

Chapter 15

15-1

a. The Cash Flow Return on Investment (CFROI) is computed using the Gross Cash Flow and the Gross Investment. GI is defined as Net Asset Value + Cumulated Depreciation on Assets + Current Dollar Adjustment. This works out to $(\$8000 + \$3000)(1.02)^4 = \$11,906.754$ million. The GCF = $(1300)(1-0.35) + 520 = 1365$ m. Salvage value = $0.4(11,907) = \$4,763$ (Only 40% is salvageable)

b. The CFROI is the internal rate of return on an investment requiring an initial outlay of \$11,906.754, annual flows of \$1365 every year for 15 years, and a salvage value of \$4,763. This works out to 9.50%.

The nominal cost of capital for Crown Cork and Seal is $(0.5)(1-0.35)(0.08) + (0.5)(0.065 + 1.2(.055)) = 9.15\%$, or 7.15% in real terms, after subtracting the inflation rate of 2%. This is lower than the CFROI of 9.50%. Hence the current investments of the firm are value-increasing.

15-2

If the entire asset base were depreciable, then the salvage value would be zero. Depreciation of \$800 per year means a GCF of 1645m. Assuming that accumulated depreciation is still \$3 billion, the internal rate of return works out to 10.88%.

15-3

a. The cost of capital = $(0.3)(1-0.35)(0.07) + (0.70)[0.065 + 1.1(.055)] = .1015$.
EVA in 1998 = (Return on capital – Cost of capital)(Capital Invested)
= EBIT(1-t) – Cost of Capital (Capital Invested)
= $750(1-0.35) - (0.1015)(3600) = \122.1 million.

b. The levered beta appropriate to the battery business is $0.85[1+(1-0.35)(3/7)] = 1.0868$.
The cost of capital for the Eveready division is $(0.3)(1-0.35)(0.07) + (0.70)[0.065 + 1.0868(.055)] = .101$.
The EVA of the Eveready division in 1998 is $0.34(750)(1-0.35) - (0.101)(3600)(0.42) = 13.038$ million.

c. Hence the value added by the remaining businesses would be $122.1 - 13.038 = \$109.062$ million.

15-4

Eveready accounted for 42% of the invested capital, but only $13.038/122.1$ or 10.68% of the EVA. Hence assuming that Eveready can be sold for 42% of the market value of the entire firm, the EVA of Ralston Purina would go up if the proceeds from the Eveready spin-off were reinvested in Ralston Purina.

15-5

Most utilities in the United States operate in businesses which are natural monopolies - i.e., they are businesses where it is not possible to have competition. They are regulated

to prevent them from reaping the spoils of their monopolistic position - higher prices and higher profits. If the regulations were removed, and they continued to be natural monopolies, they would increase their excess returns.

15-6

You have two differential advantages - the long lead time keeps out new entrants, and your advantage in terms of access to funds gives you an advantage over existing competitors. The first advantage should manifest itself in terms of higher profit margins whereas the second should lead to lower hurdle rates. These differential advantages can be lost, if technology shifts allow for quicker entry into the market and one of your competitors enters into a partnership with a large firm which has good access to capital markets.

15-7

As a private firm, you might be more efficiently run than your competitors and have lower overhead expenses. You might also have the capacity to be more flexible than your competition. Your competitors, on the other hand, may have better access to funds and be less exposed to the kinds of firm-specific risk that you have to worry about.

15-8

a. Lotus was the first entrant into the market to offer a full-function spreadsheet designed for business use. Once they established themselves as the default spreadsheet, the cost of switching to another program became large enough that they had a decided advantage over the competition.

b. Microsoft was able to take advantage of Lotus's failure to offer upgrades by offering a spreadsheet program that incorporated most of the features of Lotus and changes that business wanted. They were also able to exploit their proprietary rights to the underlying systems programs (DOS, Windows) to ensure that their programs were more compatible with the system programs.

c. If you are a small software program, I would suggest focusing on a niche spreadsheet program that would serve a subset of the market that is unhappy with the existing offerings. As a small firm, you might be able to offer products that would not be profitable to your larger competitors.

15-9

a. Patents provide explicit protection against competition, allowing the firms that possess them to charge higher prices and earn higher returns.

b. If patent protection were weakened, I would expect excess returns in the pharmaceutical industry to drop.

c. If there is no patent protection, pharmaceutical firms will have to compete like all other consumer product firms -with advertising to create brand names, by reducing costs and establishing a cost advantage or by offering products that are tailored to market segments that are not being served. Firms with low cost structures and good marketing teams are

likely to be winners.

15-10

a. In a project analysis, the value of a brand name will show up also in higher margins and more predictable cash flows.

b. As brand name loyalty declines, firms like Unilever and Procter and Gamble will find that the returns on their projects will also decline - this in turn will push excess returns down.

15-11

a. Given that the personal computer market is an intensely competitive one, with several large players, I would recommend a niche computer that would take advantage of her technical expertise and her capacity to keep overhead costs down.

b. She would need to convert her technical expertise - say, in graphics design - to produce a computer that served professional graphics designers better than the existing products. Furthermore, she would need to team up with a production specialist who can then produce these computers at low cost.

c. I think that a sophisticated niche offering, priced with higher margins, provides the best opportunity for a small firm with technical expertise.

15-12

a. If the Zip drive had no patent protection, I would expect to see a host of imitators on the market driving prices and margins down.

b. If I were basing my growth on the Zip drive, I would not expect it to continue. If, on the other hand, I believed that Iomega had the technical expertise to turn out more products like it in the future, I would be more optimistic about growth.

15-13

a. McDonald's was the first fast-food chain. It offered a standardized menu at low prices at all its locations. As the first entrant to do this successfully with independent franchises, it reaped enormous gains.

b. McDonald's clearly has unparalleled brand name recognition, especially overseas. I would foresee it taking advantage of this to grow internationally.

15-14

If the advertising is successful, I would expect the project to (1) last longer, (2) have higher margins and (3) greater sales. All of these would make the cash flows and returns higher.

15-15

Year	Forecast CF	Actual CF
0	-100,000	-105,000
1	20,000	15,000
2	25,000	20,000
3	30,000	25,000
4	35,000	30,000
5	40,000	35,000

a. Forecast IRR 13.45%

b. Actual IRR 5.34%

c. The project did not add value to the firm, since it earned only 5.34%.

15-16

<i>Forecasts</i>			<i>Actual</i>		
Year	EBIT(1-t)	CF	Year	EBIT(1-t)	CF
0	(Investment)	-10.5	0	(Investment)	-10
1	1.5	3	1	1.6	3.1
2	1.6	2.8	2	1.65	2.85
3	1.7	2.6	3	1.75	2.65
4	1.8	2.4	4	1.85	2.45
5	1.9	2.4	5	2	2.5
6	2	2.4			
7	2.1	2.4			
8	2.2	2.4			
9	2.3	2.4			
10	2.4	2.4			

a. NPV of Forecast CF at 11% = \$4.65, the project would have been taken.

b. Forecasting Error

Year	Forecast CF	Actual CF	Forecast Error
1	3	3.1	3.33%
2	2.8	2.85	1.79%
3	2.6	2.65	1.92%
4	2.4	2.45	2.08%
5	2.4	2.5	4.17%
Average			2.66%

c. Cash flow Returns Earned by Project

Year	CF	CF/Investment
1	3.1	31.00%
2	2.85	28.50%
3	2.65	26.50%
4	2.45	24.50%
5	2.5	25.00%

d. New Cash Flow Forecasts

Year	Old Forecast	New Forecast
6	\$2.40	\$2.46 (increased by 2.66%)
7	\$2.40	\$2.46
8	\$2.40	\$2.46
9	\$2.40	\$2.46
10	\$2.40	\$2.46

e. NPV of Continuing this project = 8.867749458

This is the present value of \$2.46 million a year for 5 years at 12%.

15-17

	ROE	Cost of Equity	Peer Group ROE	Forecast ROE
Software Firm	20.50%	13.60%	16.00%	22.00%
Auto Firm	12.50%	14.70%	10.00%	10.50%

a. The software firm did better than its required rate of return, whereas the auto firm lagged its required return.

b. The software firm did better than its peer group, as did the auto firm.

c. The software firm did less well than the market expected it to, whereas the auto firm did better.

15-18

Year	Net Income	BV of Equity	ROE
1991	230	576	39.93%
1992	211	773	27.30%
1993	258	1,001	25.77%
1994	320	1,260	25.40%
1995	343	1,480	23.18%

a. Cost of Equity = 7% + 1.45 (5.5%) = 14.98%

The Gap's investments, on average, were good investments since the ROE > Cost of Equity.

b. Yes. The trend downwards in the average ROE suggests that the marginal projects were not as attractive. It might be a better indicator for future returns.

c. If the market was anticipating a ROE of 28%, I would argue that the Gap disappointed some of these investors. In the years of the disappointments (1992 and 1993 especially) I would expect stock prices to go down.

d. No. It would suggest that the blame for the lower ROE should not be put solely at the door of management.

15-19

a.

Firm	ROE	Cost of Equity	Differential
Chrysler	14.00%	14.60%	-0.60%
Ford	16.00%	14.05%	1.95%
GM	11.50%	14.33%	-2.83%

b. I would conclude that Ford picked the best projects and GM the worst.

c. The return on equity is a flawed measure because it focuses on accounting income instead of cash flows and also reflects all projects taken by the company, rather than just the most recent ones. Furthermore, the book value of equity can be affected by actions such as buy backs.

15-20

Return on Capital = $EBIT (1-t) / BV \text{ of Debt \& Equity} = 175 (1-.36) / (750+38) = 14.21\%$

Cost of Equity = $7\% + 1.25 (5.5\%) = 13.88\%$

Cost of Capital = $13.88\% (2,400 / (2,400+38)) + 8\% (1-.36)(38 / (2,400+38)) = 13.74\%$

Since the return on capital exceeds the cost of capital, the projects made excess returns.

15-21

Year	Forecast CF	Actual CF	PV at 12%	PV of actual at 11.5%
1986	-1,500	-2,200	\$(1,500.00)	\$(2,200.00)
1987	100	-150	\$89.29	\$(134.53)
1988	150	50	\$119.58	\$40.22
1989	200	100	\$142.36	\$72.14
1990	250	150	\$158.88	\$97.05
1991	275	100	\$156.04	\$58.03
1992	300	175	\$151.99	\$91.07
1993	325	200	\$147.01	\$93.35
1994	350	200	\$141.36	\$83.72
1995	350	175	\$126.21	\$65.70

a. NPV of Project using forecast CF and 12% discount rate = (\$267.28)

b. NPV of Project using actual CF and 11.5% discount rate = \$(1,733.3)

c. PV of continuing the project = $175/.115 = \$1521.74$

Salvage Value of Project today = \$1,500.00 . Continue the project.

15-22

Year	Expected CF	PV
1	\$10.00	\$8.93
2	\$12.50	\$9.96
3	\$15.00	\$10.68
4	\$17.50	\$11.12
5	\$120.00	\$68.09

Present Value of Cash Flows = \$108.78

a. The division is worth \$108.78 million.

b. Folly should accept an offer of \$150 million, since it is greater than the value of the division to Folly.