**Ajax Electronics**

Marc H Meyer and James Molloy

Entrepreneurship and Small Business Management

Northeastern University

212 Hayden Hall

360 Huntington Avenue, Boston, MA 02115 Tel: 617-373-5948; Email: mhm@neu.edu

# March 2002

In midsummer 2002, John Clark, a loan officer of the SaveMe Bank of Ipswich, MA was reviewing a loan request for $100,000 from Bob Roberts, president of AJAX Electronics.

Products:

AJAX Electronics had two product lines, industrial sensors and defibrillators. Revenue was split evenly between them.

 Bob Roberts, who had an electrical engineering degree, had worked previously as a manufacturing engineer. AJAX had started out as a manufacturing process control consulting firm in 1985. In 1988, it began producing customized sensors for chemical, paper, and brewery companies for use in their manufacturing processes to measure flow volumes, temperatures, pressures, and so forth. Roberts did the selling to client manufacturers himself. He also did the design work and supervised the manufacturing of these sensors. His engineering staff for this end of the business consisted of an electrical engineer and a manufacturing engineer. Over the years, he had achieved a gross margin for these industrial sensors of about 40%. Roberts felt that he could do better.

In 1989, through discussions with his father (who was a retired cardiologist in his late 80's) Roberts became convinced that there was an opportunity to design a low-cost defibrillators for emergency medical applications. Health care was improving around the world. Also, inexpensive off-shore manufacturing was becoming increasingly available to small firms (Roberts was particularly interested in southern China). By late 1989, he had designed a low-cost defibrillator and had received FDA approval to sell it. His father had provided the limited clinical expertise needed for the product. He began manufacturing the product in one side of his existing facility in 1990. AJAX, located in rented space in northeastern Massachusetts, was fully equipped with the latest electrically driven machinery.

Defibrillators are used to apply electrical shock to the heart when its stops beating. The types of buyers of defibrillators are in-hospital users, i.e.. doctors (mainly cardiologist) and emergency room technicians, and out of hospital organizations, such as ambulances. There are also three basic types of defibrillators: "low-end" defibrillators, which produce and deliver the required electrical shock at the hands of a trained operator; mid-range defibrillators, which detect when a shock is required by the heart, and is then delivered at the hands of a trained operator; and "high end" defibrillators, which are programmable "computers" which detect the need for shock, and target the delivery of the shock to a point in the heart rhythm.

AJAX made only low-end defibrillators and had achieved a gross margin in the 25% range. High volume manufacturers of defibrillators were known to achieve gross margins of about 40%. There were many competitors in the low-end market. In the high end market, two firms dominated the inhospital applications, Hewlett Packard and Zoll, while the out-of-hospital emergency market was dominated by PhysioControl. Interestingly, PhysioControl's government permit to sell defibrillators was recently revoked by the FDA for product quality problems. Given the broad scope of the market for defibrillators, most firms, particularly the smaller ones, employed medical products distributors as the primary sales channel. Industry observers found that US. defibrillator market was about $100 million in 1989. This market is projected to increase to approximately $700 million by 2000, fueled by high levels of growth in markets such as China and South America.

Financials:

The company was owned 100% by Roberts. Sales volume grew steadily, but always seemed to be higher than could be supported by available capital. In other words, AJAX always seems starved for cash. Capital needs were usually furnished through short-term borrowing. Mr. Roberts, the company’s only officer, was anxious to maintain AJAX’s record of profitability, so he only drew a salary of $40,000 in recent years. He was fifty years old.

Mr. Roberts was thoroughly unhappy with the company’s present loan arrangement with the Webster Bank from which it had been borrowing between $45,000 and $60,000 at an annual interest of 11%. Mr. Roberts pledged accounts receivable as security. He thought that Mr. Schell, the loan officer at the Webster Bank who handled the AJAX account, was a hindrance. Mr. Schell seemed to constantly make suggestions that weren’t appropriate for AJAX. In fact, the bank arbitrarily selected the receivables it would accept as collateral. This put pressure on Roberts because of the uncertainty of having adequate funds to keep creditors in line.

Mr. Roberts thought this attitude from the bank limited the company’s ability to grow. The company had been unable to solicit new customers for fear of insufficient funds. Increased sales volume was financed internally and came from expansion of existing accounts. Since the plant was being operated at only 60% of capacity, Mr. Roberts was eager to increase sales. Operations were currently above the break-even point and since the general, selling and administrative expenses should remain fixed, any further increase in sales volume would increase profits.

Mr. Roberts felt that pledging the company’s accounts receivable or any other asset that the bank thought would be desirable security would be satisfactory. Of course the arrangement had to be fair and produce money when needed.

Mr. Clark, of SaveMe Bank, explained that money was tight at the moment, but that it was always interested in sound loan proposals from companies that showed promise. Mr. Clark promised to look into Mr. Roberts' request and said he planned to visit the company in a few days. He suggested Mr. Roberts prepare an estimate of his cash requirements, and the meeting was adjourned on an upbeat note. The Webster Bank was only a short distance from his plant, yet Mr. Schell had never visited AJAX.

Before going to AJAX, Mr. Clark phoned Mr. Schell to obtain his opinion of AJAX. Schell’s experience with AJAX was thoroughly unsatisfactory. Mr. Schell reported that AJAX on several occasions had overdrawn its account. Also, the receivables pledged as security often did not meet the bank’s collateral standards. He went on to sat that Mr. Roberts was competent from a technical standpoint, but he lacked financial and administrative skills. Mr. Roberts never had been able “to get his house in order,”. However, Mr. Schell believed that the company’s products were well received by the trade. AJAX, he said, had a possibility of developing into a sound business if there was stronger management.

Accounts receivable on AJAX's books as of July 31, 2002 were aged as follows:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Shipment  |  Age  |  | Outstanding Receivables  |  | Sales  |
|   |   |  |   |   |  |
| July  |  0 - 30 days  |  | $49,000  |  | $55,000  |
| June  | 30 - 60 days  |  | 20,000  |  | 66,000  |
| May  | 60 - 90 days  |  | 14,000  |  | 51,000  |
| April  | 90 -120 days  |  | 9,000  |  | 54,000  |
|  Total  |  |   |  92,000  |  |   |

Of the $9,000 representing accounts over 90 days, $6,000 was due from the General Service

Administration, which was often slow in paying its account. The other $3,000 was owed by two hospitals. The remaining $34,000 in receivables over 30 days old were due from 12 medical products distributors and 3 distributors of sensors.

After visiting the AJAX plant, Mr. Clark noted that, although the production process included some fabricating for the custom work, it was primarily an assembly operation. The defibrillators were all standard models and were produced in small lots. There was an erratic flow of work and excess inventory in storage awaiting further processing. It took eight to ten weeks to complete the processing of defibrillators. The sensors were manufactured and designed to meet the specific requirements of a customer. Since each order required specific engineering modification by Mr. Roberts, the company rarely completed these sensors in less than three months.

On July 31, 2002, AJAX's inventory was valued at $252,000. Finished goods inventory, which included only defibrillators, totaled $27,000; work in process was $51,000 for defibrillators and $48,000 for sensors; and raw material represented the remaining $126,000. Mr. Clark noted that the raw material inventory consisted of a large number of electronic and mechanical parts, ranging in value from a few cents each to several hundred dollars.

Mr. Roberts agreed that inventory probably should be reduced to $150,000. Most of this would result from a recently installed inventory control system. This system had already showed results since purchases had dropped from an average of $20,000 per month at the beginning of the year to under $10,000 in recent months despite a steady increase in sales volume. Terms of purchases ranged from C.O.D. to net 30.

In probing several disturbing aspects of the balance sheet, Mr. Clark learned that the accounts payable had a balance of $74,000 while total purchases was $100,000 during the first seven months of 2002. An aging of the trade debt on the company's books as of the middle of August 2002 was:

|  |  |  |
| --- | --- | --- |
| Purchase Month  | Purchases  | Trade Debt Payable  |
|   |   |   |
| August (1-15)  | $ 6,000  | $ 5,000  |
| July  | 8,000  | 6,000  |
| June  | 11,000  | 8,000  |
| May  | 15,000  | 13,000  |
| Prior  |   | 35,000  |
|   |   |   |
| Total  |   | $67,000  |

Approximately $5,000 of payables was in dispute and another $5,000 was to friendly creditors to whom payment could be postponed indefinitely.

As of August 15, delinquent withholding taxes totaled $30,000. Federal income taxes had been paid in March and June. Mr. Roberts said that the IRS had been pushing him to reduce his delinquency to $15,000 before the end of the month. The IRS further threatened to file a tax lien against AJAX on all delinquencies. This would put AJAX on a "pay as you collect" withholding tax basis. This would require an arrangement where AJAX would make weekly payments to the tax collector.

According to Mr. Roberts, Webster Bank’s negative attitude towards AJAX may be behind this.

An outside group of Mr. Roberts’ friends had loaned AJAX $53,000 at 15% interest secured by a lien on the company's machinery and equipment. The note was payable on demand with no definite repayment schedule established.

Mr. Roberts estimated that sales for the remainder of 2002 would average between $60,000-$65,000 per month and would increase to $75,000 per month for 1997. Mr. Roberts thought that with bank support there would be little difficulty in achieving these goals. This is because a number of medical wholesaling houses had expressed continued interest in carrying AJAX's instruments, and because the company's sensor products were almost without competition. In this respect, he estimated his needs as follows:

|  |  |
| --- | --- |
| Repayment of present bank loan  | $39,000  |
| Additional working capital  | 61,000   |
| Total requirement  | $100,000  |

Since the company had recently modernized its production facilities, no further expenditures were planned. Depreciation charges, using straight line depreciation, amounted to $1,000 per month.

When Mr. Clark returned to the bank, he sent out letters of inquiry to a random list of AJAX's suppliers. (Excerpts from the responses received from the bank are shown in Exhibit 3). He also obtained a copy of the Dun and Bradstreet report on the company. Since the report was almost a year old and related to financial statements prior to 2001, it contained no additional information that was helpful to Mr. Clark. However, he noted that Mr. Roberts had withheld from the Dun and Bradstreet reporter general financial information and in particular had declined to give information on payables and sales.

On September 1, Mr. Roberts returned to SaveMe Bank to discuss the loan proposal further. He reported that the accounts receivable balance on August 31 was approximately $100,000 (August sales totaled $62,000) of which $90,000 represented accounts less than sixty days old. Mr. Roberts said he had no additional personal funds to invest in the company. However, he would agree not to pay dividends, increase his salary, or repay the personal loans he had made to the company until the bank debt had been paid off in full. Finally, Mr. Roberts said he had discussed the lien on the machinery and felt that the group might be willing to subordinate to the bank loan. On September 1, the company's loan balance at the Webster Bank amounted to $39,000.

Mr. Clark agreed to consider this proposal further and promised to let Mr. Roberts know the bank's decision within a few days. Clark set to work considering four basic questions:

1. What business is Roberts in? What are his strengths and weaknesses ?

1. To what use would Roberts put the proceeds of the requested loan? Does Roberts need the loan to accomplish his objectives?

1. Should SaveMe Bank give Roberts the loan ?

1. What advise would might Clark give to Roberts with respect to AJAX's business strategy ?

Exhibit 1

AJAX ELECTRONICS

1997-2002

Balance Sheets

(Dollar figures in thousands)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| ASSETS  | 12/31/97  | 12/31/98  | 12/31/99  | 12/31/00  | 12/31/01  | 7/31/02  |
|   |   |   |   |   |   |   |
| Cash  | -  | -  |  2  |  -  |  6  |  2  |
| Accounts receivable  | 75  | 54  | 57  | 64  | 107  | 92  |
| Inventory  | 113  | 108  | 150  | 195  | 246  | 252  |
|   |   |   |   |   |   |   |
|  Total current assets   | 188  | 162  | 209  | 266  | 359  | 346  |
| Fixed assets, net  | 33  | 30  | 27  | 32  | 33  | 68  |
| Deferred assets  | 11  | 9  | 9  | 11  | 21  | 21  |
|   |   |   |   |   |   |   |
|  Total assets  | 232  | 201  | 245  | 309  | 413  | 435  |
|   |   |   |   |   |   |   |
| LIABILITIES  |   |   |   |   |   |   |
| Overdraft--bank  |  6  | 6  | -  | -  | -  | -  |
| Notes payable--bank  | 39  | 26  | 46  | 42  |  56  |  39  |
| Notes payable-mortgage  | 11  | -  | -  | -  | 27  | 53  |
| Accounts payable  | 32  | 26  | 26  | 66  | 71  | 74  |
| Taxes payable  | 11  | 11  | 24  | 20  | 37  | 33  |
| Miscellaneous accruals  | 9  | 11  | 12  | 15  | 29  | 30  |
|   |   |   |   |   |   |   |
|  Total current liabilities   | 108  | 80  | 108  | 143  | 220  | 229  |
|   |   |   |   |   |   |   |
| Subordinated loan from officers  | 38  | 30  | 18  | 28  | 39  | 39  |
|   |   |   |   |   |   |   |
|  Total liabilities   | 148  | 110  | 126  | 171  | 259  | 268  |
| Common stock  | 51  | 51  | 51  | 51  | 51  | 51  |
| Surplus  | 35  | 40  | 68  | 87  | 103  | 116  |
|   |   |   |   |   |   |   |
| Total liabilities and net worth  | 232  | 201  | 245  | 309  | 413  | 435  |

Exhibit 2

# AJAX ELECTRONICS

Income Statements 1997-2002 (Dollar figures in thousands)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|   | 1997  | 1998  | 1999  | 2000  | 2001  | Jan-July 2002  |
|   |   |   |   |   |   |   |
| Net Sales   | 309  | 334  | 389  | 558  | 594  | 354  |
| Less cost of goods sold  |   |   |   |   |   |   |
|  Material  | 101  | 107  | 116  | 180  | 190  | 112  |
|  Labor  | 46  | 48  | 54  | 88  | 95  | 61  |
|  Overhead  | 54  | 58  | 63  | 87  | 89  | 45  |
|  Depreciation  | 4  | 3  | 3  | 3  | 6  | 4  |
|  Total cost of goods sold   | 205  | 216  | 236  | 358  | 380  | 222  |
| Gross profit   |  104  |  118  | 153  | 200  | 214  |  132  |
|   |   |   |   |   |   |   |
| G S & A expenses   | 95  | 111  | 117  | 173  | 190  | 106  |
| Net profit before taxes   |  9  |  7  |  36  |  27  |  24  |  26  |
| Taxes   | 2  | 1  | 9  | 8  | 8  |  |
| Net profit after taxes  |  7  |  6  |  27  |  19  | 16  |  |

 Exhibit 3

# AJAX ELECTRONICS

Excerpts from responses to Letters of Credit Inquiry sent out by Mr. Clark

. . . The firm in question appears to have a good market for its products and always appear busy. Their available capital has always been small resulting in slow payments to their suppliers. From time to time we have had to ship orders on a COD basis.

 . . . . .

 They are slow paying but all amounts are eventually paid. They are pleasant people and one of our favorite customers.

 . . . . .

 AJAX owes us a four-figure amount. In the past, payments have all been met in approximately 60 to 90 days. The company appears to be a small, progressive, and expanding concern. We sell to them in the hope that they develop into a big customer.

 . . . . .

. . . Their payments were so slow we now sell them only on C.O.D.

 . . . . .

 We have sold to the company for several years. Our credit line to them is a medium fourfigure amount. Their payments have been continuously six months or more slow and we are now contemplating withdrawing our line of credit and put them on COD.

 Exhibit 4

# AJAX ELECTRONICS

**Some Industry Averages and Benchmarks**

**Sales growth**: Average annual growth rates ranging from 10% to 30% are not untypical for mature technology intensive businesses such as those in which Ajax Electronics participates.

**Accounts Receivables:** The range is probably a low of 40 days to a high of 80 days, however, one of the supposed advantages of using distributors as an intermediate channel is much more rapid payment than would be the case for actual providers of medical services.

**Accounts Payable:** On average, companies in these industries take about 35 days to pay their invoices. This figure ranges from a low of 20 days to a high of about 60 days.

**Inventory Utilization**: In the medical instrument supply sector, the average inventory turnover rate is 4.0.

**Profitability:** Due to severe price competition from overseas manufacturers, the average operating margin in the low-end defibrillator industry is in the 25-35% range. The customized industrial sensor industry enjoys a 40-50% operating margin. Profits after tax for manufacturers’ technology intensive systems should be in the range of 10-20%.