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A Case STUDY OF MESCOMEX CORPORATION

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Preface

The purpose of this report is to illustrate the ways a commercial bank can assist new companies in their establishment and progress. It describes unusual services and activities performed by Bank of America in the interests of the Memorex Corporation and the bank's justifications for them.

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Opportunity Seen in Magnetic Tapes

In 1960 four men decided to join forces and found a new business in the precision tape industry. Today their company, the Memorex Corporation, is a thriving one that manufactures and distributes a variety of precision magnetic tapes used in the recording and storage of information by computers and scientific instruments and the recording of televised data and programs by video tape recorders. The company owns a subsidiary, Disc Pack Corporation, which manufactures magnetic disc file memory systems used in conjunction with large and advanced computers. The discs and the magnetic tapes perform complementary functions and in most instances both are used by the same computer systems.

One subsidiary makes the precision reels on which magnetic tape is wound and another is engaged in developing a line of computer peripheral equipment.

The applications of these magnetic tapes require a high degree of precision. In fact, Memorex's research facilities include an electron microscope capable of increasing the size of a pin head to the equivalent diameter of one mile.

Memorex's sales volume of precision tapes is second only to that of the 3-M Company. Products are sold worldwide through 20 domestic sales offices, 11 foreign sales offices, and several foreign distributors. Customers include companies that operate computers, commercial and closed circuit TV broadcasters, government agencies, and private companies, especially in the space and missile industries.

For the year ended December 31, 1966, the company posted sales of \$24,400,000 compared to \$13,100,000 the year before. Net earnings after all taxes increased to \$2,724,000 from \$1,331,000 the previous year. Administrative offices, sales offices, and research and production facilities occupy a total space of about 200,000 square feet. This does not include a new European facility under construction in Belgium, which upon completion will have an annual capacity of about \$10,000,000 worth of computer tapes.

The following figures from Memorex's most recent annual report indicate how rapidly the company has grown since its inception:

<u>(Dollar amounts in thousands except per share earnings) Years Ended December 31</u>						
	<u>1966</u>	<u>1965</u>	<u>1964</u>	<u>1963</u>	<u>1962</u>	<u>1961</u>
OPERATING DATA						
Net sales	\$24,417	\$13,099	\$8,042	\$3,486	\$ 475	\$ --
Net Income:						
Before Taxes	5,181	2,481	1,962	454	(694)	(314)
After Taxes	2,724	1,331	1,002	218	(694)	(314)
Per Common Share	2.67	1.35	1.04	.23	(.85)	(.42)
Depreciation	828	423	252	141	93	28
Research and Development	1,454	747	452	288	457	308

	<u>1966</u>	<u>1965</u>	<u>1964</u>	<u>1963</u>	<u>1962</u>	<u>1961</u>
FINANCIAL DATA						
Working Capital	8,738	1,977	994	642	331	586
Total Assets	24,156	9,600	5,377	2,089	1,710	1,363
Long-term Debt	12,055	2,352	1,037	--	--	--
Shareholders' Equity	6,673	3,909	2,565	1,594	1,515	1,263
Average Number of Common Shares Outstanding	1,020,745	987,590	964,050	955,650	817,770	750,000
Number of Employees at Year's End	918	442	306	146	78	24

Founders Offer Good Combination of Talents

To what can this success story be attributed? First, let's examine the backgrounds of the company principals. All four had the experience necessary to enable them to meet the challenges of this kind of undertaking, and their talents complemented each other.

Laurance L. Spitters was to be the president and the chief financial officer. When the company was organized, he was 34 years old and had a Masters Degree in business administration from Harvard University and a Law Degree from the University of Michigan. He had spent four years with a major investment banking firm and immediately before the founding of Memorex, he had served as Assistant Treasurer of Ampex Corporation. At Ampex, his duties included conducting two studies -- one of which led to the acquisition of Orr Industries, a manufacturer of precision magnetic tape, and one that resulted in the acquisition of Telemeter Magnetics Inc., makers of memory systems for computers.

The man who would be in charge of research and quality control was Donald F. Eldridge, then 32 years old. He held a Bachelor's Degree in electrical engineering from Lehigh University. From 1949 to 1956 he was employed by Boeing Airplane Company in the recording of information from flight and test instruments. From Boeing, Mr. Eldridge went to Ampex Corporation, where he first worked in the Research Department and later was made manager of the Magnetics Department.

The responsibility for engineering and production was to fall to William L. Noon, who was 35 and had a Bachelor's Degree in chemistry and a Masters Degree in chemical engineering from the California Institute of Technology. For two years he was a process engineer for Technicolor Motion Picture Company, after which he spent seven years as a key chemical engineer with Cutter Laboratories. Before participating in the founding of Memorex, Mr. Noon was the chief application engineer of the Magnetic Tape Division of Ampex Corporation. During this time, he supervised the design and construction of a pilot operation to produce plated, metal-backed magnetic tape.

The man responsible for marketing was to be Arnold T. Challman, then 41. For several years, Mr. Challman had been with Minneapolis Honeywell in various marketing capacities, and for five years he served as a branch sales manager, with 50 employees under his supervision. Later he joined Ampex Corporation and from 1957 to 1960 was responsible for the marketing of Ampex's precision magnetic tape products.

These four men and their combined experience provided the proposed company with the managerial expertise essential to a business concern.

Market Research Encouraging

The group's preliminary investigations into the advisability of the venture revealed a favorable combination of circumstances. First, a large market for the product existed so there was no need to create a market or to educate customers in the usefulness of the product. And the market was growing very rapidly. Second, one company was currently dominating the market, and there were only a few minor participants. Though the competition would be substantial, it would not be overwhelming. Third, because the product's mix requirements were relatively limited, the company could concentrate its technical and financial resources within a relatively narrow range.

After completing the survey of the magnetic tape market, the next step was to raise sufficient capital to begin the enterprise. Funds were required for three purposes:

Investment in capital assets	\$ 561,500
Preproduction expenses incurred in connection with pilot plant operation, marketing and research and development activities prior to production, and legal and general and administrative expenses	\$ 130,000
Working capital required at the beginning of production for sale	<u>\$ 571,000</u>
Total proceeds from financing	\$1,262,500

The amounts shown above were estimates based on a detailed analysis of the various needs. A completely accurate prediction of the amount of capital required was impossible to make at the time. The founders decided to raise the money in the following ways:

Initial Capitalization

	<u>Dollars</u>	<u>Number of Shares</u>
<u>Founders Contribution</u>		
Common Stock	12,500	12,500
Convertible Notes	--	--
<u>Investors Contribution*</u>		
Common Stock	650,000	6,500
Convertible Notes	<u>600,000</u>	<u>6,000</u>
Total	1,262,500	25,000

*One hundred units were sold to investors. Each unit consisted of 65 shares of common stock @ \$100, a total of \$6,500, plus a \$6,000 subordinated note convertible into 60 shares of common stock @ \$100.

Mr. Spitters had gained wide experience in raising venture capital when he was employed by Blyth & Company. He planned to sell the units described above to personal and business acquaintances and venture capital companies that were interested in this type of proposal.

Bank Subsidiary Invests in Company

One of the most active venture capital companies in California was Small Business Enterprises Company, a wholly-owned subsidiary of Bank of America N.T. & S.A. Regulations established by the Federal Reserve Board and other bank regulatory agencies forbid commercial banks to own common stock in companies not directly related to bank operations. But in 1958 a unique law was enacted allowing commercial banks to invest up to two percent of their capital in small business investment companies. The specific function of this kind of investment company is to make venture capital investments in small businesses. Bank of America is one of the few banks that has established a small business investment company, and since its organization in 1958, Small Business Enterprises Company has made over 45 equity investments.

In accordance with its policy, Small Business Enterprises Company made an independent appraisal of the Memorex investment proposal. Despite SBEC's experience, Memorex presented new problems. Unlike other businesses in which SBEC had made investments, Memorex did not have an operating history on which to base an evaluation of various key factors. SBEC officers were essentially limited in their examination to the following:

a. The founders — The most important factor was the management. It was necessary to judge the capabilities, the experience, the confidence, and the determination of the four men who would be directing the company's operations. Although the men were experienced in the precision tape field, they were relatively young and their abilities to successfully accomplish the new company's objectives had not been proven conclusively. The officers of SBEC based their judgments on the opinions of friends and business associates of the four men involved, their work which was submitted to SBEC for analysis, and personal visits with them.

b. The market — Through the Trust Investment Department of Bank of America and various other sources, it was possible to confirm Memorex's estimate of the size and the projected rate of growth of the precision tape market.

c. The founders' proposal — The plan outlined in the proposal was thoroughly analyzed. It could be seen that the founders had taken pains to systematically approach the preparations necessary to a successful undertaking.

The purchase of eight units of Memorex -- a total of \$100,000 -- was recommended by SBEC officers and approved by the Investment Committee. Thirty-two other investors, including individuals, the Allstate Insurance Company, and several private investment companies, joined with SBEC in this investment, and \$1,250,000 was raised.

Construction Work Begins

The founders immediately launched a two-part program. Work was begun on a small-scale pilot production line to be used in developing suitable precision magnetic tape and in testing manufacturing techniques. At the same time, construction of a full-scale production line, including the erection of a 15,000-square-foot building, was started. Completion of this production facility was scheduled for late 1961, and sales were expected to begin by early 1962.

The production of a basic magnetic tape is not difficult. In fact, several text books and technical journals describe the process in detail. However, producing a precision tape appropriate to the exacting requirements of computers and other electronic instruments means extensive refinements in the process of rigid quality control. Memorex faced a problem not so much of developing a new kind of tape, but rather designing and constructing precision manufacturing facilities and processes. Each piece of equipment used in the production or testing of the tape had to be manufactured or greatly modified by Memorex personnel. This proved to be a difficult task, and costly delays in the overall program developed. The plant was not completed until early 1962, and the company couldn't start its selling program until July. Thus, there were no revenues until six months beyond the projected date.

More Capital Needed

By this time, the company's available working capital was down to about \$150,000 compared to the projected requirement of \$571,000. Adequate working capital was essential to the success of Memorex. Its manufacturing process required a relatively heavy investment in fixed assets, and a high level of output had to be maintained if the company were to operate economically. This meant that Memorex would have to finance a large inventory until sales caught up with production volume.

Also Memorex had decided to establish direct sales offices in key cities instead of employing independent distributors even though this was far more costly. The reasons for this decision were: The major competing firms were using direct salesmen; direct salesmen performed better than representatives or distributors; and because the success of its product was based on quality, the company also had to control the quality of the service offered by its salesmen.

Memorex therefore needed to raise additional equity capital. For this purpose, a new six percent subordinated convertible debenture totaling \$608,000 was offered to existing stockholders in September 1962. This issue was the same as the original debenture issue except that the conversion price was reduced from \$100 per share to \$90 per share. Twenty-seven of the 33 original investors exercised their pre-emptive rights to buy these debentures. The debentures that remained were quickly purchased by other interested groups, including J. H. Whitney & Co., a prominent venture capital company.

In connection with the refinancing, Bank of America for the first time extended credit to the company in the form of a \$175,000 interim loan. Since Memorex still did not qualify for short-term commercial bank credit, this did not constitute normal bank procedure. Within a few weeks, the loan was repaid from the proceeds of the new debentures.

By the end of 1962, the company had posted sales totaling \$475,000, resulting in a loss of \$694,000. The sales figure was exactly half the amount originally projected. This is especially interesting in view of the fact that the management had expected sales to begin in January instead of in July.

Company Starts to Grow

By the beginning of 1963, Memorex had established an excellent reputation for the quality and the reliability of its tapes. And the market responded quickly. For the four-month period ended April 30, 1963, sales amounted to \$761,500. A net loss of \$121,400 was recorded, but after deducting non-cash charges, the cash loss was only \$18,300. This growth in sales was automatically accompanied by an expansion of working capital needs. The company approached Bank of America for a \$200,000 commercial line of credit. The funds were to be used to replenish the company's bank account, which was unusually low; to reduce trade accounts payable; to finance an expansion in accounts receivable; and to finance some additions to fixed assets.

As a general rule, the bank does not extend this type of credit to companies that are not earning a profit. In the case of Memorex, however, several circumstances had to be considered:

- a) Borrowings would be limited to an amount equal to 65 percent of accounts receivable plus 40 percent of the cost value of inventory, and not more than \$200,000. The accounts receivable were exceptionally sound; most of Memorex's customers were large, financially responsible companies or government agencies. Also, the inventory was composed of readily marketable precision magnetic tapes.
- b) The monthly selling rate appeared to be rapidly approaching the cash break-even point. Management was maintaining excellent formal controls, and projections of sales and earnings were being revised at least quarterly.
- c) Although at extreme cost to the company, additional equity capital could have been raised if necessary to support the bank credit.

In approving this line of credit, Bank of America established a relationship with Memorex that soon would overshadow that of SBEC. Memorex's application for the line of credit included a newly prepared projection showing that the full \$200,000 would be repaid by October 1963, less than six months after the line was approved. Actually, the expansion of sales was so rapid that the company soon had to revise its plans. Instead of being repaid by the end of 1963, the line of credit had been increased three times to \$680,000.

B of A Becomes Major Source of Funds

The rapid sales growth is illustrated by the fact that the company was frequently to see its sales restricted by limited productive capacity. Contingency plans for increasing facilities were maintained by the company, but the demand for the tapes continually made these plans obsolete.

The first production line was constructed in 1962; the second, in 1964; the third, in early 1966; and the fourth, in late 1966. The capital requirements for these production lines were very large in relation to the overall resources of the company. Furthermore, there were concurrent needs to finance the establishment of new sales offices, research and development, and working capital expansion.

Memorex repeatedly turned to its bank as a source of capital. There were many reasons for this:

- a) Bank of America had become well acquainted with the company, its needs, its potential, and its management.
- b) The company's situation was continually changing. Bank credit could be negotiated quickly, and it offered a higher degree of flexibility than other institutional sources of funds.
- c) Over 12 months were required to construct a production line, and cash outlays had to be made monthly until the project was completed. Obtaining the funds from the public would mean an offering complete with a prospectus revealing the company's operating results and plans at the outset. Competing firms thus would have additional time to respond to Memorex's actions.
- d) The cost of public financing, in terms of interest and dilution of equity, would have been very high in these early stages of Memorex's development.

Memorex applied for bank credit at frequent intervals. A summary of the most important commitments by the bank appears on the following page. Special note should be made of the major increase in credit approved in October 1965 and the upward revision of \$5,000,000 in May 1966.

Officers of Bank of America's National Division faced a much greater challenge than that confronting SBEC when considering the original \$100,000 investment. For instance, SBEC was prepared to write off the full amount at any time after the investment was made. The bank didn't have this latitude. Also, the amount of the bank's commitment -- which finally exceeded \$13,000,000 -- was many times greater than the amount of the investment.

In establishing a rationale for the substantial commitments, the bank employed every conceivable type of credit that could be applied to a manufacturing concern. Several types of security were used and encompassed almost all the tangible assets of the company.

Significant Commitments by Bank of America

<u>Date</u>	<u>Total Commitments</u>	<u>Peak Outstandings</u>	<u>Total Tangible Assets</u>	<u>Commit. As % of Total Assets</u>	<u>Tangible Met Worth*</u>	<u>Commit. As % of Met Worth</u>
5 /63	200,000	50,000	1,044,200	19%	833,000	24%
12/63	680,000	496,000	1,811,600	37%	1,317,400	52%
6 /64	3,750,000	2,360,000	3,188,000	120%	2,194,300	171%
10/65	7,900,000	6,720,000	8,078,000	98%	3,260,000	242%
5 /66	13,000,000	6,720,000	13,356,000	97%	5,136,000	253%

* Includes subordinated debt.

Commitments As of 6/30/66

<u>Type</u>	<u>Commitment</u>
Formula Line	\$ 3,000,000
Accounts Receivable Line	2,000,000
Term Loans	5,250,000
Real Estate Loans	500,000
Equipment Leases	2,250,000
	<hr/>
Total	\$13,000,000

The firm's inventory was financed by the formula line, while the receivables were financed by a separate line. Term loans were used to finance the expansion of plant facilities, marketing facilities, research and development, and the acquisition of a 40 percent interest in Data Disc Corporation. A real estate loan and equipment leases from the bank's newly organized Leasing Department rounded out the financing of production facilities.

Much of the credit, including almost all the term loans, was unsecured. And, to a great extent, the equipment leases could be considered unsecured because the highly specialized nature of the equipment made it virtually valueless to anyone but Memorex. The bank officers knew that the company's main support was its ability to operate at a profit. They, like the SBEC officers involved in the original investment, based their final decision on an evaluation of Memorex's management.

In addition to liberal credit arrangements, Bank of America has provided many other services to the company:

- 1) Foreign and domestic commercial deposit accounts
- 2) Preparation of the payroll and automatic processing of freight payments by computer
- 3) Corporate trust arrangements, including stock transfer and management of the employee profit sharing plan
- 4) Purchase and sale of foreign exchange.

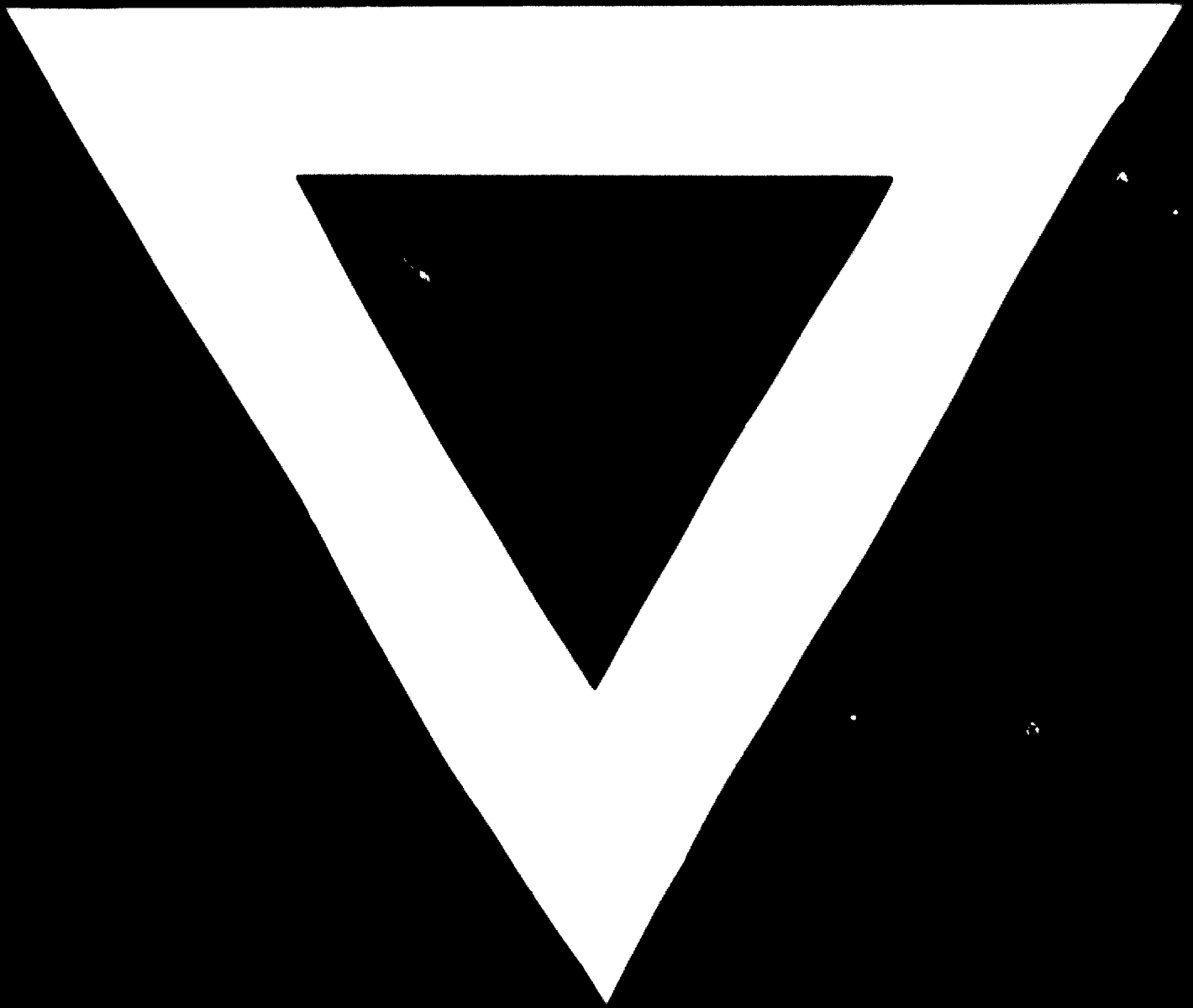
In July 1966 Memorex decided that circumstances favored the offering of a \$12,000,000 five percent convertible subordinated debenture issue to the public. Most of the proceeds were used to reduce bank financing to a more normal level. Because of tax and legal considerations the leases were left intact, but all the bank loans were repaid. The bank immediately made available a \$3,000,000 open line of credit to cover short term requirements.

The remainder of the proceeds were invested in short term securities for future working capital needs and for the construction of the production facility in Belgium.

Future Expansion Predicted

Memorex Corporation will continue to grow at a rapid rate and will require additional funds to finance this growth. The company now has full access to the multitude of sources that comprise the money market in the United States. Although bank financing will be relied upon when appropriate, it probably will not account for such a large portion of the company's needs again. The important role the bank played in Memorex's early development helped establish a firm, profitable relationship with this important company. And the investment made by SBEC has increased in value to about 45 times its original cost.





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