



Clarion Optical Co.

It was early September of 1992, and Jerry Stone and Iris Randal were having dinner and discussing their plans to purchase Clarion Optical Co., their current employer. They had decided to attempt to purchase Clarion almost two months ago. Since then, they had spent most of their time talking with potential financial backers, and had learned a great deal about potential financing sources.

Now, they needed to make a decision about how to finance and structure the purchase of Clarion. They needed to resolve:

- How to structure the deal for the purchase of Clarion.
- What form(s) of legal organization to use.
- Whom to approach for financing, how much money to seek, and on what terms to raise it.

Background

Clarion Optical was located outside of Atlanta, Georgia, and had been founded by Cyrus Atkins in 1946. Clarion began as a manufacturer of high-quality glass for optical uses and as a grinder and polisher of lenses for optical instruments. In the late 1970s, Clarion's chief engineer, Jerry Stone, had pushed Atkins, and Clarion, into the custom contact lens business (i.e., lenses for individuals who could not wear standard off-the-shelf products). This business had proved to be so profitable that Clarion had reached the point where it was once again a single-product company, having phased out of the optical instrument market. (See **Exhibit 1** for most recent financial statements.)

Since Cyrus' gradual retirement from the business began in the mid-1980s, Stone had been president, and had taken over more and more responsibility for the firm's operations.

In early 1992, Clarion's new chief engineer, and one of Stone's early pupils in the lab—Iris Randal, had come to Jerry with an idea for a new product line—implantable lenses for the human eye. The incidence of cataracts was on the rise and new surgical techniques had made the replacement of the human eye lens a commonplace procedure.

Professors Howard H. Stevenson and Michael J. Roberts prepared this case as the basis for class discussion rather than to illustrate either effective or ineffective handling of an administrative situation.

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Iris had developed a new substance from which to make the lens, which was far less costly and created a better lens than existing technology. Jerry and Iris began developing a business plan to explore and capitalize on the opportunity.

The Sale of Clarion

Two months before, Cyrus Atkins had told Jerry that he had decided that it was time to sell Clarion. Cyrus, a widower, was nearing 80, and had two older children who were successful and well-established professionals. Cyrus had amply provided for them in his large estate, of which his 100% ownership of Clarion represented only a part. His interest in Clarion was his last major illiquid holding, and Cyrus was convinced that he should sell the company and tidy up his estate.

Jerry expressed an immediate interest in purchasing the company, and Atkins was pleased at the prospect of Clarion remaining “in the family.” He told Jerry that he would give him ample time to try to put together a financing package. Atkins said that he was willing to sell Clarion for 10 times its 1991 earnings of \$200,000, or \$2.0 million.

Jerry was convinced that the new implantable lens technology had great potential, and was the key to Clarion’s future success. He also had a great deal of respect for Iris’s engineering and management abilities, and decided that she should be part of the management team that attempted the buyout.

Jerry was convinced that the other key staff would remain on. After all, they would not be getting a new boss—he had been managing Clarion for many years.

Jerry discussed the idea with Iris, and she was thrilled with the prospect of owning a piece of Clarion. She also had a great deal of confidence in the new lens technology and was excited to learn that Jerry planned to make this a keystone of his plan for the business. They raced to put together the money.

Valuing the Assets

On the advice of a friend in the banking industry, Jerry and Iris took Clarion’s balance sheet and attempted to determine the fair market value of Clarion’s assets. A valuation was performed, and they were pleasantly surprised that this value exceeded book value and Atkins’ asking price. (See Exhibit 2.)

- Land and Building: A twenty-year-old, fully depreciated structure, the \$200,000 figure on the books represented only the cost of the land. The building was in excellent shape, and was owned and used exclusively by Clarion. The structure housed all manufacturing, shipping and management. There was ample space for any contemplated expansion of the business. Jerry and Iris researched the market, and determined that the fair market value of the structure was as follows:
 - land \$250,000
 - building \$750,000

- Equipment: Clarion's equipment was fairly new, but rapid depreciation had decreased its book value to \$100,000. Jerry and Iris were convinced that it was worth \$500,000.
- Inventory: Because of the custom nature of its work, Clarion kept large stocks of high-quality optical glass on hand. Much of this had been purchased a year or two ago on particularly favorable terms. Now, this \$200,000 of book value inventory was worth \$500,000.
- Accounts Receivable: Most of Clarion's customers were well established optical shops who paid their bills on time. The \$300,000 book value of accounts receivable was an accurate reflection of their true worth.
- Cash: The cash, of course, was worth \$200,000 and Jerry and Iris were convinced that \$100,000 would give them sufficient working capital.

Having convinced themselves that Clarion's assets were indeed worth \$2.5 million, Jerry and Iris set about investigating potential financing sources.

Financing the Purchase

Jerry and Iris's business plan indicated that they would need an additional \$1 million over the purchase price to fund the research and development effort required to get them into the lens business. This raised their "magic number" to at least \$3.0 million. They then began investigating potential sources of this money.

- New England Pension Trust: Jerry and Iris contacted this tax-free pension fund, an extremely conservative financier. The trust indicated that they would be willing to lend up to 80% of the value of the land and building—a mortgage at 12%.
- Michael Grund: An extremely wealthy acquaintance of Jerry's, Michael had agreed to consider an investment of up to \$250,000 if it showed an after-tax IRR of at least 30%. Michael was in the 50% marginal tax bracket on personal income (including state and local taxes), and the 40% bracket on capital gains.
- Georgia Bank and Trust Co.: A local bank, Georgia B&T had agreed to lend up to 80% of the book value of accounts receivable, and 40% of the book value of inventory, at 15%.
- Rebel Ventures: This local venture capital firm was excited by the venture, and had agreed to give Jerry and Iris up to \$3.5 million on any investment which showed a 60% pretax IRR. They would, however, require the management team to put up \$40,000 of their own funds.
- Bank of Atlanta: The bank had agreed to lend either the company or Jerry and Iris personally up to \$300,000 at 17% with Jerry and Iris's personal guarantee as security. While they each had little (about \$20,000 each) in liquid assets, their tangible net worth was each close to \$250,000 due to their own and their spouses' investments in their own homes.

- General Insurance Corporate Credit: The credit area of this large insurance company had agreed to purchase the existing equipment from Clarion for \$300,000, and lease it back to Clarion for five years at \$100,000 per year.

With this information in hand, they went to speak with two friends to ask for advice on how to structure the deal:

- Bill Lawrence, an old friend in the real estate business.
- Henry Adams, the trustee at the local bank.

Lawrence's Suggested Structure

Bill Lawrence suggested financing the deal in the following way:

- Have Grund buy the building and land in a separate transaction for \$1 million, and then have Clarion rent it back from Grund (transaction described in **Exhibit 3**). He could:
 - take an 80% mortgage from the bank @ 12%;
 - keep the tax losses and cash flow for his investment of \$200,000; and,
 - Clarion would agree to buy the building and land back at some price at the end of year seven, in order to give Grund his required 30% return.
- Buy the rest of the company for \$1 million and finance as follows:

• excess cash	\$100,000
• borrow on accounts receivable	240,000
• borrow on inventory	80,000
• sale/leaseback of equipment	300,000
• note/personal guarantee	280,000

This would permit Jerry and Iris to retain 100% of the equity. It did have its drawbacks though:

- Risk: it seemed as though there would be very little, if any, margin for error in their projections.
- R&D schedule: without a major influx of venture capital, Jerry and Iris thought it would take three years to generate sufficient cash flow to perform the \$1 million worth of R&D required. This would:
 - delay Clarion's entry into the market;
 - reduce their share when they did enter; and,
 - make the market smaller in the early years because Clarion would not be out developing the market.

(See **Exhibit 4** for relative market scenarios.)

- Cost: Finally, when they did enter the market, they would not have sufficient cash flow to purchase equipment. This would require them to subcontract

production and fulfillment (this firm would also finance working capital needs) which would raise COGS to 30% (10 points higher than the 20% COGS if they manufactured in-house).

- Salaries: Jerry, who was making \$60K/year and Iris, making \$40,000K/year would each take a salary cut to \$20,000 per year until the business started generating cash.

Adams' Suggested Structure

Adams suggested that they finance the entire purchase with venture capital funds. This would obviously reduce their share of the equity, but would reduce the risk as well. This financing structure would have important implications:

- Investment: They would invest in the plant and equipment necessary to produce the lens, which would:
 - reduce the COGS to 20% of sales; and,
 - increase depreciation charges.
- Fixed charges would drop:
 - no rent;
 - no lease payments; and,
 - no interest payments.
- Personal stake: They would each invest \$20,000 of their own funds in the initial purchase of the company.

The Decision

Jerry and Iris knew that these proposals represented the two extreme ends of the financing spectrum, but they thought that running out the numbers would help them get a feel for what the important issues and trade-offs were.

They finished dessert and coffee, and went back to the office to lay out all of their assumptions (see **Exhibit 4**) and crunch through the numbers.

Exhibit 1 Historical Financial Statements (\$000) (Year ended December 31, 1991)

Income Statement			
Sales	\$1,010		
COGS	300		
S, G. & A	100		
Executive Salaries	<u>200</u>		
Operating Income	\$ 410		
Depreciation	10		
Net Income	400		
Taxes	<u>200</u>		
Profit after tax	\$ 200		
Balance Sheet			
Cash	\$ 200		
Accounts Receivable	300		
Inventory	200		
Equipment	100		
Land & Building	<u>200</u>	Owner's Equity	<u>\$1,000</u>
Total Assets	\$1,000	Total Equity	\$1,000

Exhibit 2 1991 Balance Sheet Comparison (\$000)

	Book Value	Appraised Value
Cash	\$ 200	\$ 200
Accounts Receivable	300	300
Inventory	200	500
Equipment	100	500
Land and Building	<u>200</u>	<u>1,000</u>
Total Assets	\$1,000	\$2,500

Exhibit 3 Real Estate Transaction**Assumptions**

- Mortgage: 25 years
\$800,000
12%
Constant payment of \$102,000 per annum
- Amortization schedule: (\$000)

Year	1	2	3	4	5	6	7
interest	96.0	95.3	94.5	93.6	92.6	91.4	90.2
principal	6.0	6.7	7.5	8.4	9.4	10.6	11.8

- Principal value of mortgage outstanding at end of year seven equals \$740,000.

Real Estate Cash Flows (\$000)

Year	1	2	3	4	5	6	7
Rent	\$165.0	\$173.0	\$182.0	\$191.0	\$200.0	\$211.0	\$221.0
Maintenance	40.0	41.0	42.0	44.0	45.0	46.0	48.0
Taxes	25.0	25.0	25.0	25.0	25.0	25.0	25.0
Net operating income	100.0	107.0	114.0	122.0	130.0	140.0	148.0
Finance payment	102.0	102.0	102.0	102.0	102.0	102.0	102.0
Pretax cash flow	-2.0	5.0	12.0	20.0	28.0	38.0	46.0
+Amortization	6.0	6.7	7.5	8.4	9.4	10.6	11.8
-Depreciation	150.0	120.0	96.0	76.8	61.4	49.0	39.2
=Taxable income	(146.0)	(108.3)	(76.5)	(48.4)	(23.0)	0.5	18.5
+Tax benefit/(cost)	73.0	54.1	38.2	24.2	11.5	(.2)	(9.2)
=Aftertax cash flow	71.0	59.1	50.2	44.2	39.5	37.8	36.8

Note: Finance payment is a level stream which includes both interest and principal. Amortization (principal repayment) must therefore be added back to pretax cash flow to arrive at a taxable income figure.

Cash flows on sale of building and land

Assumed price of \$1,000,000 and \$1,100,000	\$1,000,000 Price	\$1,100,000 Price
Calculation of tax due:		
Sale	\$1,000,000	\$1,100,000
- Net book value	<u>407,600</u>	<u>407,600</u>
Gain on sale	\$ 592,400	\$ 692,400
Tax (40% rate)	236,960	276,960
Calculation of net cash proceeds:		
Sale proceeds	\$1,000,000	\$1,100,000
- Tax liability	236,960	276,960
- Mortgage balance	<u>740,000</u>	<u>740,000</u>
Net cash proceeds	\$ 23,040	\$ 83,040

Exhibit 4 Scenario Cash Flows**ASSUMPTIONS****1. Sales** (see Schedule A, attached)

- All Debt: They thought that under this scenario, it would take three years to fund the \$1 million of R&D required out of cash flow. In this case, Clarion could not enter the implantable lens market until year four, at which point they could only attain 40% market share; and the market would be smaller, because they would not have been out developing it.
- All Equity: Clarion could finish the R&D in one year and enter the market in year two. They could obtain a larger market share and grow the entire market scenario.
- Both: In either case, sales of the existing contact lens product line would stagnate at whatever level they were at when implantable lens sales began.

2. COGS

- All Debt: Cost of implantable lens equal to 30% sales, due to subcontracting.
- All Equity: Cost of implantable lens equal to 20% of sales.
- Both: Cost of existing contact lens product equal to 30% sales.

3. SG&A (\$000)

Year:	1	2	3	4	5	6	7
- All Debt	108	120	129	500	600	700	800
- All Equity	107	500	600	700	800	900	1000

4. Executive Salaries

Year:	1	2	3	4	5	6	7
- All Debt	40	40	40	200	300	400	500
- All Equity	100	100	100	200	300	400	500

5. R&D

\$1 million required to complete R&D on implantable lens.

- All Debt: Funded out of cash as available; Jerry and Iris assumed that this could be completed in three years.
- All Equity: Funded in year one out of venture capital.

Schedule A Sales Scenarios (\$ millions)

Year	Contact Lens Sales	All Debt Implantable Lens Sales				Total	Contact Lens Sales	All Equity Implantable Lens Sales			Total
		Market Size	Clarion Share	Resultant Sales	Market Size			Clarion Share	Resultant Sales		
1	1.10	1.0	0	0	1.10	1.1	1.0	0	0	1.1	
2	1.28	2.5	0	0	1.28	1.1	5.0	60%	3	4.1	
3	1.60	5.0	0	0	1.60	1.1	10.0	60%	6	7.1	
4	1.60	10.0	40%	4	5.60	1.1	20.0	60%	12	13.1	
5	1.60	20.0	40%	8	9.60	1.1	40.0	60%	24	25.1	
6	1.60	40.0	40%	16	17.60	1.1	60.0	60%	36	37.1	
7	1.60	65.0	40%	26	27.60	1.1	80.0	60%	48	49.1	

6. Depreciation

- All Debt: Equal to zero in all years: No plant, equipment, building to depreciate.
- All Equity: Depreciation on existing plant and equipment equal to \$150,000 each year for seven years. Depreciation on new equipment purchased is calculated on a straight-line basis over a five-year life, beginning in the year of actual purchase (i.e., if \$1,000,000 worth of equipment purchased in year one, then \$200,000 taken in years one through five). (See *Investment*, line 13, for investment required.)

7. Interest

- All Debt:
 - \$300,000 borrowed against accounts receivable is outstanding over the entire seven years, at 15% per annum. No principal repayments made.
 - \$80,000 borrowed against inventory is outstanding over the entire seven years, at 15% per annum. No principal repayments made.
 - \$220,000 note, personally guaranteed is outstanding over five years, principal and interest paid according to following schedule.

Year:	1	2	3	4	5
Interest	38	32	26	19	10
Principal	31	37	43	50	59

- All Equity: No interest charges.

8. Lease Payments

- All Debt: Lease payments on machinery are \$100,000 per annum for five years, at which time ownership reverts to Clarion.
- All Equity: No lease payments.

9. Rent

- All Debt: As shown in **Exhibit 3**.
- All Equity: No rent payments.

10. Maintenance and Real Estate Taxes

- All Debt: No maintenance expenses or taxes.
- All Equity: As shown in **Exhibit 3**.

11. **Taxes:** 50% of income. Assume that losses are offset against following year's income. (i.e., If Clarion has losses of \$200,000 in year one and pretax profit of \$1,000,000 in year two, income tax in year two is calculated on a pretax base of \$800,000.)

12. **Depreciation:** (See item 6)

13. Investment

- All Debt: Purchase of building in year seven at price required to give 30% return.
- All Equity: Annual investment required in (\$000)

Year	1	2	3	4	5	6	7
Working Capital	63	600	600	1200	2400	2400	2400
Equipment	1000	1000	2000	4000	8000	12000	15000

14. Principal Repayment

- All debt: On \$220,000 personally guaranteed note only; see above under *Interest*.
- All Equity: None.

15. **Terminal Value:** Assume that company is sold at the end of year seven for 10 x Year seven after-tax earnings under both scenarios.

16. **Other:** In addition, they realized that they needed to make other assumptions in order to judge the two scenarios.

- Assume Jerry and Iris's personal investment in business as follows:
 - All Debt: Investment of \$60,000 in "lost salary" in each of years one through three.
 - All Equity: Investment of \$40,000 in year 0.
- Calculate cash flows to Jerry and Iris *jointly* (i.e., do not make any assumptions about how equity, investment or cash flows are divided between the two parties).
- Assume that in the equity scenario, only return occurs via sale of equity at end of year seven - no dividends paid or other distributions made.
- Assume that in the debt scenario, free cash flow is taken out at end of each year, including the end of year seven.
- Calculate flows and returns to Jerry, Iris and Rebel Ventures on a *prepersonal tax* basis (i.e., include taxes at the corporate level in your calculations, but *do not* include any personal taxes on dividends or distributions out of Clarion). Also, do not include Jerry and Iris's salaries as part of the cash outflows in calculating returns.
- Include the price of the building repurchase in year seven as an investment in that year in the debt scenario.
- In the all debt scenario, assume that all available cash is spent on R&D until the \$1 million project is complete; you must "plug" the figure for R&D for each year (i.e., free cash flow should equal zero in years where R&D project is ongoing).
- Assume Rebel Ventures will invest whatever cash is required to keep Clarion cash positive up to its stated \$3.5 million limit.