

## **Revolving Line of Credit: Mercury Electronics Corporation Case Study**

**Ronald Richter      Arthur S. Guarino\***

### **Abstract**

This case study focuses on a firm's working capital needs by presenting historical and pro-forma financial statements in order to analyze the amount of the line of credit necessary for short-term financing. Three alternative offers for a revolving line of credit are available for evaluation regarding the firm's credit needs. The alternative offers must be carefully weighed while considering the firm's financial situation using financial statement analysis, forecasting techniques, and calculating the effective annual cost of these offers.

**Keywords:** Revolving line of credit, Historical financial statements, Pro-forma financial statements, Line of credit, Working capital, Financial statement analysis, Cash conversion cycle

### **Introduction**

Edwin McGraw is the Chief Financial Officer of Mercury Electronics Corporation, an electronics component manufacturer that has a diversity of clients from the United States Department of Defense to companies that manufacture retail products. The company has been growing and is profitable, though not always at a steady pace. There have been some good years and not so good years. Cash flow has been volatile. While the company has been profitable over time it has not managed its working capital efficiently as seen in the Cash Conversion Cycle metrics (see Financial Information). The long-term goal of the company is not only to grow and increase market share as well as revenues, but also have steady profits and cash flow. Financially, the company has large balances in cash and cash equivalents and Short-Term Investments for future merger and acquisition activity. However, they have not utilized the cash and short-term investments in recent years but still wish to maintain this access to cash for the next 3 to 5 years. The company's short-term debt is used to finance the non-permanent levels of working capital and the line of credit supporting this is coming due. Mercury Electronics is looking to renegotiate the line of credit and must determine how much is needed in regards to managing its working capital and which proposal is cost effective.

### **Company Background**

Mercury Electronics Corporation is an electronics component manufacturing company located in central California and was founded in 1951 by two electrical engineers, Ralph Valente and Stephen Warren. Each were employed as electrical engineers and had worked at the same company for twenty years where they met. Ralph did his undergraduate and graduate work at MIT while Stephen obtained his bachelor's degree at Cal Tech and obtained his master's degree at MIT. They both loved solving problems and working on gadgets that most other people thought too difficult or too trivial. But working together on several projects during World War II lead them to jointly hold patents on five different inventions. They were able to work in a shop they built on Stephen's property and decided they wanted to start their own company manufacturing electrical parts for planes for the Air Force. The aerospace industry in California was starting to grow and with the emphasis on defense brought on by the Cold War, they felt that starting and growing a business with the Federal government as a client was a good idea.

It was difficult to start the business with the limited financial capital they had. They mortgaged both their homes and their respective spouses went back to work in order to bring

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in extra money for their households. Ralph and Steve were able to land their first contract for an electronic component that was used in the cockpits of Air Force bombers. The component was cheaper and faster than the competition's and they completed the order on time and under budget. That first order was extremely difficult to complete and they realized a loss from the contract. But they landed other contracts and built their reputation for innovative ideas and products that their competitors envied. Ralph and Steve purchased an abandoned factory in Central California not far from San Francisco and hired workers who had experience in plane assembly plants during the war. Ralph and Steve worked seven days a week and often slept on cots in their plant office.

Ralph and Steve felt that to grow their business they would have to do two things: diversify their product line and expand their research and development department. They could diversify their product line by also making electronic components for consumer products since the California and national economy were growing in the 1950's. But they also felt that research and development was vital in finding better, faster, and cheaper electronic components that would keep their company ahead of the competition, now and in the future. They could get engineers and scientists fresh out of school from nearby universities such as Cal Tech, Stanford, or for those who were willing to relocate, MIT. Ralph and Steve also hired engineering and science professors from nearby universities who wanted to make some extra money doing consulting and research work for them.

Ralph and Steve felt their profits would be small in the beginning and any money they made would need to be put back into the company. While they were always looking for new customers, they also looked for investors who could bring in financial capital so they could expand and grow the business. They happened to meet an individual who represented an East Coast family that was always looking for new industries and investment opportunities anywhere in the United States. This family was among the wealthiest in the United States and was willing to take risks. If there were any losses, they would chalk it up to experience. Ralph and Steve met with the family representative and made a successful presentation about their company and their long-term plans. Ralph and Steve had originally asked for \$5 million in investment money, which they regarded as an extremely bold and aggressive move. They were shocked when they were offered \$10 million by the representative. While the extra funds were beyond their wildest dreams, they had to revamp their plans and make their operations bigger than anticipated.

Over the years, the firm grew and it eventually went public. Ralph and Steve handed over management of the business to hand-picked successors who were able to guide it through good and bad times and help it grow. The stock's price grew and Ralph and Steve served on the Board of Directors until they died. The company has grown and is regarded as being innovative and with eyes on the long term by its management team.

### **Current Situation**

Edwin McGraw, the Chief Financial Officer (CFO) of Mercury Electronics Corporation, has been with the company over 25 years, and is the first and only company he has worked for. He started with the company straight out of college and worked up the ranks to CFO. He even earned his MBA in accounting, as well as his law degree, at night and weekends while working full-time. He has encountered many problems and has been successful in tackling each one that has, in the long, run helped the company. He has now encountered three problems that could have serious consequences for the firm.

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The first dealt with the company's working capital. For many years now, Mercury Electronics has been profitable, despite the state of the economy and the industry. But a situation that has been recurring for the past five years is that Mercury Electronics has not managed its working capital efficiently. For the past five years, the situation has gotten progressively worse.

The three key areas of the company's cash conversion cycle – days sales outstanding, days inventory outstanding, and days payable outstanding – have only managed to increase rather than decrease or even stay within industry standards. For example, the days sales outstanding has gone from 69.7 days in 2011 to 82.7 days in 2013 to 128.2 days in 2015. For the days' inventory outstanding it has gone from 189.8 days in 2011 to 167.9 days in 2013 to 234 days in 2015. Overall, the total conversion cycle, in days, has shown steady increase from 178.6 days in 2011 to 194.6 days in 2013 to 274.2 days in 2015. Edwin knows this will ultimately hurt the company's cash flow and any opportunity it may have to acquire short-term and possibly long-term debt. Sales have been growing for the company, but there must be better management of working capital. The dilemma deeply bothering Edwin was that the company must do a better job of handling its receivables, but how?

Another problem is that Mercury Electronics has large balances in its cash and cash equivalents accounts. Edwin felt there must be better management of its cash position since cash and cash equivalents will give the firm its lowest return on investment (ROI). The company also has large balances in its short-term investments account to be used for future merger and acquisition activity. But like the cash and cash equivalents account, this is also getting a low ROI. The company must either become more engaged in merger and acquisition situations or lower the amount in its short-term investments account. The company's management team has decided, however, to maintain this access to cash for the next 3-to-5 years.

A third problem deals with the company's short-term debt situation. While the short-term debt has been on the downside in recent years, it is used to finance the non-permanent levels of working capital and the problem is that the line of credit supporting this is coming due soon. Mercury Electronics is looking to renegotiate the line of credit and Edwin must determine how much of a line is needed to manage the company's working capital. Edwin knows that the company will need to acquire credit from a bank but the big question is how much of a line of credit will be needed and then trying to get the best deal, pricewise, for the company. Edwin wants to have the company get the credit line it really needs, but not pay an astronomical amount for it. Ideally, the company should be able to get a high amount of short-term debt at low cost. This could mean either negotiating with individual banks or having different banks put bids together and then Mercury Electronics could pick and choose. Edwin could have the banks examine the company's financial statements as provided in the attached material.

*Bank Proposals:*

**REVOLVING LINE OF CREDIT LINE  
MEMORANDUM OF TERMS AND CONDITIONS**

**BORROWER:**

Mercury Electronics Corporation

**LENDER:**

Bank A (“lending bank”)

**CREDIT FACILITIES:**

\$40,000,000 Revolving Credit Facility. Advances under the revolving credit will be limited to a Borrowing Base, to consist of 85% of eligible accounts receivable and 65% of eligible inventory.

**PURPOSE:**

Provide for general corporate and ongoing working capital purposes.

**AMORTIZATION:**

Available for borrowing, re-paying and re-borrowing until maturity, subject to the Borrowing Base.

**MATURITY:**

Five years from closing.

**INTEREST RATE:**

Annual interest rate of 2.50%

**COLLATERAL:**

The Credit Facilities with the lending bank will be secured by as first priority perfected security interests in the following collateral: all the Borrower’s personal assets, present and future and wherever located, including without limitation, accounts, securities entitlements, deposit accounts, instruments, documents, chattel paper, inventory, goods, machinery, equipment, furniture, fixtures, commercial tort claims, letter of credit rights, general intangibles, payment intangibles, software, licenses, trademarks, tradenames, patents, copyrights and other assets and supporting obligations.

**COMMITMENT/CLOSING FEE:**

.25 percent (.25%) per annum on the unused portion of the Revolving Credit Facility (facility 1). This fee shall be calculated on the basis of a 365-day year for the actual number of days elapsed and will be payable quarterly in arrears.

**COMPENSATING BALANCES:**

None

**CLEAN-UP PERIOD:**

30 consecutive days each calendar year

**COVENANTS:**

*The Borrower will maintain at all times a ratio of current assets to current liabilities of at least 2.1 to 1.00.*

*The Borrower will maintain at all times a ratio of Funded Debt to EBITDA of less than 3.3 to 1.00.*

*The Borrower will maintain as of the end of each fiscal year a Times Interest Earned Ratio of at least 5 to 1.00.*

**REVOLVING LINE OF CREDIT LINE  
MEMORANDUM OF TERMS AND CONDITIONS**

**BORROWER:**

Mercury Electronics Corporation

**LENDER:**

Bank B (“lending bank”)

**CREDIT FACILITIES:**

\$35,000,000 Revolving Credit Facility. Advances under the revolving credit will be limited to a Borrowing Base, to consist of 85% of eligible accounts receivable and 65% of eligible inventory.

**PURPOSE:**

Provide for general corporate and ongoing working capital purposes.

**AMORTIZATION:**

Available for borrowing, re-paying and re-borrowing until maturity, subject to the Borrowing Base.

**MATURITY:**

Three years from closing.

**INTEREST RATE:**

Annual interest rate of 2.25%

**COLLATERAL:**

The Credit Facilities with the lending bank will be secured by as first priority perfected security interests in the following collateral: all the Borrower’s personal assets, present and future and wherever located, including without limitation, accounts, securities entitlements, deposit accounts, instruments, documents, chattel paper, inventory, goods, machinery, equipment, furniture, fixtures, commercial tort claims, letter of credit rights, general intangibles, payment intangibles, software, licenses, trademarks, tradenames, patents, copyrights and other assets and supporting obligations.

**COMMITMENT/CLOSING FEE:**

.35 percent (.35%) per annum on the unused portion of the Revolving Credit Facility (facility 1). This fee shall be calculated on the basis of a 365-day year for the actual number of days elapsed and will be payable quarterly in arrears.

**COMPENSATING BALANCES:**

5% compensating balance

**CLEAN-UP PERIOD:**

60 consecutive days each calendar year

**COVENANTS:**

*The Borrower will maintain at all times a ratio of current assets to current liabilities of at least 2.3 to 1.00.*

*The Borrower will maintain at all times a ratio of Funded Debt to EBITDA of less than 3.5 to 1.00.*

*The Borrower will maintain as of the end of each fiscal year a Times Interest Earned Ratio of at least 5.5 to 1.00.*

**REVOLVING LINE OF CREDIT LINE  
MEMORANDUM OF TERMS AND CONDITIONS**

**BORROWER:**

Mercury Electronics Corporation

**LENDER:**

Bank C (“lending bank”)

**CREDIT FACILITIES:**

\$40,000,000 Revolving Credit Facility. Advances under the revolving credit will be limited to a Borrowing Base, to consist of 85% of eligible accounts receivable and 65% of eligible inventory.

**PURPOSE:**

Provide for general corporate and ongoing working capital purposes.

**AMORTIZATION:**

Available for borrowing, re-paying and re-borrowing until maturity, subject to the Borrowing Base.

**MATURITY:**

Five years from closing.

**INTEREST RATE:**

Annual interest rate of 2.35%

**COLLATERAL:**

The Credit Facilities with the lending bank will be secured by as first priority perfected security interests in the following collateral: all the Borrower’s personal assets, present and future and wherever located, including without limitation, accounts, securities entitlements, deposit accounts, instruments, documents, chattel paper, inventory, goods, machinery, equipment, furniture, fixtures, commercial tort claims, letter of credit rights, general intangibles, payment intangibles, software, licenses, trademarks, tradenames, patents, copyrights and other assets and supporting obligations.

**COMMITMENT/CLOSING FEE:**

.30 percent (.30%) per annum on the unused portion of the Revolving Credit Facility (facility 1). This fee shall be calculated on the basis of a 365-day year for the actual number of days elapsed and will be payable quarterly in arrears.

**COMPENSATING BALANCES:**

None

**CLEAN-UP PERIOD:**

60 consecutive days each calendar year

**COVENANTS:**

*The Borrower will maintain at all times a ratio of current assets to current liabilities of at least 2.0 to 1.00.*

*The Borrower will maintain at all times a ratio of Funded Debt to EBITDA of less than 3.1 to 1.00.*

*The Borrower will maintain as of the end of each fiscal year a Times Interest Earned Ratio of at least 5.2 to 1.00.*

Financial Information

Line of Credit Case Study

Electronics Component Manufacturer Financials

Income Statement (all numbers in thousands)

	2011	2012	2013	2014	2015
Revenues	\$1,254,000	\$1,342,000	\$1,440,000	\$1,350,000	\$1,050,000
Cost of goods sold	\$920,000	\$1,045,000	\$1,165,000	\$1,020,000	\$904,000
Gross Profit	\$334,000	\$297,000	\$275,000	\$330,000	\$301,000
<i>as a percent of Sales</i>	27%	24%	22%	26%	24%
Operating Expenses	\$159,685	\$162,000	\$164,800	\$159,978	\$165,454
Operating Income (EBIT)	\$174,315	\$135,000	\$110,200	\$170,022	\$135,546
<i>as a percent of Sales</i>	14%	11%	9%	14%	11%
Interest Expenses	\$1,745	\$1,750	\$2,250	\$965	\$525
Profit Before Taxes (EBT)	\$172,570	\$133,250	\$107,950	\$169,057	\$135,021
<i>as a percent of Sales</i>	14%	11%	9%	13%	11%
Taxes	\$58,674	\$45,305	\$36,703	\$57,479	\$45,907
Net Income	\$113,896	\$87,945	\$71,247	\$111,578	\$89,114
<i>as a percent of Sales</i>	9%	7%	6%	9%	7%

Balance Sheet (all numbers in thousands)

	2010	2011	2012	2013	2014	2015
<b>Assets</b>						
Cash and Cash Equivalents	\$450,286	\$452,875	\$448,745	\$452,875	\$380,567	\$449,582
Short-term Investments	\$437,855	\$437,965	\$400,235	\$437,965	\$463,741	\$497,562
Net Receivables	\$2,8456	\$240,733	\$325,714	\$327,071	\$457,568	\$389,034
Inventory	\$437,158	\$519,638	\$521,452	\$550,638	\$633,166	\$526,000
Other Current Assets	\$32,520	\$32,520	\$32,478	\$32,520	\$31,856	\$34,205
<b>Total Current Assets</b>	<b>\$1,596,275</b>	<b>\$1,683,731</b>	<b>\$1,728,624</b>	<b>\$1,801,069</b>	<b>\$1,966,898</b>	<b>\$1,896,383</b>
Net Property, Plant & Equipment	\$348,000	\$348,000	\$352,124	\$348,000	\$284,326	\$356,000
Long Term Investments	\$78,956	\$78,456	\$80,452	\$86,523	\$152,496	\$102,000
Goodwill	\$215,000	\$215,000	\$215,000	\$215,000	\$215,000	\$215,000
Intangible Assets	\$58,698	\$58,745	\$57,854	\$57,412	\$63,289	\$68,745
<b>Total Long Term Assets</b>	<b>\$700,654</b>	<b>\$700,201</b>	<b>\$705,430</b>	<b>\$706,935</b>	<b>\$715,111</b>	<b>\$741,745</b>

<b>Total Assets</b>	<b><u>\$2,296,929</u></b>	<b><u>\$2,383,932</u></b>	<b><u>\$2,434,054</u></b>	<b><u>\$2,508,004</u></b>	<b><u>\$2,682,009</u></b>	<b><u>\$2,638,128</u></b>
<b>Liabilities</b>						
Accounts Payable	\$212,453	\$195,684	\$174,526	\$183,542	\$270,654	\$165,485
<b>Short-Term Debt</b>	<b><u>\$32,036</u></b>	<b><u>\$30,568</u></b>	<b><u>\$34,253</u></b>	<b><u>\$36,478</u></b>	<b><u>\$28,456</u></b>	<b><u>\$23,545</u></b>
Other current Liabilities	<u>\$4,875</u>	<u>\$4,526</u>	<u>\$5,423</u>	<u>\$6,253</u>	<u>\$5,324</u>	<u>\$2,486</u>
<b>Total Current Liabilities</b>	<b><u>\$249,364</u></b>	<b><u>\$230,778</u></b>	<b><u>\$214,202</u></b>	<b><u>\$226,273</u></b>	<b><u>\$304,434</u></b>	<b><u>\$191,516</u></b>
Long term Debt	\$55,236	\$58,456	\$57,854	\$58,624	\$54,268	\$54,879
Other Long term Liabilities	<u>\$26,587</u>	<u>\$27,854</u>	<u>\$28,965</u>	<u>\$31,258</u>	<u>\$29,875</u>	<u>\$24,532</u>
<b>Total Long term Liabilities</b>	<b><u>\$81,823</u></b>	<b><u>\$86,310</u></b>	<b><u>\$86,819</u></b>	<b><u>\$89,882</u></b>	<b><u>\$84,143</u></b>	<b><u>\$79,411</u></b>
<b>Total Liabilities</b>	<b><u>\$331,187</u></b>	<b><u>\$317,088</u></b>	<b><u>\$301,021</u></b>	<b><u>\$316,155</u></b>	<b><u>\$388,577</u></b>	<b><u>\$270,927</u></b>
<b>Stockholders' Equity</b>						
Common Stock at Par Value	\$2,354	\$2,354	\$2,354	\$2,354	\$2,354	\$2,354
Paid-in Capital	\$,65,874	\$365,214	\$364,859	\$365,623	\$365,897	\$365,879
Retained Earnings	\$1,723,000	\$1,819,812	\$1894,565	\$1955,125	\$2,049,966	\$2,125,713
Treasury Stock	<u>(\$125,486)</u>	<u>(\$120,536)</u>	<u>(\$128,745)</u>	<u>(\$131,253)</u>	<u>(\$124,785)</u>	<u>(\$126,745)</u>
<b>Total Stockholders' Equity</b>	<b><u>\$1,965,742</u></b>	<b><u>\$2,066,844</u></b>	<b><u>\$2,133,033</u></b>	<b><u>\$2,191,849</u></b>	<b><u>\$2,293,432</u></b>	<b><u>\$2,367,201</u></b>
<b>Total Liabilities and Stockholders' Equity</b>	<b><u>\$2,296,929</u></b>	<b><u>\$2,383,932</u></b>	<b><u>\$2,434,054</u></b>	<b><u>\$2,508,004</u></b>	<b><u>\$2,682,009</u></b>	<b><u>\$2,638,128</u></b>

**Statement of Cash flow (all numbers in thousands)**

	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
<b>Operating Activities</b>					
Net Income	\$113,896	\$87,945	\$71,247	\$111,578	\$89,114
Depreciation	\$1,411	\$2,586	\$9,586	\$1,638	\$1,423
Changes in Accounts Receivables	<u>(\$2,277)</u>	<u>(\$84,981)</u>	<u>(\$1,357)</u>	<u>(\$130,497)</u>	<u>\$68,534</u>
Changes in Inventories	<u>(\$82,480)</u>	<u>(\$1,814)</u>	<u>(\$29,186)</u>	<u>(\$82,528)</u>	<u>\$107,166</u>
Changes in Accounts Payables	<u>(\$16,769)</u>	<u>(\$21,158)</u>	<u>\$9,016</u>	<u>\$87,112</u>	<u>(\$105,169)</u>
<b>Total Cash Flow from Operating Activities</b>	<b><u>\$13,781</u></b>	<b><u>(\$17,422)</u></b>	<b><u>\$59,306</u></b>	<b><u>(\$12,697)</u></b>	<b><u>\$161,068</u></b>
<b>Investing Activities</b>					
Capital Expenditures	<u>(\$1,200)</u>	<u>(\$4,124)</u>	<u>(\$1,175)</u>	<u>\$54,785</u>	<u>(\$89,101)</u>
Investments	<u>\$390</u>	<u>\$35,734</u>	<u>(\$43,801)</u>	<u>(\$91,749)</u>	<u>\$16,675</u>
<b>Total Cash Flows from Investing Activities</b>	<b><u>(\$810)</u></b>	<b><u>\$31,610</u></b>	<b><u>(\$44,976)</u></b>	<b><u>(\$36,964)</u></b>	<b><u>(\$72,426)</u></b>
<b>Financing Activities</b>					

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Dividends Paid	(\$17,084)	(\$13,192)	(\$10,687)	(\$16,737)	(\$13,367)
Purchase of Treasury Stock	\$4,950	(\$8,209)	(\$2,508)	\$6,468	(\$1,960)
Borrowings	<u>\$1,752</u>	<u>\$3,083</u>	<u>\$2,995</u>	<u>(\$12,378)</u>	<u>(\$4,300)</u>
<b>Total Cash Flows from Financing Activities</b>	<b>(\$10,382)</b>	<b>(\$18,318)</b>	<b>(\$10,200)</b>	<b>(\$22,647)</b>	<b>(\$19,627)</b>
<b>Change in Cash and Cash Equivalents</b>	<b><u>\$2,589</u></b>	<b><u>(\$4,130)</u></b>	<b><u>\$4,130</u></b>	<b><u>(\$72,308)</u></b>	<b><u>\$69,015</u></b>

**Financial Statement Analysis (Working Capital Metrics)**

	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
<b>Working Capital Ratio</b>	<b>10.3</b>	<b>11.4</b>	<b>11.1</b>	<b>8.8</b>	<b>13.8</b>
<b>Cash Conversion Cycle</b>					
Days Sales Outstanding	69.7	77.0	82.7	106.1	128.2
Days Inventory Outstanding	189.8	181.8	167.9	211.8	234.0
Days Payables Outstanding	<u>(81.0)</u>	<u>(64.7)</u>	<u>(56.1)</u>	<u>(81.3)</u>	<u>(88.0)</u>
<b>Total Conversion Cycle in Days</b>	<b><u>178.6</u></b>	<b><u>194.2</u></b>	<b><u>194.6</u></b>	<b><u>236.6</u></b>	<b><u>274.2</u></b>

**Assignment**

*Mercury Electronics Corporation*

**To:** Student - Treasurer

**From:** **Edwin McGraw** – CFO

**Date:** January 15, 2016

**Re:** Revolving Line of Credit Recommendation

Our current revolving line of credit, which is a committed facility of \$40,000,000 is coming due. We are currently using \$23,000,000 of the total committed amount. We have obtained three proposals from different banks for a new line of credit. Please recommend which line of credit proposal we should contract with by taking into consideration the following questions:

- What level of committed line of credit do we need, and consider how we have been managing working capital in the past and potential growth in revenues that translates into working capital investment? You need to address the considerations in managing the cash conversion cycle better.
- Should we keep existing cash on the balance sheet for future mergers and acquisitions or should we consider using some of these funds for supporting our short-term line of credit needs?
- How do each of the bank proposals support our working capital needs in relation to the amount of the committed line of credit and the effective annual cost of each line and terms for each proposal?

Please submit your analysis used to support your answers to these questions and provide which bank proposal you ultimately recommend in one week. You must present 5-year pro-forma statements as support for your recommendation.

Thank you,  
Edwin McGraw  
Chief Financial Officer

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