110,000,000.00	41,794,959,646.96	4,179,495,964.70	217,291,699.07
10	42,947,089,824.96	1,145,000,000.00	44,092,089,824.96	4,409,208,982.50	229,713,017.80
	284,939,351,813.53	9,195,000,000.00	294,134,351,813.53		4,409,208,982.50

Table C Accounts payable

yr	Production costs Data 3,4,7	Direct GA Admin costs	Total	Account payable 6%	Account Mutations
1	5,278,000,000.00	500,000,000.00	5,778,000,000.00	346,680,000.00	346,680,000.00
2	11,142,913,600.00	665,000,000.00	11,807,913,600.00	708,474,816.00	361,794,816.00
3	17,643,678,937.46	765,000,000.00	18,408,678,937.46	1,104,520,736.25	396,045,920.25
4	24,832,882,198.51	870,000,000.00	25,702,882,198.51	1,542,172,931.91	437,652,195.66
5	32,766,993,447.35	990,000,000.00	33,756,993,447.35	2,025,419,606.84	483,246,674.93
6	34,588,836,096.13	1,020,000,000.00	35,608,836,096.13	2,136,530,165.77	111,110,558.93
7	36,511,955,405.87	1,050,000,000.00	37,561,955,405.87	2,253,717,324.35	117,187,158.58
8	38,542,042,656.29	1,080,000,000.00	39,622,042,656.29	2,377,322,559.38	123,605,235.03
9	40,684,959,646.96	1,110,000,000.00	41,794,959,646.96	2,507,697,578.82	130,375,019.44
10	42,947,089,824.96	1,145,000,000.00	44,092,089,824.96	2,645,525,389.50	137,827,810.68
	284,939,351,813.53	9,195,000,000.00	294,134,351,813.53		2,645,525,389.50

11. Side benefits for device sales: If Apple goes ahead with the Apple iCar, it will see revenues for the iPhone and iPad increase by \$2 billion next year (as they are integrated into the iCar), and grow at the inflation rate after that. The after-tax operating margin (after tax operating income/ revenues) is 40% for all Apple devices (iPads and iPhones).

Year	Side effect ICAR for iphone etc.	inflation rate 1.5	costs 60 % including tax	Nett profit
1	2,000,000,000.00	0.00	1,200,000,000.00	800,000,000.00
2	2,030,000,000.00	30,000,000.00	1,218,000,000.00	812,000,000.00
3	2,060,450,000.00	30,450,000.00	1,236,270,000.00	824,180,000.00
4	2,091,356,750.00	30,906,750.00	1,254,814,050.00	836,542,700.00
5	2,122,727,101.25	31,370,351.25	1,273,636,260.75	849,090,840.50
6	2,154,568,007.77	31,840,906.52	1,292,740,804.66	861,827,203.11
7	2,186,886,527.89	32,318,520.12	1,312,131,916.73	874,754,611.15
8	2,219,689,825.80	32,803,297.92	1,331,813,895.48	887,875,930.32
9	2,252,985,173.19	33,295,347.39	1,351,791,103.91	901,194,069.28
10	2,286,779,950.79	33,794,777.60	1,372,067,970.47	914,711,980.32
	21,405,443,336.69		12,843,266,002.01	8,562,177,334.67

12. Risk Measures: The beta for Apple is 0.79, calculated using weekly returns over the last 2 years and against the S&P 500 Index and 0.95 against the MSCI Global Index(see exhibit 5). Apple currently gets about 56% of its revenues from smartphones/tablets, 25% from computers and 19% from retail. The details of the beta calculation are included in Exhibit 5, as well as bottom up beta estimates for each of the three businesses of Apple. The current stock price for the firm is \$ 128.85/share and there are 5,824.5 million shares outstanding.

13. **Debt Choices: Apple expects to finance the iCar division using the same mix of debt and equity (in market value terms) as it is using currently in the rest of its business. Apple's currently has \$36.4 billion in book value of interest bearing debt (with a weighted average maturity of 5 years) and it reports the following lease commitments for the future:**

Year Lease commitment

- . 2015 \$ 662 million
- . 2016 \$ 676 million
- . 2017 \$ 645 million
- . 2018 \$ 593 million
- . 2019 \$ 534 million

Beyond \$ 1,877 million. The lease payment for the most recent year is \$717 million. Apple was rated AA+ and the default spread for companies with that rating is 0.50%.

Table Financial structure/costs of interests and costs

Project finance

	Investment	equity 45%	bonds 3% 20%	Yearly Interests	long term 35%	Yearly Interests	Interests Total
year1							
R&D	5,000,000,000	2,250,000,000	1,000,000,000	30,000,000	1,750,000,000	87,500,000	
Introduction	22,000,000,000	9,900,000,000	4,400,000,000	132,000,000	7,700,000,000	385,000,000	
Marketing	5,000,000,000	2,250,000,000	1,000,000,000	30,000,000	1,750,000,000	87,500,000	
Reveivable	158,340,000	71,253,000	31,668,000	950,040	55,419,000	2,770,950	
Inventory	577,800,000	260,010,000	115,560,000	3,466,800	202,230,000	10,111,500	
Payable	-346,680,000	-156,006,000	-69,336,000	-2,080,080	-121,338,000	-6,066,900	
Losses	3,685,005,805	3,685,005,805					
				194,336,760		566,815,550	761,152,310
Year3				31,370,351		91,496,858	
Factory	5,228,391,875	2,352,776,344	1,045,678,375	225,707,111	1,829,937,156	658,312,408	884,019,519

14. **Taxes:** *Apple's effective tax rate is 26%, but its marginal tax rate is 40%.*

Its results are published at page 6

15. **Macro data:** *The current long-term US Treasury bond rate is 2.0%, and the expected inflation rate is 1.5%.*

16. **Other information:** *You have collected information on other automobile companies in Exhibit 6. The data includes the regression betas of these companies and relevant information on both market values of marginal tax rate for these firms, as well. (You can also assume that the debt includes the present value of operating leases).*

Exhibit 6 is empty/no data provided.



The sheets on the next pages and hereafter are with the study materials provided and for references only.

Exhibit 1: Apple's Income Statements (in millions)

Income Statement						
For the Fiscal Period Ending	12 months Sep-25- 2010	12 months Sep-24- 2011	12 months Sep-29- 2012	12 months Sep-28- 2013	12 months Sep-27- 2014	LTM 12 months Dec-27- 2014
Currency	USD	USD	USD	USD	USD	USD
Revenue	65,225.0	108,249.0	156,508.0	170,910.0	182,795.0	199,800.0
Other Revenue	-	-	-	-	-	-
Total Revenue	65,225.0	108,249.0	156,508.0	170,910.0	182,795.0	199,800.0
Cost Of Goods Sold	39,541.0	64,431.0	87,846.0	106,606.0	112,258.0	121,368.0
Gross Profit	25,684.0	43,818.0	68,662.0	64,304.0	70,537.0	78,432.0
Selling General & Admin Exp.	5,517.0	7,599.0	10,040.0	10,830.0	11,993.0	12,540.0
R & D Exp.	1,782.0	2,429.0	3,381.0	4,475.0	6,041.0	6,606.0
Depreciation & Amort.	-	-	-	-	-	-
Other Operating Expense/(Income)	-	-	-	-	-	-
Other Operating Exp., Total	7,299.0	10,028.0	13,421.0	15,305.0	18,034.0	19,146.0
Operating Income	18,385.0	33,790.0	55,241.0	48,999.0	52,503.0	59,286.0
Interest Expense	-	-	-	(136.0)	(384.0)	(431.0)
Interest and Invest. Income	311.0	519.0	1,088.0	1,616.0	1,795.0	2,022.0
Net Interest Exp.	311.0	519.0	1,088.0	1,480.0	1,411.0	1,591.0
Currency Exchange Gains (Loss)	-	-	(658.0)	(301.0)	(105.0)	(115.0)
Other Non-Operating Inc. (Exp.)	(156.0)	(104.0)	92.0	(23.0)	(121.0)	(362.0)
EBT Excl. Unusual Items	18,540.0	34,205.0	55,763.0	50,155.0	53,688.0	60,400.0
Impairment of Goodwill	-	-	-	-	-	-
Gain (Loss) On Sale Of Invest.	-	-	-	-	(205.0)	(210.0)
Other Unusual Items	-	-	-	-	-	-
EBT Incl. Unusual Items	18,540.0	34,205.0	55,763.0	50,155.0	53,483.0	60,190.0
Income Tax Expense	4,527.0	8,283.0	14,030.0	13,118.0	13,973.0	15,728.0
Earnings from Cont. Ops.	14,013.0	25,922.0	41,733.0	37,037.0	39,510.0	44,462.0
Earnings of Discontinued Ops.	-	-	-	-	-	-
Extraord. Item & Account. Change	-	-	-	-	-	-
Net Income to Company	14,013.0	25,922.0	41,733.0	37,037.0	39,510.0	44,462.0

Exhibit 3: Apple's Balance Sheets

Balance Sheet						
Balance Sheet as of:	Sep-25-2010	Sep-24-2011	Sep-29-2012	Sep-28-2013	Sep-27-2014	Dec-27-2014
Currency	USD	USD	USD	USD	USD	USD
ASSETS						
Cash And Equivalents	11,261.0	9,815.0	10,746.0	14,259.0	13,844.0	19,478.0
Short Term Investments	14,359.0	16,137.0	18,383.0	26,287.0	11,233.0	12,985.0
Trading Asset Securities	-	-	-	44.0	81.0	201.0
Total Cash & ST Investments	25,620.0	25,952.0	29,129.0	40,590.0	25,158.0	32,664.0
Accounts Receivable	5,510.0	5,369.0	10,930.0	13,102.0	17,460.0	16,709.0
Other Receivables	4,414.0	6,348.0	7,762.0	7,539.0	9,759.0	13,267.0
Total Receivables	9,924.0	11,717.0	18,692.0	20,641.0	27,219.0	29,976.0
Inventory	1,051.0	776.0	791.0	1,764.0	2,111.0	2,283.0
Deferred Tax Assets, Curr.	1,636.0	2,014.0	2,583.0	3,453.0	4,318.0	5,046.0
Restricted Cash	445.0	-	278.0	164.0	-	-
Other Current Assets	3,002.0	4,529.0	6,180.0	6,674.0	9,725.0	13,434.0
Total Current Assets	41,678.0	44,988.0	57,653.0	73,286.0	68,531.0	83,403.0
Gross Property, Plant & Equipment	7,234.0	11,768.0	21,887.0	28,519.0	39,015.0	40,747.0
Accumulated Depreciation	(2,466.0)	(3,991.0)	(6,435.0)	(11,922.0)	(18,391.0)	(20,355.0)
Net Property, Plant & Equipment	4,768.0	7,777.0	15,452.0	16,597.0	20,624.0	20,392.0
Long-term Investments	25,391.0	55,618.0	92,122.0	106,215.0	130,162.0	145,492.0
Goodwill	741.0	896.0	1,135.0	1,577.0	4,616.0	4,629.0
Other Intangibles	342.0	3,536.0	4,224.0	4,179.0	4,142.0	4,370.0
Other Long-Term Assets	2,263.0	3,556.0	5,478.0	5,146.0	3,764.0	3,608.0
Total Assets	<u>75,183.0</u>	<u>116,371.0</u>	<u>176,064.0</u>	<u>207,000.0</u>	<u>231,839.0</u>	<u>261,894.0</u>

LIABILITIES						
Accounts Payable	12,015.0	14,632.0	21,175.0	22,367.0	30,196.0	38,001.0
Accrued Exp.	3,641.0	4,829.0	6,749.0	8,427.0	12,028.0	14,754.0
Short-term Borrowings	-	-	-	-	6,308.0	3,899.0
Curr. Income Taxes Payable	658.0	1,140.0	1,535.0	1,200.0	1,209.0	1,642.0
Unearned Revenue, Current	3,647.0	6,129.0	7,445.0	8,697.0	9,548.0	10,120.0
Other Current Liabilities	761.0	1,240.0	1,638.0	2,967.0	4,159.0	5,195.0
Total Current Liabilities	20,722.0	27,970.0	38,542.0	43,658.0	63,448.0	73,611.0
Long-Term Debt	-	-	-	16,960.0	28,987.0	32,504.0
Unearned Revenue, Non-Current	1,139.0	1,686.0	2,648.0	2,625.0	3,031.0	3,480.0
Def. Tax Liability, Non-Curr.	4,300.0	8,159.0	13,847.0	16,489.0	20,259.0	23,371.0
Other Non-Current Liabilities	1,231.0	1,941.0	2,817.0	3,719.0	4,567.0	5,600.0
Total Liabilities	27,392.0	39,756.0	57,854.0	83,451.0	120,292.0	138,566.0
Common Stock	10,668.0	13,331.0	16,422.0	19,764.0	23,313.0	24,187.0
Additional Paid In Capital	-	-	-	-	-	-
Retained Earnings	37,169.0	62,841.0	101,289.0	104,256.0	87,152.0	97,178.0
Treasury Stock	-	-	-	-	-	-
Comprehensive Inc. and Other	(46.0)	443.0	499.0	(471.0)	1,082.0	1,963.0
Total Common Equity	47,791.0	76,615.0	118,210.0	123,549.0	111,547.0	123,328.0
Total Equity	47,791.0	76,615.0	118,210.0	123,549.0	111,547.0	123,328.0
Total Liabilities And Equity	75,183.0	116,371.0	176,064.0	207,000.0	231,839.0	261,894.0

Exhibit 4: Country Risk Premiums by region (over and above the mature market premium)

<i>Region</i>	<i>Country Risk Premium (GDP Weighted Average)</i>
Africa	5.98%
Asia	1.51%
Australia & New Zealand	0.00%
Central and South America	4.20%
Eastern Europe & Russia	3.33%
Middle East	1.10%
North America	0.00%
Western Europe	1.13%

Regression against S&P 500

Regression against MSCI (World Equities)

Exhibit 5: Apple's Beta

<i>Business</i>	<i>% of Apple's Revenues</i>	<i>Unlevered Beta</i>
Smartphones & Tablets (Devices)	56%	1.05
Computers	25%	1.30
Retail	19%	1.20

Exhibit 6: Automobile Companies

The data includes all publicly traded automobile companies listed globally, with a market capitalization exceeding \$1 billion.

NOT PROVIDED !