Working Capital Lines of Credit, Revisited

Avoid the risks of oversized lines of credit by understanding the factors that may create a need for bank financing.
A company may be profitable and have a reasonable working capital position, yet still need to borrow for short-term purposes. Working capital is a common liquidity measure, and its simplest definition is current assets minus current liabilities. Generally, as working capital increases, the chance of covering current debt increases.

But in reality, working capital is an oversimplification of true liquidity. Most companies’ current assets are tied up in trading assets consisting of accounts receivable and inventory. While these assets should be convertible into cash, they are simply not cash. Therefore, a company may need to borrow in the short term to cover ongoing cash expenses until current assets are converted to cash.

Borrowing needs under a working capital line of credit are dictated by several factors, including seasonality, length of operating cycle (defined as inventory days plus receivable days), financing via trade payables, profit margins, equity in trading assets, and sales growth or decline.

Properly Sizing a Line of Credit
As a general rule of thumb, most commercial businesses do not and should not need a working capital line of credit that exceeds 10% of revenues. There may be rare exceptions based on issues such as extreme seasonality and/or a longer operating cycle, but the 10% rule works for most companies as a general “initial reasonableness” check.

There are several risks associated with improperly sizing a line—and specifically regarding oversized lines. First, the proposed Basel III capital requirements have generated new cost and general uncertainty regarding unfunded lines.
A company with a long operating cycle will likely have a much greater financing requirement than a company with a short operating cycle, such as a cash business.

Second, an oversized line may result in excessive fees to the customer. And finally, an oversized line combined with a liberal or a poorly monitored borrowing base may allow a business to improperly use its line for purposes outside of working capital, such as financing capital expenditures or event funding losses.

This article provides a more accurate methodology than the 10% rule and an in-depth look at the factors that may create a need for bank financing. In many cases, an exhaustive monthly cash budget rolled up into an annual budget is ideal for showing the amount of short-term financing needed under a working capital line. This is especially critical for seasonal and/or rapidly growing companies.

Factors Affecting Borrowing Need for Working Capital
Table 1 should help bankers make a quick assessment of their client's potential requirements for working capital.

Expanding on the operating cycle factor, Table 2 shows that the length of an operating cycle varies dramatically based on industry and even sub-industry categories. Long operating cycles are typically in the 90-day or higher range. Moderate operating cycles are in the 60- to 90-day range.

Case Study
For our case study, let's assume that Company A's balance sheet accounts are held constant between periods in order to simplify the concept.

Length of Operating Cycle
A company with a long operating cycle will likely have a much greater financing requirement than a company with a short operating cycle, such as a cash business. An operating cycle greater than 90 days is considered long and somewhat unusual for most industries. The operating cycle is normally
defined as the time between when inventory is purchased and sold and when the associated account receivable has been collected.

**Operating cycle = inventory days plus receivables days**

For example, a company with average inventory days of 45 and average receivable days of 30 has a total average operating cycle of 75 days. This means that, on balance, the company has its original investment in inventory tied up for 75 days until it receives its cash back—plus, it is hoped, some gross profit.

\[
45 \text{ inventory days} + 30 \text{ receivable days} = 75 \text{ days total operating cycle}
\]

It's important to understand the amount of cash tied up in a company's operating cycle. Here is a quick formula for doing this. First, determine the amount of cash tied up on a per-day basis by dividing the most recent year's cost of goods sold (COGS) by 365 days. COGS is used in the formula because inventory costs are reflected in COGS.

These same inventory costs are carried through the entire operating cycle, including the receivable collection period. Using our prior example with Company A, if COGS were $10 million in the most recent year, the daily cash requirement would be $27,397 ($10 million divided by 365). This number is then multiplied by 75 days (or the length of the operating cycle) to come up with the amount of cash tied up in the typical operating cycle. The net result is $2,054,795 of cash investment in the operating cycle.

So how is the $2,054,795 in actual cash costs tied up in the operating cycle financed?

1. **Trade Financing**—Suppliers often provide interest-free financing for inventory, and this is the most common form of short-term financing for businesses. These terms may be up to 60 days or longer. For our example, let's assume that the suppliers of Company A provide 30 days of financing:

\[
75 \text{ inventory days} - 30 \text{ days for accounts payable} = 45 \text{ days financing shortfall}
\]

<table>
<thead>
<tr>
<th>Financing Need after Payables</th>
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<tr>
<td>Total financing need (operating cycle)</td>
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<tr>
<td>Less: portion covered by trade payables (30 days)</td>
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<td>Financing need after payables:</td>
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Using our same daily cash requirement formula from above, we can estimate that the 45-day remaining financing shortfall is still a sizable $1,232,877. The remaining financing shortfall is largely covered by a combination of excess cash flow via positive profit margins, existing equity in trading assets, a working capital line of credit, and finally, the net effect of sales decline (if any). Sales growth would increase the borrowing need, as will be explained later.

2. **Profit Margins**—Strong profit margins, net of changes in balance sheet accounts, produce excess cash flow. While profits repay long-term debt, this source of cash flow is also often available to cover cash needs resulting from a financing shortfall in a company's operating cycle. Companies with high profit margins versus low profit margins produce more cash flow available to service term debt and cover a portion of the financing shortfall relative to the operating cycle.

While this source of cash is, in theory, not available until after the receivables are collected, the reality is that an operating cycle is started and ended almost on a daily basis for most companies. Each time inventory is purchased, a new operating cycle is started. Each time a receivable is collected, an operating cycle is completed. As a result, there is some daily excess cash flow spun off via profit margins and the completion of an operating cycle. While the concept is sound, remember that this methodology is based on averages. Of course, there will be ongoing fluctuations in the operating cycle as well as the profit margins.

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Again, assuming that balance sheet accounts are held constant between periods, Company A is producing excess cash flow after existing debt service of $900,000 (as shown in the income statement) that could be used to cover the financing gap shown in our earlier example. Other uses for excess profits could be capital expenditures or dividends. Finally, the income statement shown is for an entire year, thus, we need to convert the amount of available cash flow based on the length of the operating cycle:

\[ \text{Available cash flow} = \frac{\text{Sales} \times \text{COGS}}{365} \times \text{Operating cycle} \]

\[ \text{Available cash flow} = \frac{\$10,000,000 \times \$1,000,000}{365} \times 75 \]

\[ \text{Available cash flow} = \$184,932 \] available for covering the financing gap during the operating cycle.

### Remaining Portion Financed by Working Capital Line of Credit

- **Total financing need (operating cycle):** $2,054,795
- **Less: portion covered by trade payables:** $(821,918)
- **Financing need after payables:** $1,232,877
- **Less: amount covered by excess profit/cash flow:** $(184,932)
- **Remaining financing need:** $1,047,945

The result shown above is an average amount of expected outstanding line balance assuming no material seasonality or sales growth or major changes in balance sheet accounts. An exact number is impossible to pin down given fluctuations. However, a general amount of $500,000 may be adequate for this particular company, allowing room for a 10-day fluctuation in the operating cycle at a cost of approximately $27,397 per day. Other variables could also be incorporated to ensure adequate cushion for changing conditions.

Meanwhile, the $500,000 line amount is only 3.8% of sales, far below the 10% rule of thumb. This result can be attributed primarily to substantial equity present in trading assets and strong profit margins. A major assumption within this exercise is that inventory can be sold and receivables collected within the time frame the company has historically experienced. Since many aspects of the company’s operating cycle are deemed to be within the control of management, the remaining financing needed, in reality, is also largely reflective of management decisions.

### Other Key Variables

- **Sales Growth or Decline**

Sales growth is a major factor in determining adequate amounts for lines of credit. First, the bank must decide if it is willing to fund growth and, second, by how it will do so. If the bank determines that a working capital line of credit is the best vehicle for funding such growth, then the impact of growing inventory and receivables must be factored into the line amount. Barring any changes in inventory days, receivable days, and payable days, the cash impact of sales growth can be estimated as follows:

### Effect of Sales Growth on Portion Financed by Working Capital Line of Credit

- **Last full year of sales:** $10,000,000
- **Additional sales at 10% growth rate:** $1,000,000
- **Divided by operating cycle turns per year (365 ÷ 75):** 4.87
- **Additional cash tied up per operating cycle from sales growth:** $205,339
- **Less: additional payables due to growth:** $(82,192)
- **Total effect of sales growth on working capital line of credit:** $123,147
Instead of a $500,000 working capital line of credit, the company may need $650,000 (rounded) to accommodate 10% sales growth. The above computation did not account for additional cash flow via profit margins, but the impact is not material for this particular company, and it is an estimate at best.

Declining sales will have the opposite effect, resulting in a reduced financing need. If sales declined 10%, the company would have a $123,147 positive cash effect, or a lower need for a working capital line of credit. Of course, margins and earnings are often negatively affected by lower revenues due to a mix of fixed costs and variable costs.

- **Seasonality**

  Companies that are highly seasonal could need substantially larger lines of credit in relation to sales versus the 10% rule, based on limited or no cash flow through substantial periods of the year. A monthly cash budget rolling up into an annual cash budget is critical to determining if adequate cash flow and financing are in place to cover operating-cycle gap and operating expenses. These companies, if performing well, should be able to fully pay down their lines at the end of their prime sales seasons.

  The analysis above highlights the importance of considering operating cycles and other important factors in sizing lines of credit. This methodology works for most companies, but because seasonal companies have varying operating cycles depending on the time of the year, there are no clear-cut mathematical formulas for estimating cash needs other than a complete cash budget. Such forecasts are also advisable for most companies.

  

**Conclusion**

It’s important for bankers to properly size lines of credit based on the reasons why a company may borrow for working capital needs. The primary reason for borrowing is typically associated with the length of a company’s operating cycle. Accordingly, a cash business, such as a restaurant or a car wash, should not need a line of credit. Conversely, a wholesaler will nearly always need one.

Other important factors should also be considered, including supplier financing, profit margins, equity in trading assets, and sales growth or decline. The information presented here also will be useful for companies in managing their cash flow and short-term borrowing needs.

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Notes
1. The proposed rule changes will require a 20% credit conversion factor regarding capital requirements for off-balance-sheet commitments of one year or less, versus 0% based on existing rules.

2. Standard industry formulas use sales versus COGS when figuring cash impact of receivable days; however, actual dollars out of pocket are best reflected by COGS and not sales. This exercise uses COGS to figure the dollars out of pocket during the length of the entire operating cycle, while focusing on how this cost is covered by various sources.

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