Principles of Managerial Finance

9th Edition

Chapter 15

Working Capital And Short-Term Financing

Learning Objectives

- Understand the two definitions of net working capital and the tradeoff between profitability and risk as it relates to changing levels of current assets and current liabilities.
- Discuss, in terms of profitability and risk, the aggressive financing strategy and the conservative financing strategy for meeting the firm’s total financing requirement.
- Review the key characteristics of the two major sources of spontaneous short-term financing.

Learning Objectives

- Analyze credit terms offered by suppliers to determine whether to take or give up cash discounts and whether to stretch accounts payable.
- Describe the interest rates and basic types of unsecured short-term bank loans, commercial paper, and short-term international loans.
- Explain the characteristics of secured short-term loans and the use of accounts receivable and inventory as short-term loan collateral.

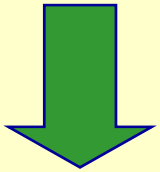
Long & Short Term Assets & Liabilities

Current Assets:	***Current Liabilities:***
Cash	Accounts Payable
Marketable Securities	Accruals
Prepayments	Short-Term Debt
Accounts Receivable	Taxes Payable
Inventory	
Fixed Assets:	**Long-Term Financing:**
Investments	Debt
Plant & Machinery	Equity
Land and Buildings	

Long & Short Term Assets & Liabilities

Current Assets:
Cash
Marketable Securities
Prepayments
Accounts Receivable
Inventory

Current Liabilities:
Accounts Payable
Accruals
Short-Term Debt
Taxes Payable



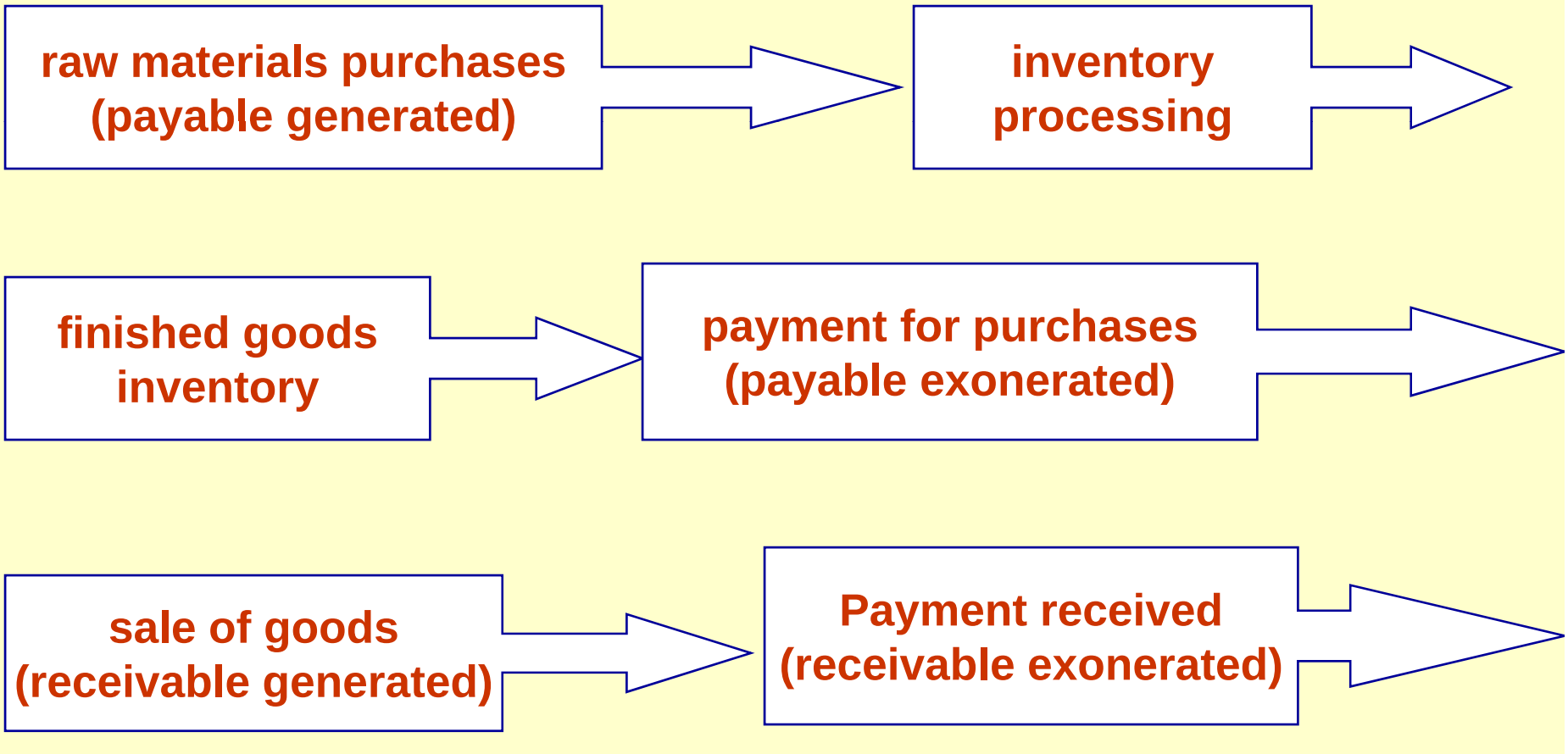
The collective term for decisions regarding short-term assets and short term liabilities is working capital management.

Net Working Capital

- Working Capital includes a firm's current assets, which consist of cash and marketable securities in addition to accounts receivable and inventories.
- It also consists of current liabilities, including accounts payable (trade credit), notes payable (bank loans), and accrued liabilities.
- Net Working Capital is defined as total current assets less total current liabilities.

Net Working Capital

The Firm's Operating Cycle



Net Working Capital

"Profitability" versus "Liquidity"

- It is critical to point out that "profitability" and "liquidity" (or cash flow) are not necessarily the same.
- A business can be profitable, and yet experience serious cash flow problems.
- The key is in the length of the working capital cycle -- or how long it takes to convert cash back into cash.

Net Working Capital

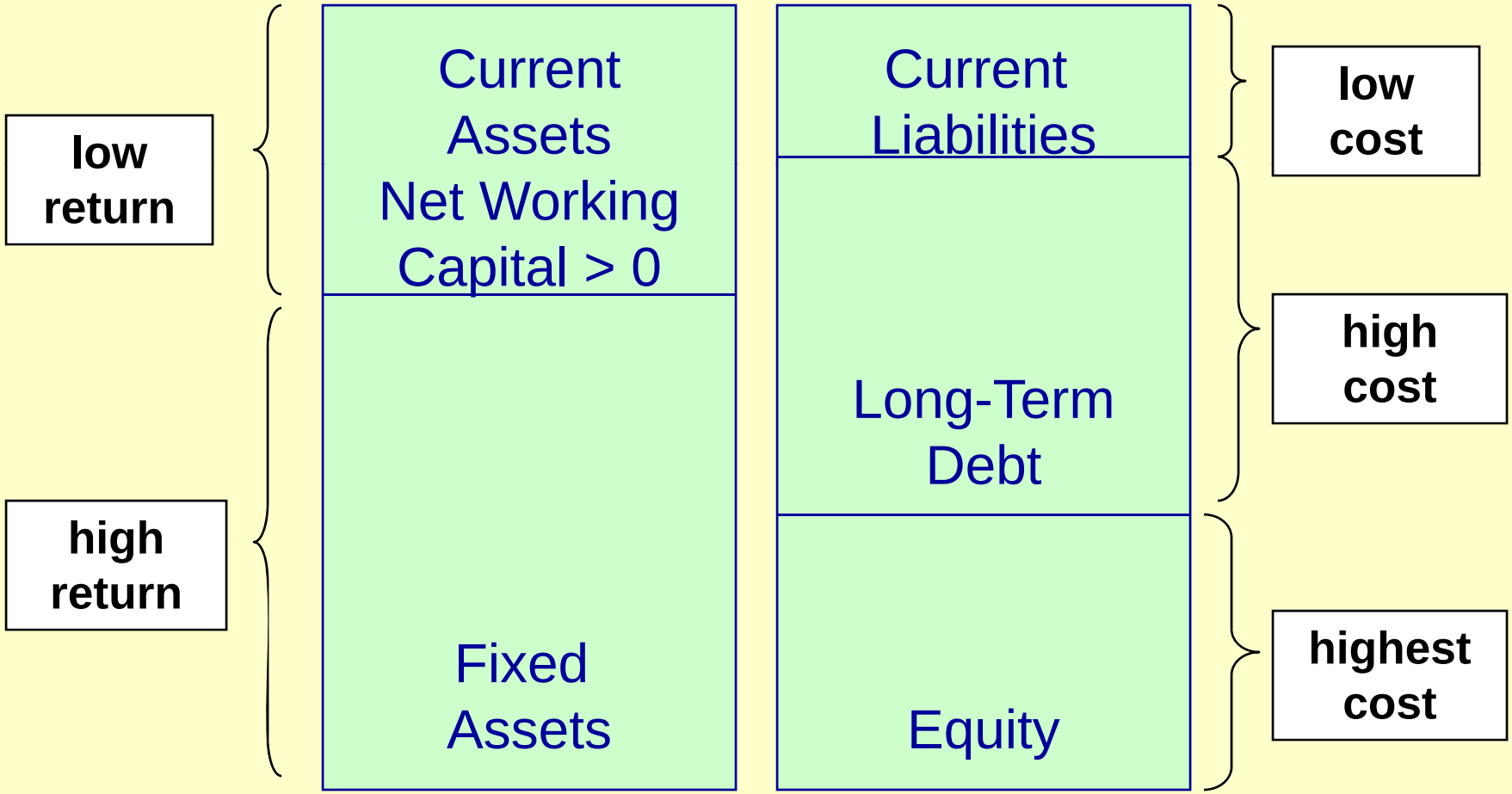
"Profitability" versus "Liquidity"

The Current Position of Berenson Company			
Current Assets		**Current Liabilities**	
Cash	$ 500	A/P	$ 600
M/S	200	N/P	800
A/R	800	Accruals	200
Inventories	1,200		
Total	$ 2,700	Total	$ 1,600

Will Berenson be able to pay its bills?

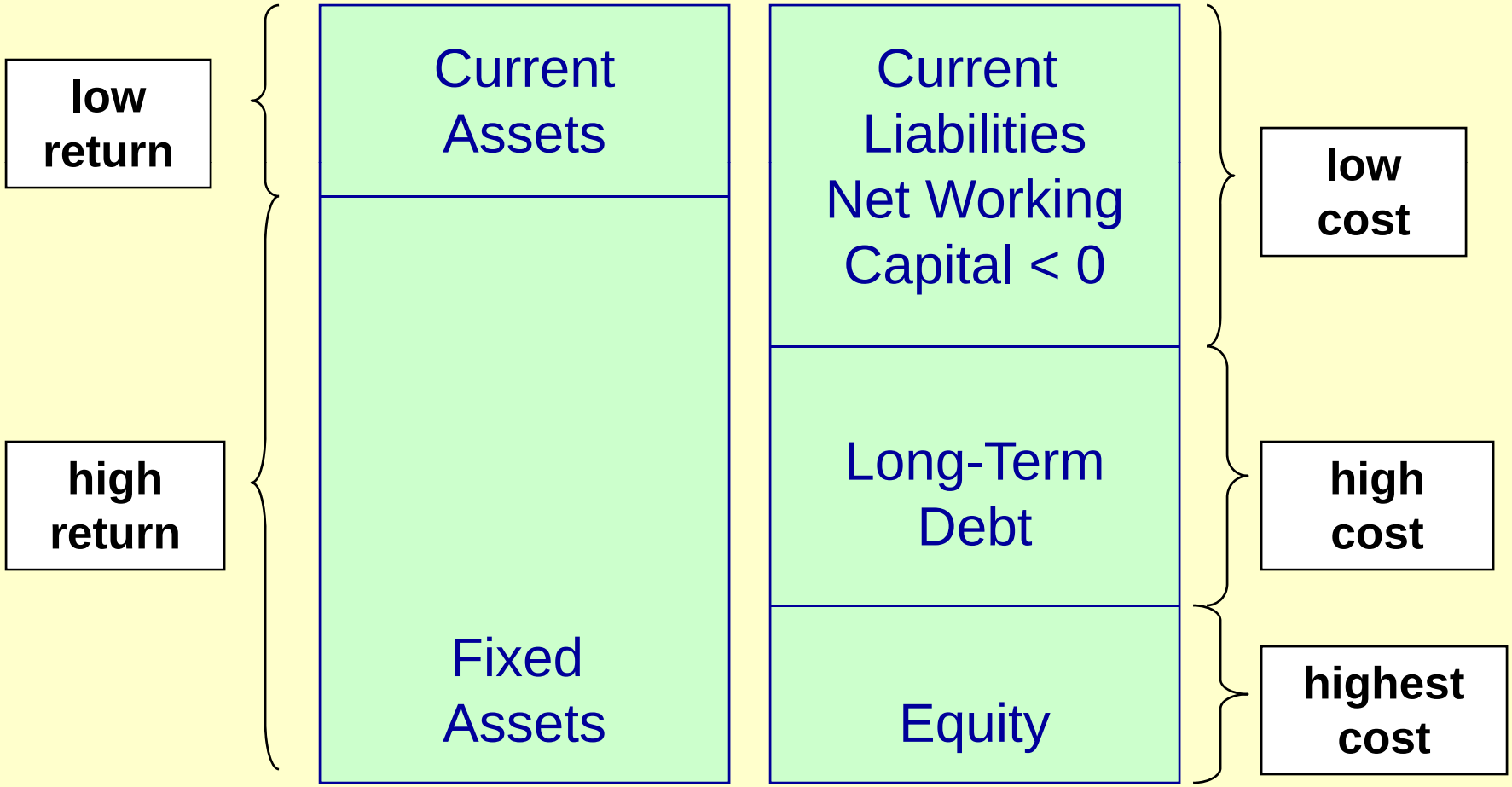
The Tradeoff Between Profitability & Risk

Positive Net Working Capital
(low return and low risk)



The Tradeoff Between Profitability & Risk

Negative Net Working Capital
(high return and high risk)



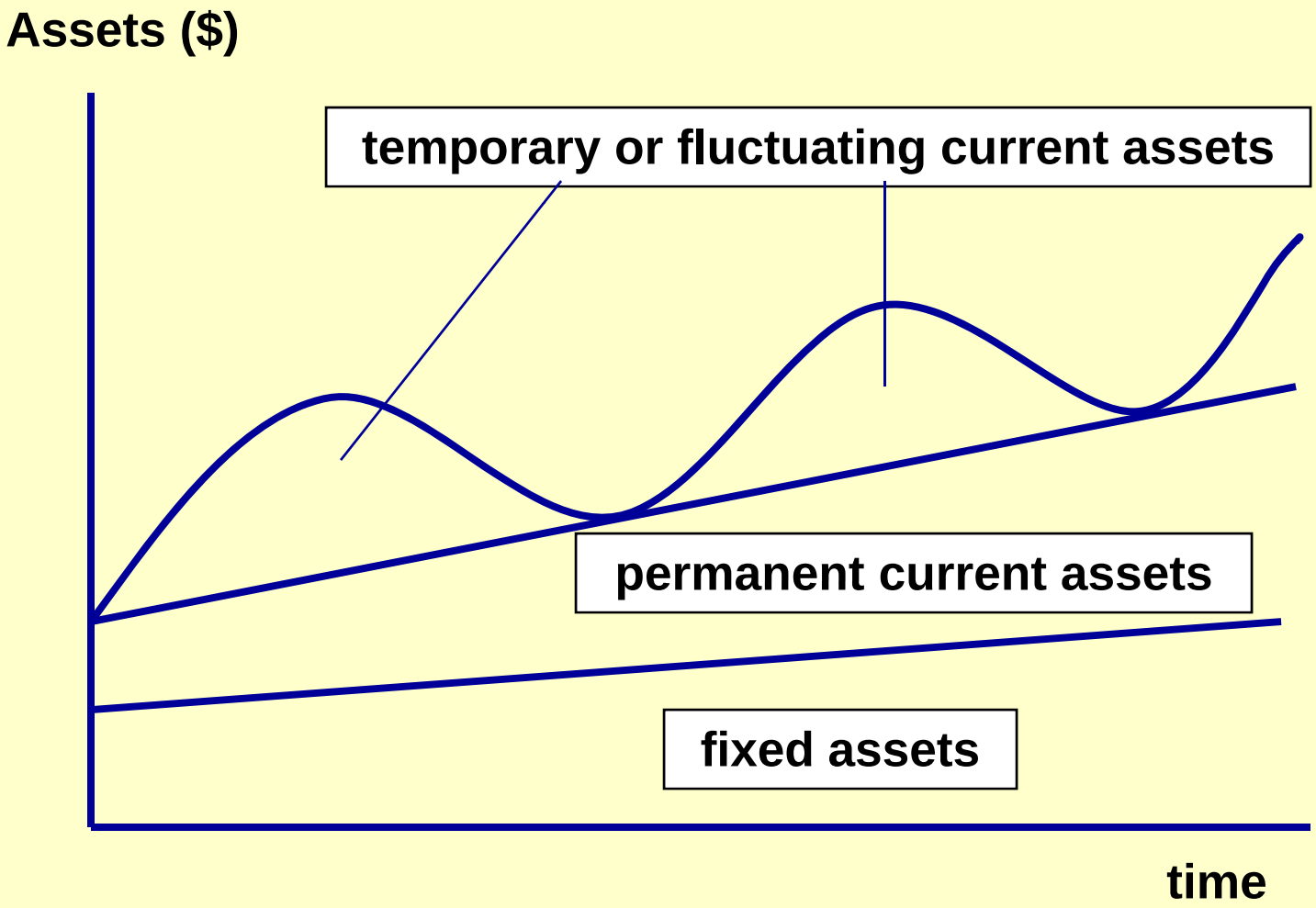
The Tradeoff Between Profitability & Risk

TABLE 15.1 Effects of Changing Ratios on Profits and Risk

Ratio	Change in ratio	Effect on profit	Effect on risk
$\frac{\text{Current assets}}{\text{Total assets}}$	Increase	Decrease	Decrease
	Decrease	Increase	Increase
$\frac{\text{Current liabilities}}{\text{Total assets}}$	Increase	Increase	Increase
	Decrease	Decrease	Decrease

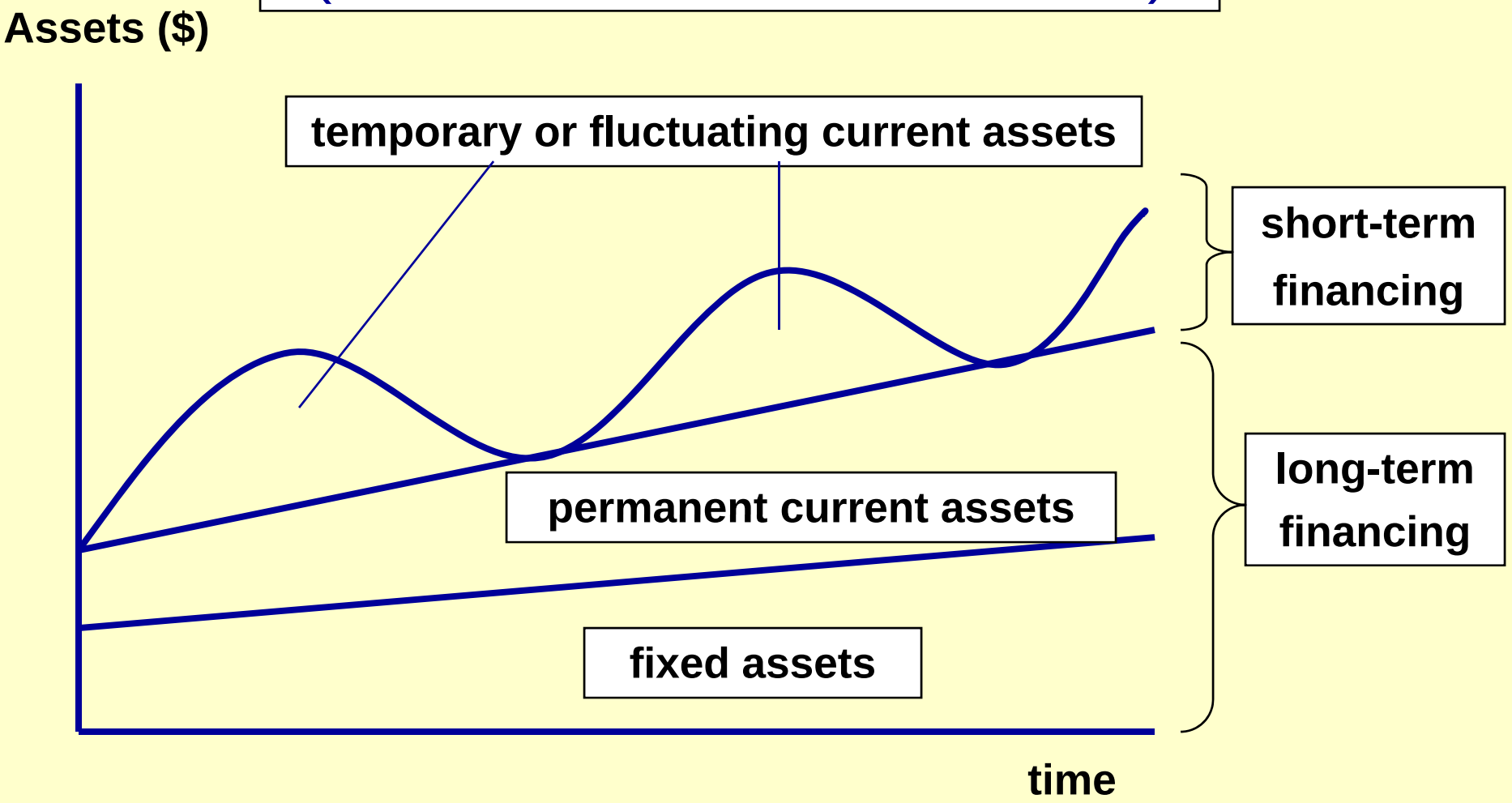
Net Working Capital Strategies

Asset Trends for a Growing Firm



Net Working Capital Strategies

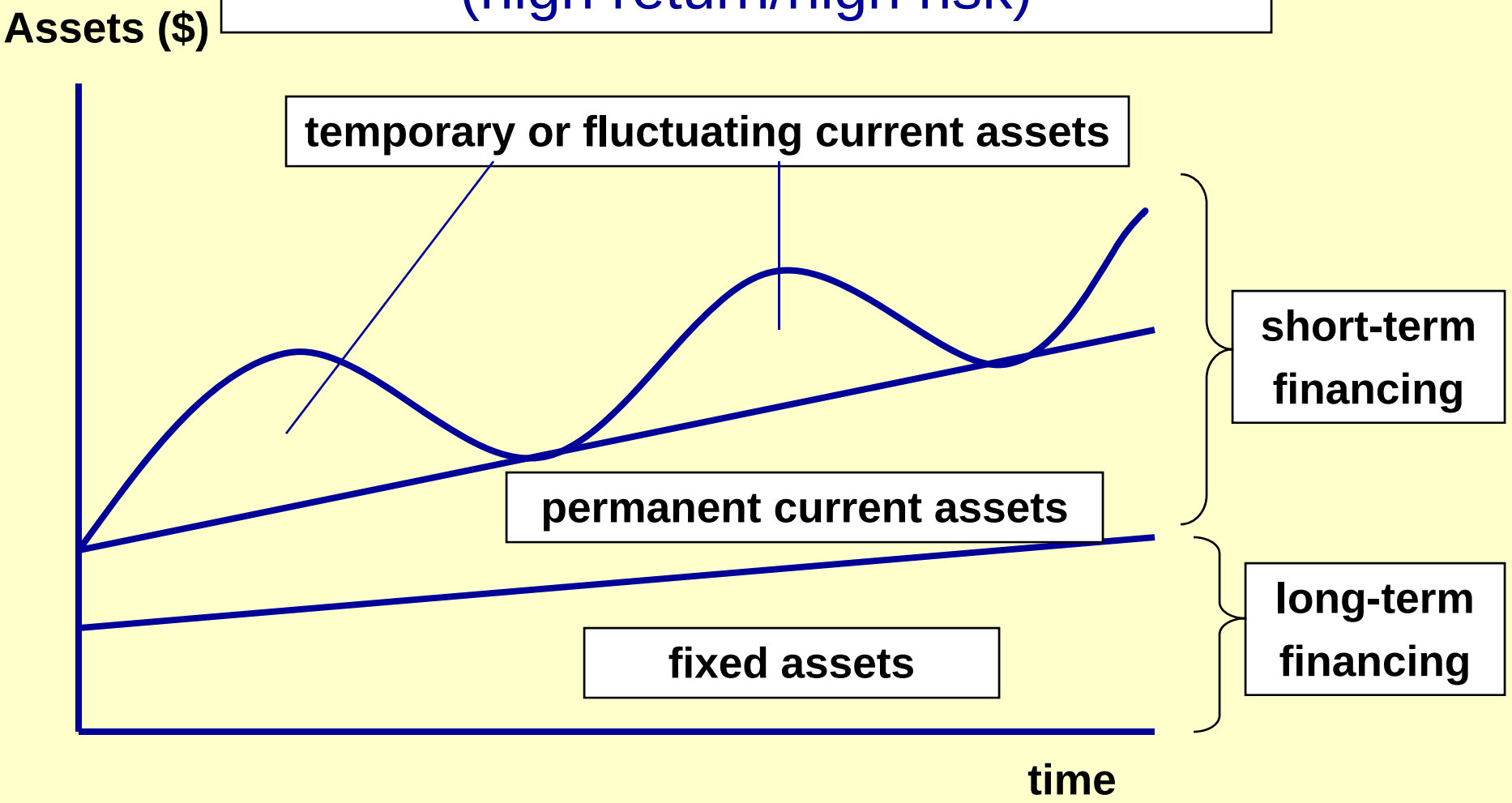
Maturity Matching Strategy
(moderate return/moderate risk)



Net Working Capital Strategies

Aggressive Financing Strategy

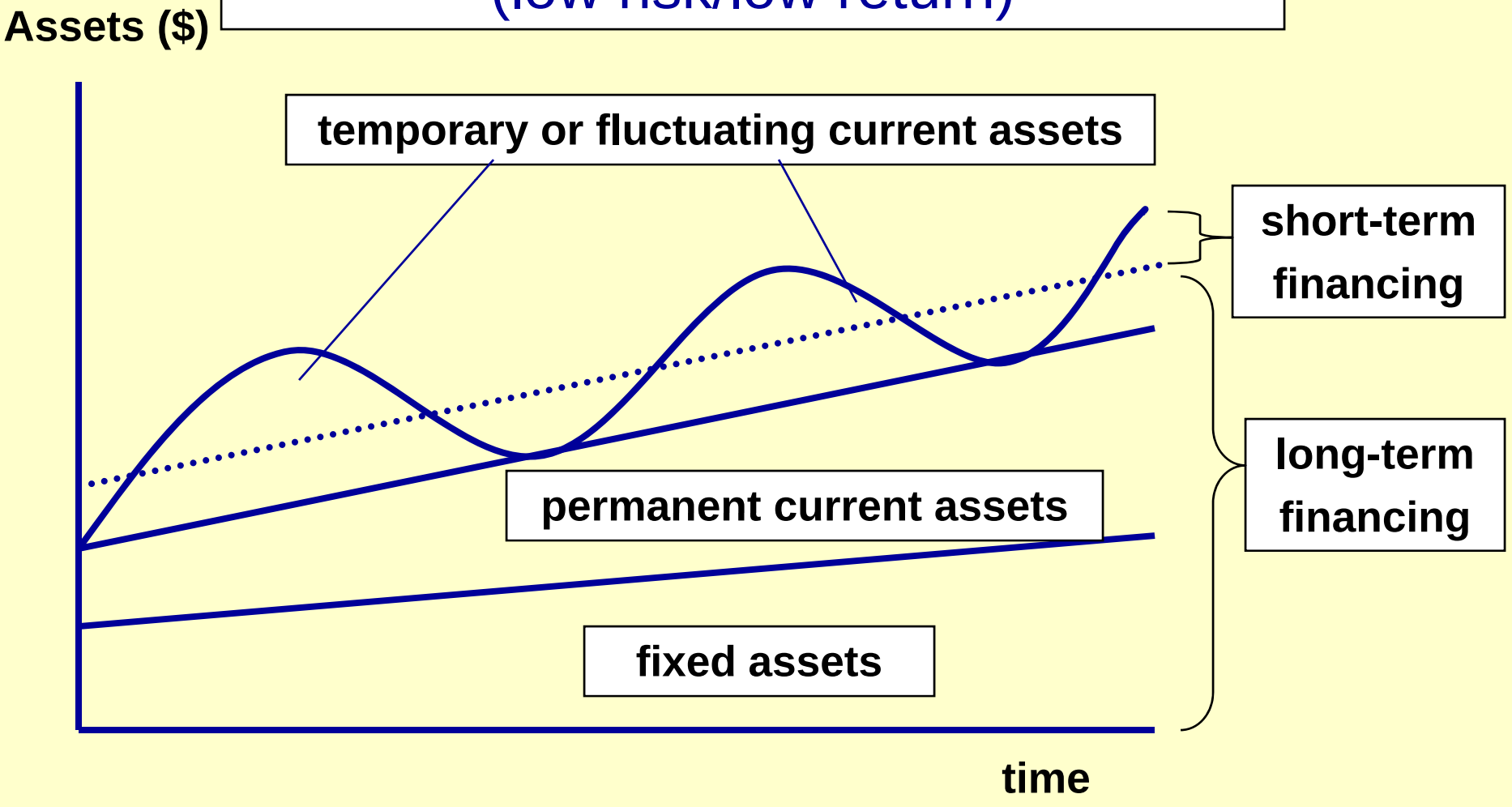
(high return/high risk)



Net Working Capital Strategies

Conservative Financing Strategy

(low risk/low return)



The Firm's Financing Need: Berenson Company

Estimated Funds Requirements for Berenson Company					
	Current	Fixed	Total	Permanent	Seasonal
Month	Assets	Assets	Assets	Funds Req.	Funds Req.
Jan	$ 4,000	$ 13,000	$ 17,000	$ 13,800	$ 3,200
Feb	3,000	13,000	16,000	13,800	2,200
Mar	2,000	13,000	15,000	13,800	1,200
Apr	1,000	13,000	14,000	13,800	200
May	800	13,000	13,800	13,800	-
Jun	1,500	13,000	14,500	13,800	700
Jul	3,000	13,000	16,000	13,800	2,200
Aug	3,700	13,000	16,700	13,800	2,900
Sep	4,000	13,000	17,000	13,800	3,200
Oct	5,000	13,000	18,000	13,800	4,200
Nov	3,000	13,000	16,000	13,800	2,200
Dec	2,000	13,000	15,000	13,800	1,200
Monthly Average				**$ 13,800**	**$ 1,950**

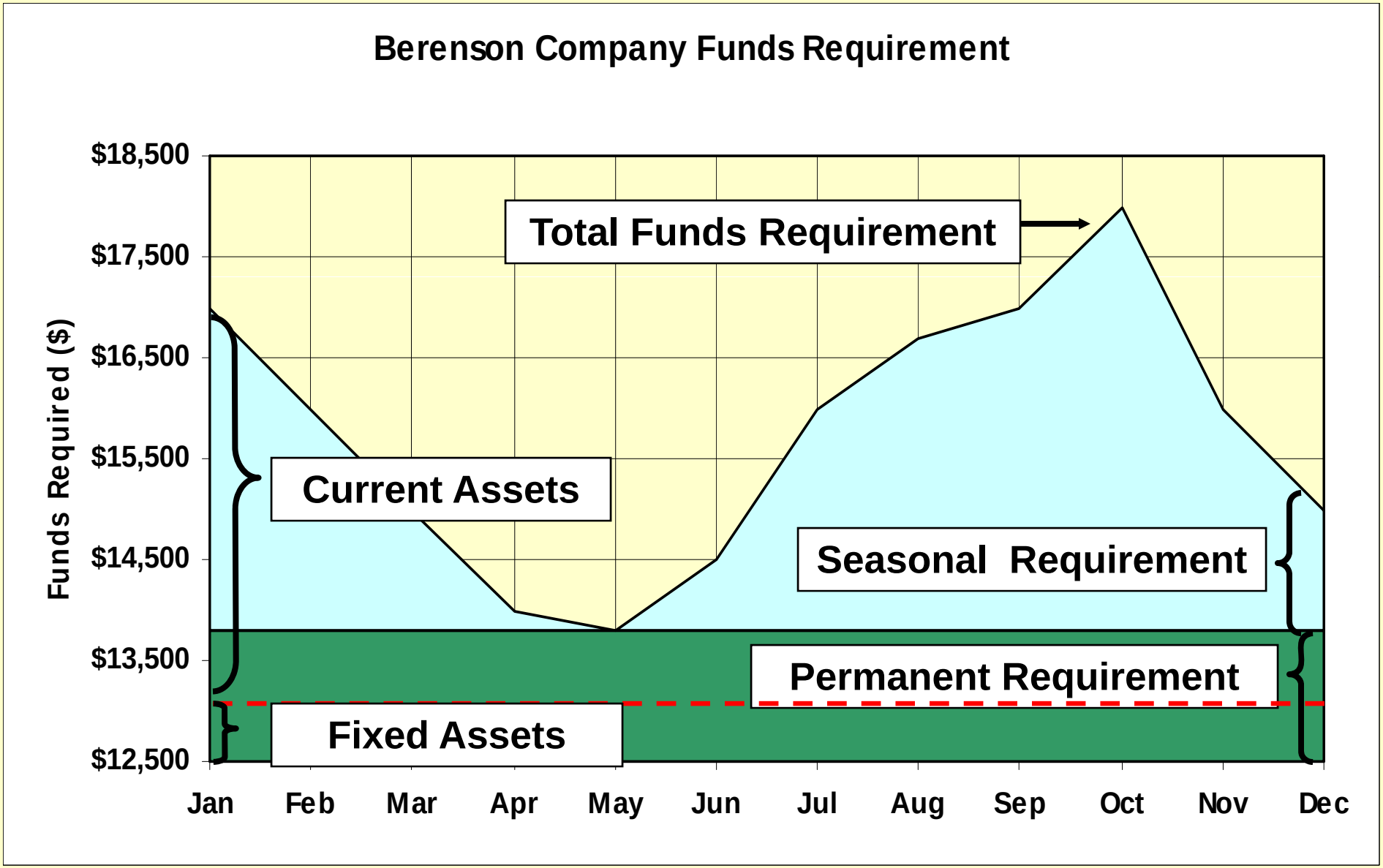
The Firm's Financing Need: Berenson Company

Berenson Funds Requirement

- A few points about the previous data chart are worth expanding upon and depicted on the following chart:
  - the permanent funds requirement is the lowest level of total assets during the period
  - the seasonal portion is the difference between the total funds requirement (total assets) for each month and the permanent funds component
  - a portion of the firm's current assets is permanent (for Berenson, this figure is $800)

The Firm's Financing Need: Berenson Company

Berenson Funds Requirement



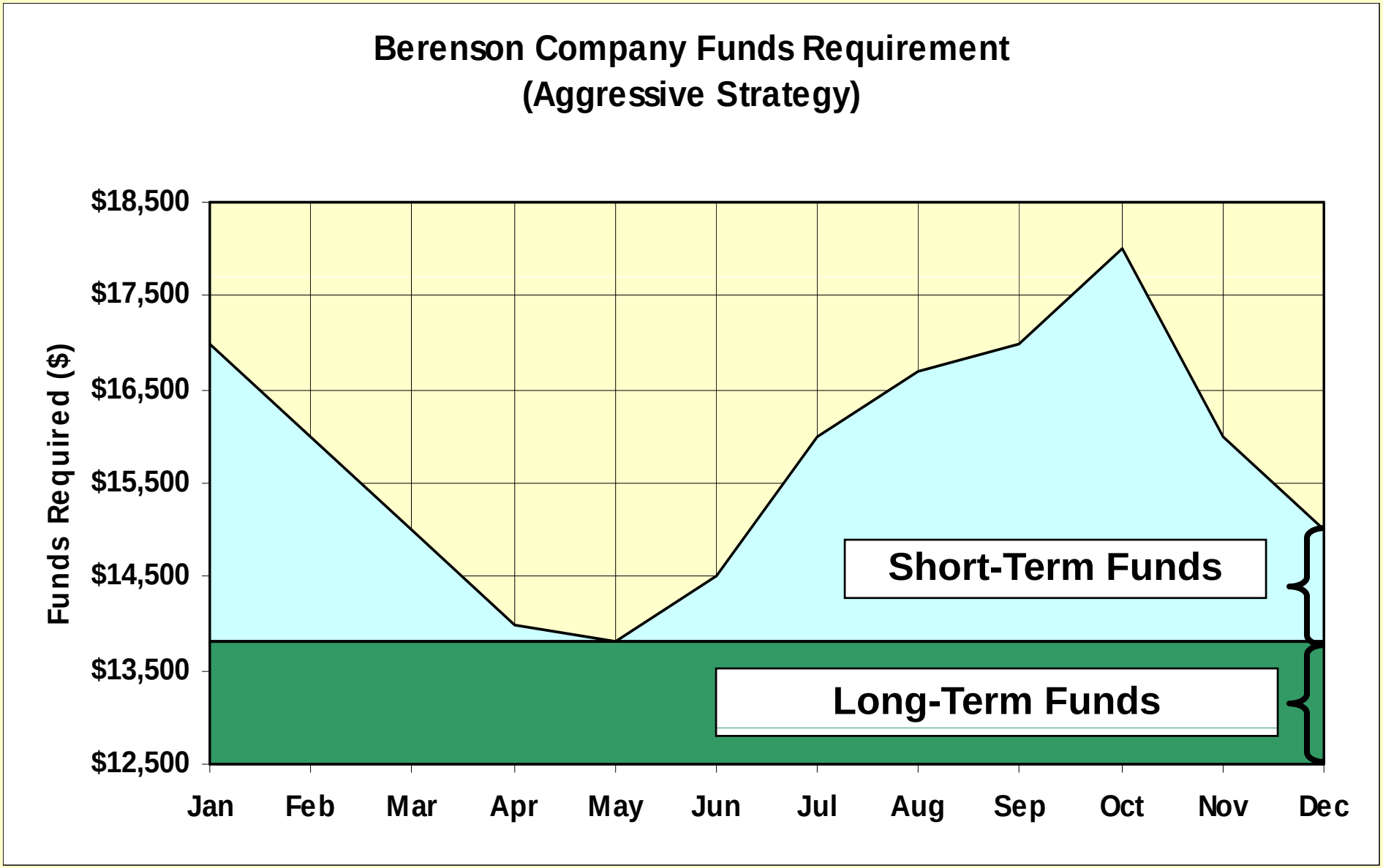
The Firm's Financing Need: Berenson Company

Aggressive Financing Strategy

- The aggressive strategy is to finance the permanent portion of the firms funds requirement ($13,800) with long-term funds.
- The seasonal portion, which ranges from $0 in May to $4,200 in October, will be financed with short-term funds.
- The Aggressive Strategy can is described graphically in the following chart.

The Firm's Financing Need: Berenson Company

Aggressive Financing Strategy



The Firm's Financing Need: Berenson Company

Cost Considerations of Aggressive Strategy

- Let us assume that the annual cost of short-term funds is 3% and the annual cost of long-term funds is 11%.
- Since Berenson's average short-term borrowing is $1,950 and the average long-term borrowing is $13,800, we may calculate the cost of the aggressive strategy as follows:

Cost of Aggressive Strategy for Berenson			
Financing Source	**Amount ($)**	**Cost (%)**	**Cost ($)**
Short-Term	$ 1,950	3%	$ 58.50
Long-Term	$ 13,800	11%	$ 1,518.00
		Total	$ 1,576.50

The Firm's Financing Need: Berenson Company

Risk Considerations of Aggressive Strategy

- The aggressive strategy is risky because it operates with a minimum net working capital because only the permanent portion is being financed with long-term funds.
- For this example, the level of net working capital is $800 ($13,800 permanent funds requirement - $13,000 fixed assets).
- This strategy is also risky because the firm must draw on its sources of short-term funding, which for various reasons, may be difficult to obtain quickly when needed.

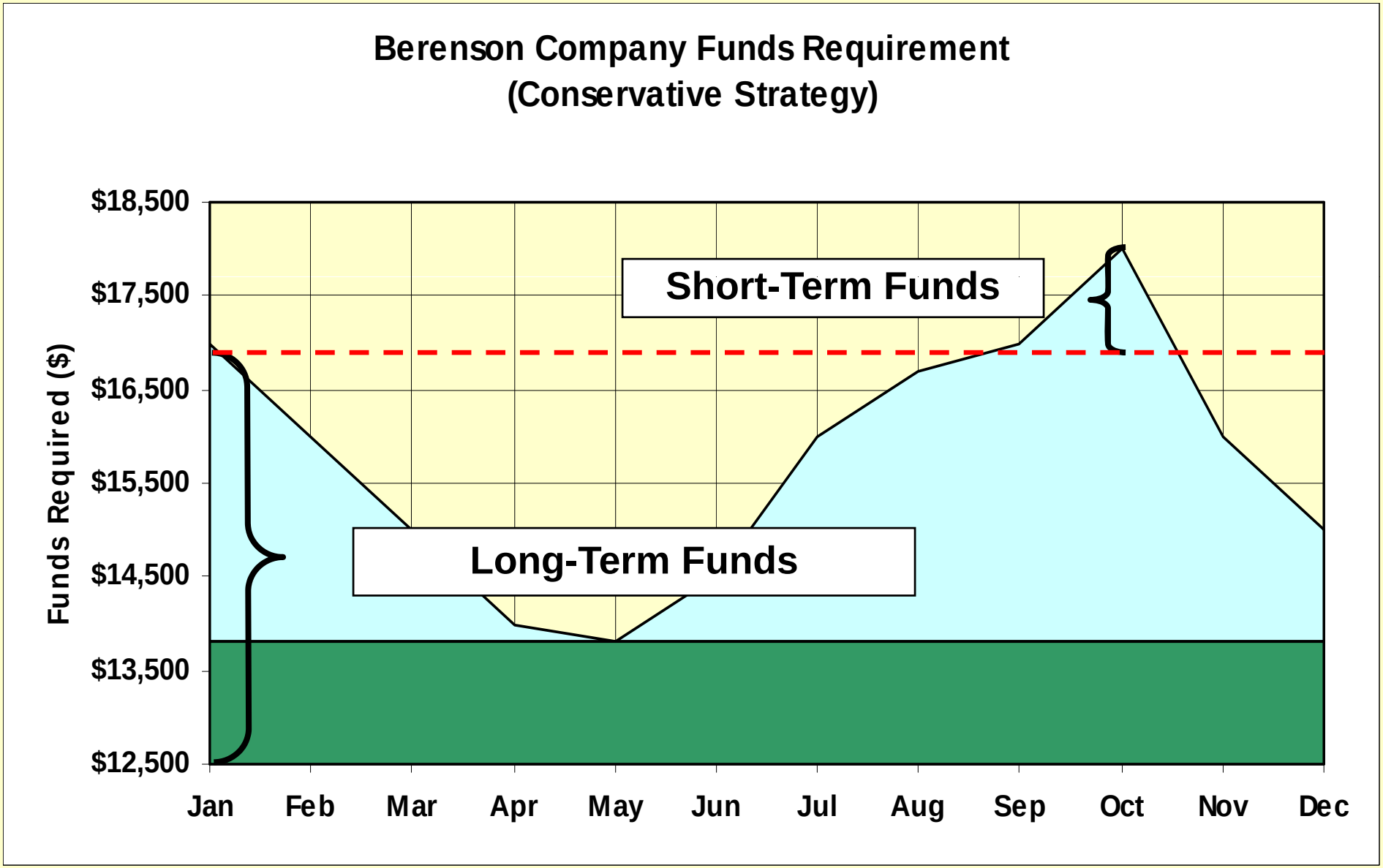
The Firm's Financing Need: Berenson Company

Conservative Financing Strategy

- The most conservative financing strategy should be to finance all projected financing requirements with long-term funds.
- Short-term financing are then used in the event of an emergency or an unexpected outflow of funds.
- This strategy is depicted graphically on the following slide.

The Firm's Financing Need: Berenson Company

Conservative Financing Strategy



The Firm's Financing Need: Berenson Company

Cost Considerations of Conservative Strategy

- Here again we assume that the annual cost of short-term funds is 3% and the annual cost of long-term funds is 11%.
- Long-term financing of $18,000, which equals the peak need (during October) is used under this strategy (no short-term funds are anticipated.

Cost of Conservative Strategy for Berenson			
Financing Source	**Amount ($)**	**Cost (%)**	**Cost ($)**
Short-Term	$ -	3%	$ -
Long-Term	$ 18,000	11%	$ 1,980.00
		Total	$ 1,980.00

The Firm's Financing Need: Berenson Company

Risk Considerations of Conservative Strategy

- The $5,000 of net working capital ($18,000 long-term financing - $13,000 fixed assets) would indicate a low level of risk for Berenson.
- In addition, Berenson will not need to use any of its limited short-term borrowing capacity to meet current obligations.
- As a result, should the need arise, the firm would be in a good position to access sources of short term financing if needed.

Spontaneous Sources of Short-Term Financing

Accounts Payable & Accruals

- Credit Terms: EOM, MOM, or ROG
- Credit Period (generally range from 0 to 120 days)
- Trade Discounts: (Example: 2/10 net 30)

McKinley Company made two purchases under the terms 2/10 net 30. One purchase was made on Sept. 10th, the other on Sept. 20th. The payment dates (under various assumptions) if the firm takes the terms are shown on the following slide.

Spontaneous Sources of Short-Term Financing

Accounts Payable & Accruals

- Credit Terms: DOI, EOM
- Credit Period (generally range from 0 to 120 days)
- Trade Discounts: (Example: 2/10 net 30)

Payment Dates for McKinley Company (Given Various Assumptions)				
Beginning	**September 10th Purchase**		**September 20th Purchase**	
of Credit	**Discount**	**Net Amount**	**Discount**	**Net Amount**
Period	**Taken**	**Paid**	**Taken**	**Paid**
Date of Invoice	Sept. 20	Oct. 10	Sept. 30	Oct. 20
End of Month	Oct. 10	Oct. 30	Oct. 10	Oct. 30

Spontaneous Sources of Short-Term Financing

Accounts Payable & Accruals

- Credit Terms: EOM, DOI
- Credit Period (generally range from 0 to 120 days)
- Trade Discounts: (Example: 2/10 net 30)

Presti Corporation, operator of a small chain of video stores, purchased $1,000 worth of merchandise on February 27 from a supplier extending terms of 2/10 net 30 EOM. If the firm takes the cash discount, it will have to pay $980 [$1,000 - (.02 x $1,000)] on March 10th saving $20. What is the cost of not taking the cash discount should they choose to do so?

Spontaneous Sources of Short-Term Financing

Accounts Payable & Accruals

- Credit Terms: EOM, DOI
- Credit Period (generally range from 0 to 120 days)
- Trade Discounts: (Example: 2/10 net 30)
- Cost of Trade Credit

$$EC = \frac{\%\ \text{discount}}{100\% - \%\text{discount}} \times \frac{360}{\text{credit pd} - \text{discount pd}}$$

$$EC = \frac{2\%}{100\% - 2\%} \times \frac{360}{30 - 10} = 36.73\%$$

Spontaneous Sources of Short-Term Financing

Accounts Payable & Accruals

- Credit Terms: EOM, DOI
- Credit Period (generally range from 0 to 120 days)
- Trade Discounts: (Example: 2/10 net 30)
- Cost of Trade Credit

The preceding example suggest that the firm should take the cash discount as long as it can borrow from other sources for less than 36.73%. Because nearly all firms can borrow for less than this (even using credit cards!) they should always take the terms 2/10 net 30.

Spontaneous Sources of Short-Term Financing

Accounts Payable & Accruals

- Credit Terms: EOM, DOI
- Credit Period (generally range from 0 to 120 days)
- Trade Discounts: (Example: 2/10 net 30)
- Cost of Trade Credit
- Stretching accounts payable
- Accruals

Unsecured Sources of Short-Term Loans

Bank Loans

- The major type of loan made by banks to businesses is the short-term, self-liquidating loan which are intended to carry firms through seasonal peaks in financing needs.
- These loans are generally obtained as companies build up inventory and experience growth in accounts receivable.
- As receivables and inventories are converted into cash, the loans are then retired.
- These loans come in three basic forms: single-payment notes, lines of credit, and revolving credit agreements.

Unsecured Sources of Short-Term Loans

Bank Loans

Loan Interest Rates

- Most banks loans are based on the prime rate of interest which is the lowest rate of interest charged by the nation's leading banks on loans to their most reliable business borrowers.
- Banks generally determine the rate to be charged to various borrowers by adding a premium to the prime rate to adjust it for the borrowers "riskiness."

Unsecured Sources of Short-Term Loans

Bank Loans

Fixed & Floating-Rate Loans

- On a fixed-rate loan, the rate of interest is determined at a set increment above the prime rate and remains at that rate until maturity.
- On a floating-rate loan, the increment above the prime rate is initially established and is then allowed to float with prime until maturity.
- Like ARMs, the increment above prime is generally lower on floating rate loans than on fixed-rate loans.

Unsecured Sources of Short-Term Loans

Bank Loans

Method of Computing Interest

- Once the nominal (stated) rate of interest is established, the method of computing interest is determined.
- Interest can be paid either when a loan matures or in advance.
- If interest is paid at maturity, the effective (true) rate of interest -- assuming the loan is outstanding for exactly one year -- may be computed as follows:

$$\frac{\text{Interest}}{\text{Amount Borrowed}}$$

Unsecured Sources of Short-Term Loans

Bank Loans

Method of Computing Interest

- If the interest is paid in advance, it is deducted from the loan so that the borrower actually receives less money than requested.
- Loans of this type are called discount loans. The effective rate of interest on a discount loan assuming it is outstanding for exactly one year may be computed as follows:

$$\frac{\text{Interest}}{\text{Amount Borrowed - Interest}}$$

Unsecured Sources of Short-Term Loans

Bank Loans

Method of Computing Interest

Booster Company, a manufacturer of athletic apparel, wants to borrow $10,000 at a stated rate of 10% for 1 year. If interest is paid at maturity, the effective interest rate may be computed as follows:

$$\frac{(10\% \times \$10{,}000)}{\$10{,}000} = 10.0\%$$

Unsecured Sources of Short-Term Loans

Bank Loans

Method of Computing Interest

Booster Company, a manufacturer of athletic apparel, wants to borrow $10,000 at a stated rate of 10% for 1 year. If interest is paid at maturity, the effective interest rate may be computed as follows:

If this loan were a discount loan, the effective rate of interest would be:

$$\frac{\text{(10\% X \$10,000)}}{\text{\$10,000 - \$1,000}} = 11.1\%$$

Unsecured Sources of Short-Term Loans

Bank Loans

Single-Payment Notes

- A single-payment note is a short-term, one-time loan payable as a single amount at its maturity.
- The “note” states the terms of the loan, which include the length of the loan as well as the interest rate.
- Most have maturities of 30 days to 9 or more months.
- The interest is usually tied to prime and may be either fixed or floating.

Unsecured Sources of Short-Term Loans

Bank Loans

Single-Payment Notes

Golden Manufacturing recently borrowed $100,000 from each of 2 banks -- A and B. Loan A is a fixed rate note, and loan B is a floating rate note. Both loans were 90-day notes with interest due at the end of 90 days. The rates were set at 1.5% above prime for A and 1.0% above prime for B when prime was 9%.

Based on this information, the total interest cost on loan A is $2,625 [$100,000 x 10.5% x (90/360)]. The effective cost is 2.625% for 90 days. The effective annual rate may be calculated as follows:

$$EAR = (1 + \text{periodic rate})^m - 1 = (1+.02625)^4 - 1 = 10.92\%$$

Unsecured Sources of Short-Term Loans

Bank Loans

Single-Payment Notes

During the 90 days that loan B was outstanding, the prime rate was 9% for the first 30 days, 9.5% for the next 30 days, and 9.25% for the final 30 days. As a result, the periodic rate was .833% [10% x (30/360)] for the first 30 days, .875% for the second 30 days, and .854% for the final 30 days. Therefore, its total interest cost was $2,562 [$100,000 x (.833% + .875% + .854%)].

Thus, the effective cost is 2.562% for 90 days. The effective annual rate may be calculated as follows:

$$\text{EAR} = (1 + \text{periodic rate})^{m} - 1 = (1+.02562)^{4} - 1 = 10.65\%$$

Unsecured Sources of Short-Term Loans

Bank Loans

Lines of Credit (LOC)

- A line of credit is an agreement between a commercial bank and a business specifying the amount of unsecured short-term borrowing the bank will make available to the firm over a given period of time.
- It is usually made for a period of 1 year and often places various constraints on borrowers.
- Although not guaranteed, the amount of a LOC is the maximum amount the firm can owe the bank at any point in time.

Unsecured Sources of Short-Term Loans

Bank Loans

Lines of Credit (LOC)

- In order to obtain the LOC, the borrower may be required to submit a number of documents including a cash budget, and recent (and pro forma) financial statements.
- The interest rate on a LOC is normally floating and pegged to prime.
- In addition, banks may impose operating restrictions giving it the right to revoke the LOC if the firm's financial condition changes.

Unsecured Sources of Short-Term Loans

Bank Loans

Lines of Credit (LOC)

- Both LOCs and revolving credit agreements often require the borrower to maintain compensating balances.
- A compensating balance is simply a certain checking account balance equal to a certain percentage of the amount borrowed (typically 10 to 20 percent).
- This requirement effectively increases the cost of the loan to the borrower.

Unsecured Sources of Short-Term Loans

Bank Loans

Lines of Credit (LOC)

Exact Graphics borrowed $1 million under a LOC at 10% with a compensating balance requirement of 20% or $200,000. Therefore, the firm has access to only $800,000 and must pay interest charges of $100,000. The compensating balance therefore raises the effective cost of the loan to 12.5% ($100,000/$800,000) which is 2.5% more than the stated rate of interest.

If the firm normally maintains a balance of $200,000 or more, then the stated rate will equal the effective rate of interest.

Unsecured Sources of Short-Term Loans

Bank Loans

Revolving Credit Agreements (RCA)

- A RCA is nothing more than a guaranteed line of credit.
- Because the bank guarantees the funds will be available, they typically charge a commitment fee which applies to the unused portion of of the borrowers credit line.
- A typical fee is around 0.5% of the average unused portion of the funds.
- Although more expensive than the LOC, the RCA is less risky from the borrowers perspective.

Unsecured Sources of Short-Term Loans

Bank Loans

Revolving Credit Agreements (RCA)

During the past year, Blount Company borrowed (on average) $1.5 million under its $2 million RCA. As a result, they had to pay 0.5% on the unused balance of $500,000 -- or $2,500. In addition, Blount paid $160,000 in interest on the $1.5 million it actually used. As a result, the effective annual cost of the RCA was 10.83% [($160,000 + $2500)/$1,500,000].

Unsecured Sources of Short-Term Loans

Commercial Paper

- Commercial paper is a short-term, unsecured promissory note issued by a firm with a high credit standing.
- Generally only large firms in excellent financial condition can issue commercial paper.
- Most commercial paper has maturities ranging from 3 to 270 days, is issued in multiples of $100,000 or more, and is sold at a discount form par value.
- Commercial paper is traded in the money market and is commonly held as a marketable security investment.

Unsecured Sources of Short-Term Loans

Commercial Paper

Deems Corporation has just issued $1 million worth of 90-day commercial paper at $980,000. At the end of 90 days, Deems will pay the purchase the full $1 million. The cost to Deems is therefore 2.04% ($20,000/$980,000) for 90 days. The effective annual rate of interest can be calculated as follows:

$$\text{EAR} = (1 + \text{periodic rate})^{m} - 1 = (1+.0204)^{4} - 1 = 8.41\%$$

Unsecured Sources of Short-Term Loans

International Loans

- The main difference between international and domestic transactions is that payments are often made or received in a foreign currency
- A U.S.-based company that generates receivables in a foreign currency faces the risk that the U.S. dollar will appreciate relative to the foreign currency.
- Likewise, the risk to a U.S. importer with foreign currency accounts payables is that the U.S. dollar will depreciate relative to the foreign currency.

Secured Sources of Short-Term Loans

Characteristics

- Although it may reduce the loss in the case of default, from the viewpoint of lenders, collateral does not reduce the riskiness of default on a loan.
- When collateral is used, lenders prefer to match the maturity of the collateral with the life of the loan.
- As a result, for short-term loans, lenders prefer to use accounts receivable and inventory as a source of collateral.

Secured Sources of Short-Term Loans

Characteristics

- Depending on the liquidity of the collateral, the loan itself is normally between 30 and 100 percent of the book value of the collateral.
- Perhaps more surprisingly, the rate of interest on secured loans is typically higher than that on comparable unsecured debt.
- In addition, lenders normally add a service charge or charge a higher rate of interest for secured loans.

Secured Sources of Short-Term Loans

Accounts Receivable as Collateral

- Pledging accounts receivable occurs when accounts receivable is used as collateral for a loan.
- After investigating the desirability and liquidity of the receivables, banks will normally lend between 50 and 90 percent of the face value of acceptable receivables.
- In addition, to protect its interests, the lender files a lien on the collateral and is made on a non-notification basis (the customer is not notified).

Secured Sources of Short-Term Loans

Accounts Receivable as Collateral

- Factoring accounts receivable involves the outright sale of receivables at a discount to a factor.
- Factors are financial institutions that specialize in purchasing accounts receivable and may be either departments in banks or companies that specialize in this activity.
- Factoring is normally done on a notification basis where the factor receives payment directly from the customer.

Secured Sources of Short-Term Loans

Inventory as Collateral

- The most important characteristic of inventory as collateral is its marketability.
- Perishable items such as fruits or vegetables may be marketable, but since the cost of handling and storage is relatively high, they are generally not considered to be a good form of collateral.
- Specialized items with limited sources of buyers are also generally considered not to be desirable collateral.

Secured Sources of Short-Term Loans

Inventory as Collateral

- A floating inventory lien is a lenders claim on the borrower's general inventory as collateral.
- This is most desirable when the level of inventory is stable and it consists of a diversified group of relatively inexpensive items.
- Because it is difficult to verify the presence of the inventory, lenders generally advance less than 50% of the book value of the average inventory and charge 3 to 5 percent above prime for such loans.

Secured Sources of Short-Term Loans

Inventory as Collateral

- A trust receipt inventory loan is an agreement under which the lender advances 80 to 100 percent of the cost of a borrower's relatively expensive inventory in exchange for a promise to repay the loan on the sale of each item.
- The interest charged on such loans is normally 2% or more above prime and are often made by a manufacturer's wholly -owned subsidiary (captive finance company).
- Good examples would include GE Capital and GMAC.

Secured Sources of Short-Term Loans

Inventory as Collateral

- A warehouse receipt loan is an arrangement in which the lender receives control of the pledged inventory which is stored by a designated agent on the lenders behalf.
- The inventory may stored at a central warehouse (terminal warehouse) or on the borrowers property (field warehouse).
- Regardless of the arrangement, the lender places a guard over the inventory and written approval is required for the inventory to be released.
- Costs run from about 3 to 5 percent above prime.