Mid-Atlantic Container Corporation:
Some Financial Concerns

On August 25, 2014, her first day as chief executive officer (CEO) of Mid-Atlantic Container Corp. (Mid-Atlantic), Sarah Conner confronted a host of management problems at the company. One week earlier, Mid-Atlantic's president and CEO had been killed in a tragic accident. Soon thereafter, Sarah was appointed to fill the position – starting immediately. Several issues in her in-box that first day were financial in nature, either requiring a financial decision, or with outcomes that would have major financial implications for the firm. That evening, Conner asked to meet with her assistant, Louis Tang, to begin addressing the most prominent issues.

MID-ATLANTIC CONTAINER CORPORATION AND THE CARDBOARD BOX AND CONTAINER MANUFACTURING INDUSTRY

The Mid-Atlantic Container Corporation had been founded as a joint venture between Carolina Pulp & Paper and a venture-capital firm, Bendini, Lambert and Locke (BLL). Mid-Atlantic's sole business mission was to manufacture boxes from cardboard packaging known as corrugated Fiberboard. Mid-Atlantic served as a supplier of cardboard boxes to other manufacturing firms in the Eastern US. And was known for producing some of the best cardboard packaging material in the industry.

Given its ubiquity in packaging, revenue for the global cardboard box and container manufacturing industry is highly correlated with global demand from manufacturing and retail sectors. The industry is highly fragmented with an estimated 15,700 companies operating in the industry (globally) and only 4 companies controlling more than 1.0% of the market. The majority of companies operate locally or regionally, providing cardboard boxes to companies within a relatively short distance from their facilities. Barriers to entry are relatively low; a new, small plant would cost between $8 million and $10 million. Easy entry had led to price competition in recent years among cardboard box manufacturers. One analyst said,

> *The gross margins on cardboard boxes have eroded tremendously over the past five years. I don't see there's any more maneuvering left on the price.*

Despite deteriorating demand in the overall US market for cardboard packaging material, Mid-Atlantic's growth prospects looked bright. At the regional level, demand was strong and Mid-Atlantic's focus on customer service and quality products had resulted in a strong and expanding customer base.

FINANCIAL QUESTIONS FACING SARAH CONNER

That evening, Conner met with Louis Tang, a promising new associate whom she had brought along from BLL. Sarah's brief discussion with Louis went as follows:

Sarah:

Back at BLL we looked at Mid-Atlantic as one of our most promising venture-capital investments. Now it seems that such optimism may not be warranted – at least until we get a solid understanding of the firm's past performance and its forecasted performance. Did you have any success on this?

Louis:

Yes, the bookkeeper gave me these: the historical income statements [Exhibit 1] and balance sheets [Exhibit 2] for the last four years. The accounting system here is still pretty primitive. However, I checked a number of the accounts, and they look orderly. So I suspect that we can work with these figures. From these statements, I calculated a set of diagnostic ratios [Exhibit 3].

Sarah:

I see you have been busy. Unfortunately, I can't study these right now. I need you to review the historical performance of Mid-Atlantic for me, and to give me any positive or negative insights that you think are significant.

Louis:

When do you need this?

Sarah:

At 7:00 A.M. tomorrow. I want to call our banker tomorrow morning and get an extension on Mid-Atlantic's loan.

Louis:

The banker, Mr. Farmington, said that Mid-Atlantic was "growing beyond its financial capabilities." What does that mean?

Sarah:

It probably means that he doesn't think we can repay the loan within a reasonable period. I would like you to build a simple financial forecast of our performance for the next two years (ignore seasonal effects) and show me what our debt requirements will be at the fiscal years ended 2015 and 2016. I think it is reasonable to expect that Mid-Atlantic's sales will grow at 15 percent each year. Also, you should assume capital expenditures of $8.4 million for plant renovations spread out evenly over the next two years and depreciated over five years on a straight-line basis. Use whatever assumptions seem appropriate to you based on your historical analysis of results. For this forecast, you should assume that any external funding is in the form of debt.

Louis:

But what if the forecasts show that Mid-Atlantic cannot repay the loan?

Sarah:

Then we'll have to go back to Mid-Atlantic's owners, BLL and Carolina Pulp & Paper[1] for an injection of equity. Of course, BLL would rather not invest more funds unless we can show that the returns on such an investment would be very attractive, and/or that the survival of the company depends on it. Thus, my third request is for you to examine what returns on book assets and book equity Mid-Atlantic will offer in the next two years and to identify the "key driver" assumptions of those returns. Finally, let me have your recommendation about operating and financial changes I should make based on the historical analysis and the forecasts.

Louis:

The plant manager revised his request for a new packaging machine and thinks these are the right numbers [see the plant manager's memorandum in Exhibit 4]. Essentially, the issue is whether to invest now or wait three years to buy the new packaging equipment. The new equipment can save significantly on labor cost but carries a price tag of $1 million. My hunch is that our preference between investing now versus waiting three years will hinge on the discount rate.

Sarah:

[laughing] The joke in business school was that the discount rate was always 10 percent.

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[1] Benedini, Lambert and Locke owned a 60 percent interest in the equity of Mid-Atlantic and Carolina Pulp & Paper owned the remaining 40 percent interest.

Louis:

That's not what my business school taught me! BLL always uses a 40 percent discount rate to value equity investments in risky start-up companies. But Mid-Atlantic is reasonably well-established now and shouldn't require such a high-risk premium. I managed to pull together some data [see Exhibit 5] on comparable companies with which to estimate the required rate of return on equity.

Sarah:

Fine. Please estimate Mid-Atlantic's weighted average cost of capital and assess the packaging machine investment. I would like the results of your analysis tomorrow morning at 7:00 A.M.

EXHIBIT 1 Historical Income Statements (fiscal year ended June 30; all figures in thousands of dollars)

		2011 (Actual)	2012 (Actual)	2013 (Actual)	2014 (Actual)
1	Sales	$26,202	$28,822	$34,010	$39,792
	Operating Expenses:				
2	Production costs and expenses	11,950	13,380	17,847	22,335
3	Administrative and selling expenses	5,734	5,967	7,020	7,970
4	Depreciation	2,376	2,367	2,667	2,667
5	Total operating expenses	(20,060)	(21,714)	(27,534)	(32,972)
6	Operating income	6,142	7,109	6,476	6,820
7	Interest expense	(2,427)	(2,535)	(3,265)	(3,222)
8	Earnings before taxes	3,715	4,574	3,212	3,598
9	Income taxes	(1,647)	(1,845)	(1,269)	(1,403)
10	Net earnings	2,068	2,729	1,943	2,195
11	Dividends to all common shares	1,000	1,000	1,000	1,000
12	Retention of earnings	$1,068	$1,729	$943	$1,195

EXHIBIT 2 Historical Balance Sheets (fiscal year ended June 30; all figures in thousands of dollars)

		2011 (Actual)	2012 (Actual)	2013 (Actual)	2014 (Actual)
	Assets				
1	Cash	$1,764	$2,040	$2,905	$1,540
2	Accounts receivable	8,113	9,125	10,311	13,316
3	Inventories	15,861	17,147	25,643	34,717
4	Total current assets	25,738	28,312	38,859	49,573
5	Gross property plant & equipt.	23,667	26,667	26,667	26,667
6	Accumulated depreciation	(2,505)	(4,872)	(7,538)	(10,205)
7	Net property plant &equipt.	21,162	21,795	19,129	16,462
8	Total assets	46,900	50,107	57,988	66,035
	Liabilities and stockholders' equity:				
9	Short term borrowings (bank)*	12,060	13,042	19,680	25,802
10	Accounts payable	4,511	4,607	4,705	5,328
11	Other current liabilities	9,014	9,414	9,616	9,723
12	Total current liabilities	25,585	27,063	34,001	40,853
13	Long term debt**	10,000	10,000	10,000	10,000
14	Shareholders' equity	11,315	13,044	13,987	15,182
15	Total liabs. & stkhldrs' eq.	$46,900	$50,107	$57,988	$66,035

* Short-term bank debt ws borrowed from Yurbank at an interest rate equal to LIBOR +4 percent. LIBOR (London Interbank Offered Rate) was a common benchmark for expressing the floating rate of interest on bank loans.

** The company's long-term debt of $10 million had been issued privately in 2010 to Bendini, Lambert and Locke and to Carolina Pulp & Paper. This debt was subordinate to any bank debt outstanding.

EXHIBIT 3 Ratio Analysis of Historical Financial Statements (fiscal year ended June 30)

	2011 (Actual)	2012 (Actual)	2013 (Actual)	2014 (Actual)
Profitability				
1 Operating Profit Margin	23.4%	24.7%	19.0%	17.1%
2 Average Tax Rate	44.3%	40.3%	39.5%	39.0%
3 Return on Sales	7.9%	9.5%	5.7%	5.5%
4 Return on Equity	18.3%	20.9%	13.9%	14.5%
5 Return on Assets	4.4%	5.4%	3.4%	3.3%
Leverage				
6 Debt/Equity Ratio	1.95	1.77	2.12	2.36
7 Debt/Total Assets	0.47	0.46	0.51	0.54
8 EBIT/Interest (x)	2.53	2.80	1.98	2.12
Asset Utilization				
9 Sales/Assets	55.9%	57.5%	58.7%	60.3%
10 Sales Growth Rate	4.0%	10.0%	18.0%	17.0%
11 Assets Growth Rate	6.0%	6.8%	15.7%	13.9%
12 Days in Receivables	113.0	115.6	110.7	122.1
13 Payables to COGS	37.7%	34.4%	26.4%	23.9%
14 Inventories to COGS	132.7%	128.2%	143.7%	155.4%
Liquidity				
15 Current Ratio	1.01	1.05	1.14	1.21
16 Quick Ratio	0.39	0.41	0.39	0.36

EXHIBIT 4 O'Rourke's Memo Re: New Packaging Equipment

MEMORANDUM

TO:	Sarah Conner, President and CEO, Mid-Atlantic Container Corporation
FROM:	Harvey O'Rourke, Plant Manager
DATE:	August 20, 2014
SUBJECT:	New Packaging Equipment

Although our box packaging equipment is adequate at current production levels, it is terribly inefficient. The new machinery on the market can give us significant labor savings as well as increased flexibility with respect to the type of packaging used. I recommend that we go with the new technology. The considerations relevant to the decision are included in this memo.

Our current packaging equipment was purchased five years ago as used equipment in a liquidation sale of a small company. Although the equipment was inexpensive, it is slow, requires constant monitoring, and is frequently shut down for repairs. Since the packaging equipment is significantly slower than the production equipment, we routinely have to use overtime labor to allow packaging to catch up with production. When the packager is down for repairs, the problem is exacerbated and we may spend several two-shift days catching up with production. I cannot say that we have missed any deadlines because of packaging problems, but it is a constant concern around here and things would run a lot smoother with more reliable equipment. In 2015 we will pay about $5,000 per year for maintenance costs. The operator is paid $30,000 per year for his regular time, but he has been averaging $40,000 per year because of the overtime he has been working. The equipment is on the tax and reporting books at $120,000 and will be fully depreciated in three years' time (we are currently using the straight-line depreciation method for both tax and reporting purposes and will continue to do so). Because of changes in packaging technology, the equipment has no market value other than its worth as scrap metal. But its scrap value is about equal to the cost of having it removed. In short, we believe the equipment has no salvage value at all.

The packager offers many advantages over the current equipment. It is faster, more reliable, more flexible with respect to the types of packaging it can perform, and will provide enough capacity to cover all our packaging needs in the foreseeable future. With suitable maintenance, we believe the packager will operate indefinitely. Thus, for the purposes of our analysis, we can assume that this will be the last packaging equipment we will ever have to purchase. Because of the anticipated growth at Mid-Atlantic, the current equipment will not be able to handle our packaging needs by the end of 2017. Thus, if we do not buy new packaging equipment by this year's end, we will have to buy it after three years' time anyway. Since the speed, capacity, and reliability of the new equipment will eliminate the need for overtime labor, we feel strongly that we should buy now rather than wait another three years.

The new equipment currently costs $1 million, which we would depreciate over 10 years at $100,000 per year. It comes with a lifetime factory maintenance contract that covers all routine maintenance and repairs at a price of $2,000 for the initial year. The contract stipulates that the price after the first year will be increased by the same percentage as the rate of increase of the price of new equipment. Thus, if the manufacturer continues to increase the price of new packaging equipment at 5 percent per annum as it has in the past, our maintenance costs will rise by 5 percent also. We believe that this sort of regular maintenance should ensure that the new equipment will keep operating in the foreseeable future without the need for a major overhaul.

Mid-Atlantic's labor and maintenance costs will continue to rise due to inflation at approximately 2 percent per year over the long term. Because the manufacturer of the packaging equipment has been increasing its prices at about 5 percent per year, we can expect to save $157,625 in the purchase price by buying now rather than waiting three years. The marginal tax rate for this investment would be 40 percent.

EXHIBIT 5 Data on Comparable Companies and Capital-Market Conditions

Name	% of Sales Cardboard Box Production	Price/Earnings Ratio	Value Line Beta	Book D/E	Book Value per Share	Market Price per Share	Number of Shares Outstanding (millions)	Last Annual Dividend	Value Line 5-Year Earnings Growth Forecast	Bond Rating
Dickenson Inc.	20%	9	1.50	0.45	$5.50	$10.00	5.0	$0.95	4%	A
Harris-Beshel	95%	8	1.30	0.70	12.75	14.00	7.5	$1.00	6%	AA
Donaldson Inc.	90%	12	1.20	1.40	5.25	18.00	10.0	$0.75	8%	AA
IBBEX Corp.	40%	16	1.45	0.10	16.80	20.00	15.0	$0.00	10%	Baa
ZEPORT	60%	10	1.60	1.30	25.00	40.00	10.0	$2.20	7%	B

Recently Issued Bonds (as of August 25, 2014)

LIBOR		1.00%
U.S. Treasury Bills	3-month	0.03%
U.S. Treasury Bills	1-year	0.12%
U.S. Treasury Bills	3-year	0.95%
U.S. Treasury Bills	5-year	1.60%
U.S. Treasury Bonds	10-year	2.32%
U.S. Treasury Bonds	30-year	3.04%

	Coupon	Maturity	Compounding	Price	Rating
Dickenson Inc.	5.2%	2019	Annual	93.35	A
Harris-Beshel	5.0%	2034	Semi-annual	80.04	AA
Donaldson Inc.	6.0%	2029	Semi-annual	93.41	AA
IBBEX Corp.	6.0%	2024	Semi-annual	91.05	Baa
ZEPORT	7.0%	2029	Semi-annual	92.31	B

Note: Face value on all bonds is $100

Historical Equity Risk Premium

Arimentic Mean	7.8%
Geometric Mean	6.0%

Description of Companies

Dickenson, Inc — This company was founded 50 years ago in Detroit. Its major business activities historically have been production of packaging paper, mainly for use in paper bag manufacturing. It only recently entered the cardboard box production business

Harris-Beshel — This company was a spin-off from a large conglomerate in 1978. Although the company was a leader in the production of cardboard boxes, it has recently suffered a decline in sales. Infighting among the principal owners has fed concerns about the firm's prospects.

Donaldson, Inc. — This company, founded only two years ago, has emerged as a very aggressive competitor in the area of cardboard box manufacturing. It isMid-Atlantic's major competitor and its sales level is about the same.

IBBEX Corp. — This company has recently been an innovator in the production of cardboard boxes. Although cardboard box manufacturing is not a majority of its business (paper bag manufacturing is), the company is projected to be a major competitor within the next three years.

ZEPORT — This company was an early pioneer in the cardboard box industry. Recently, however, it began to invest in new areas and has been moving away from cardboard box production as its main focus of business.