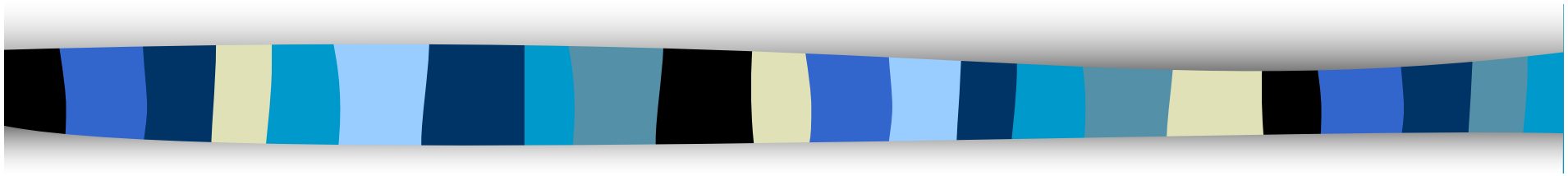
Chapter 15



Managing Working Capital

Learning Objectives

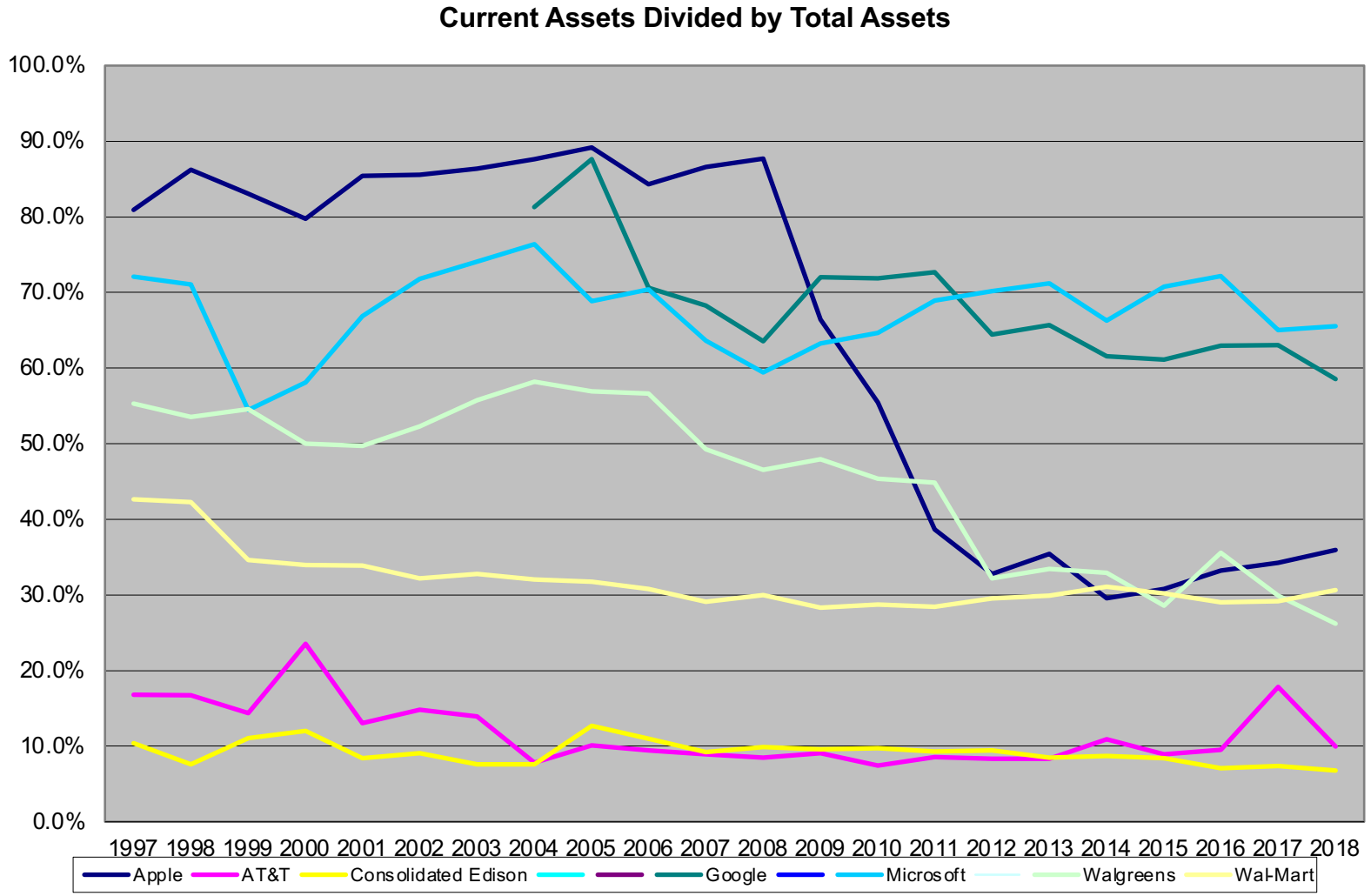
- LO 15.1 Summarize the importance of working capital to the firm.
- LO 15.2 Explain what is meant by a firm's operating cycle and its cash conversion cycle.
- LO 15.3 Describe the impact of the operating cycle and cash conversion cycle on the size of investment in accounts receivable and inventories and payables financing.
- LO 15.4 Explain how a cash budget is developed and how a treasurer will use it.

Learning Objectives

- LO 15.5 Describe the motives underlying the management of cash and marketable securities.
- LO 15.6 Illustrate methods firms can use to quicken cash collections and slow cash disbursements.
- LO 15.7 Describe methods of accounts receivable management and calculate the profit implications of a credit policy change.
- LO 15.8 Describe inventory management from the standpoint of the financial manager.
- LO 15.9 Explain how technology is affecting working capital management.

LO 15.1 Importance of Working Capital Issues

- Current assets typically comprise 30-50% of a firm's assets
- Main day-to-day focus of financial managers
- Mismatch between current assets and financing→cash crunch, bankruptcy possibilities


Current Assets Divided by Total Assets
100.0%
90.0%
80.0%
70.0%
60.0%
50.0%
40.0%
30.0%
20.0%
10.0%
0.0%
1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018
Apple
AT&T
Consolidated Edison
Google
Microsoft
Walgreens
Wal-Mart

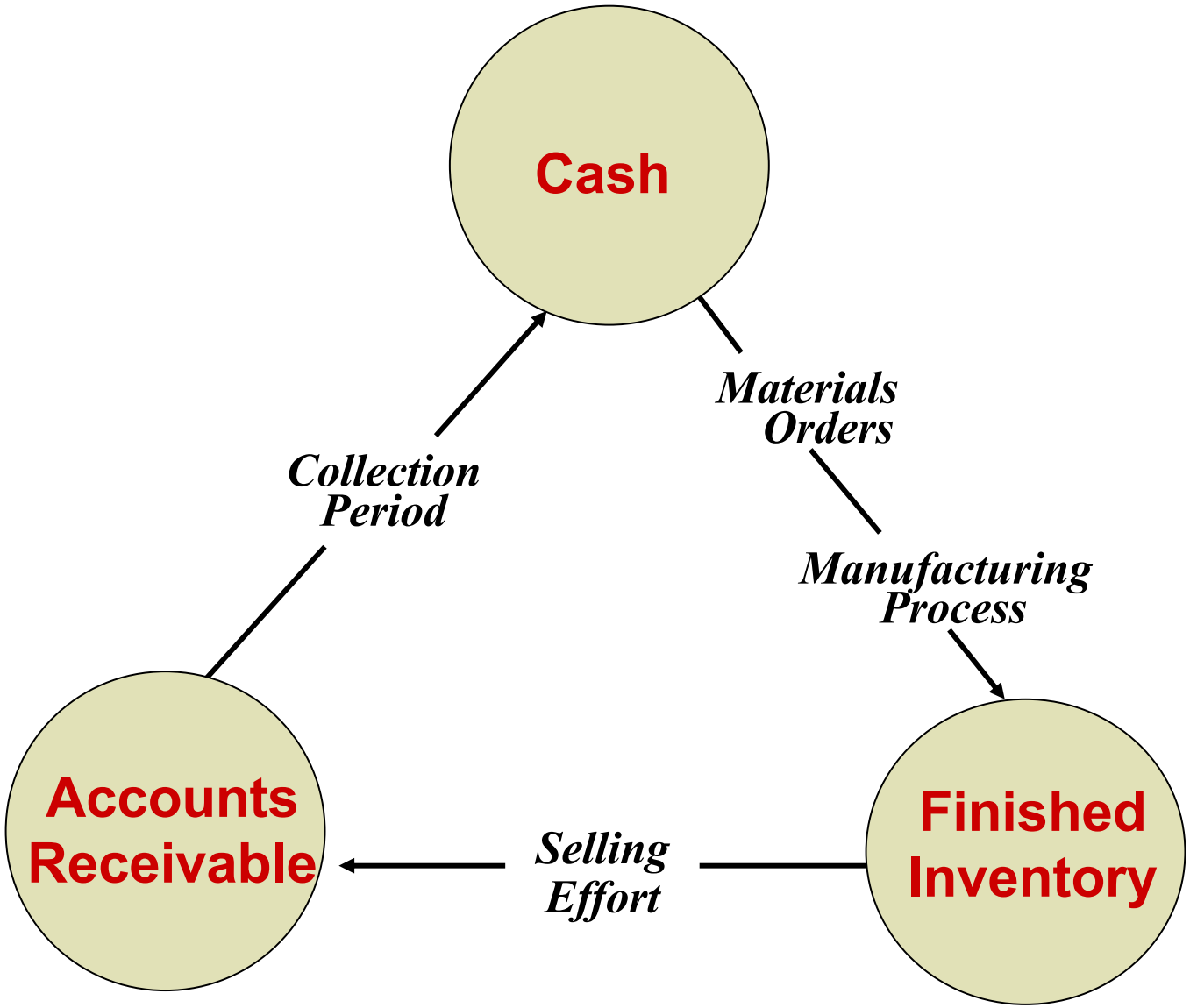
LO 15.2 Operating and Cash Converstion Cycles

Operating cycle: time between receiving materials from suppliers and collecting cash following their sale as finished products

= inventory conversion period + average collection period

= 365 / inventory turnover + AR / (sales/365)

Operating Cycle



Cash Conversion Cycle

Cash conversion cycle: time between paying cash to suppliers for material and collecting cash from customers from their subsequent sale

=Operating cycle - Avg payment period

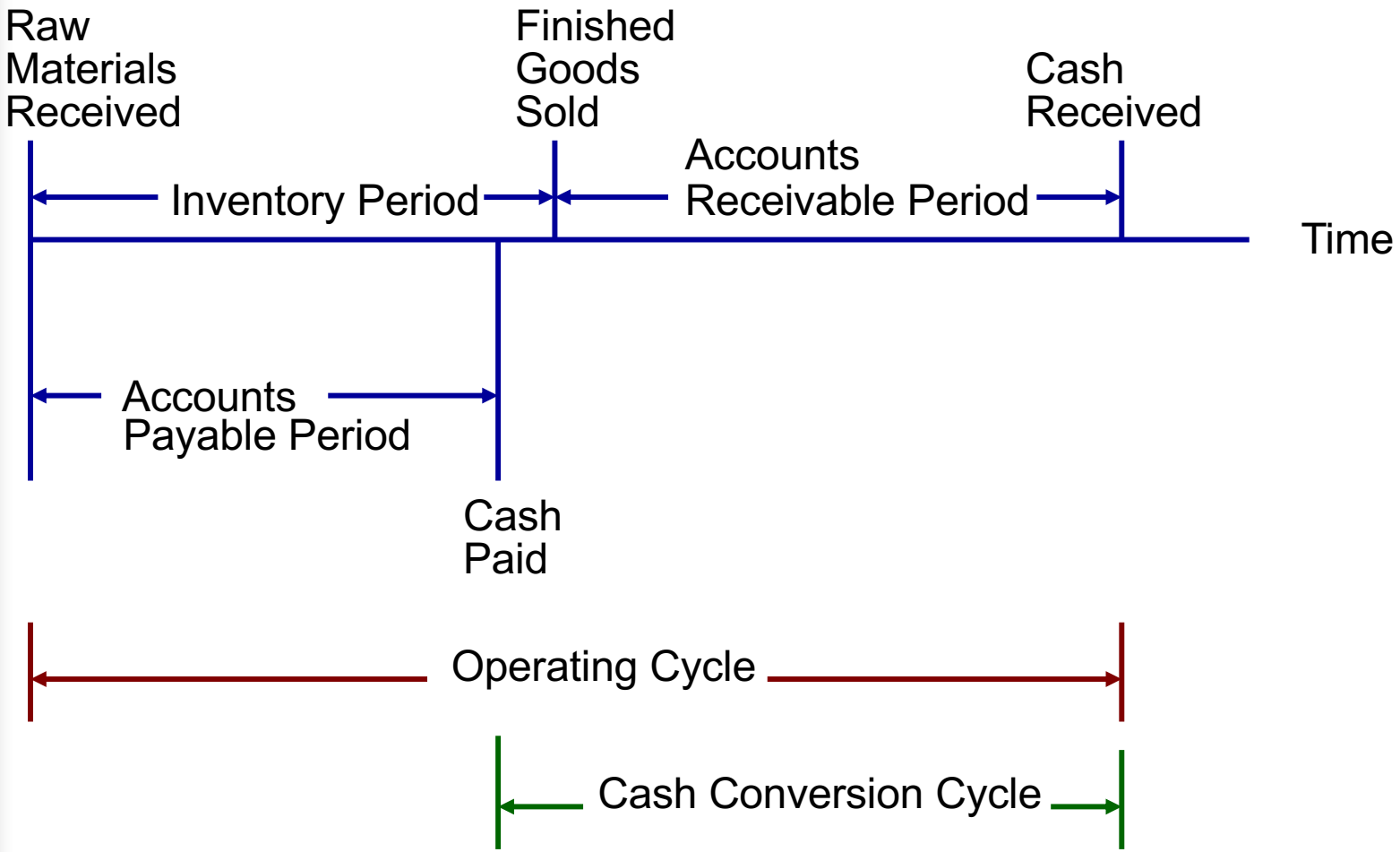
where Avg payment period

= Accounts Payable/(COGS/365)

Cash Conversion Cycle, continued

- The cash conversion cycle measures the financing gap in terms of time
- As the cash conversion cycle increases, the firm's financing needs grow larger

Timelines for the Operating and Cash Conversion Cycles



Example: Financial Data ($ millions)

Revenue	$71,633
Cost of Goods Sold	$50,125
Accounts Receivable	$2,167
Inventories	$7,036
Accounts Payable	$4,384

Inventory period: 51.23 days
= 365 / ($50,125/$7,036)

AR period: *11.04 days*
=$2,167 / ($71,633/365)

Average payment period: 31.92 days
=$4,384 / ($50,125 /365)

Operating Cycle: 62.27 days = *11.04* + 51.23

Cash Conversion Cycle: 30.35 days
= 62.27 – 31.92

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LO 15.3 Investments in Receivables, Inventory, and Payables

- **Working capital requirements are affected if sales change or if the cash conversion cycle components change**

Effect of 10 Percent Increase in Sales and Cost of Goods Sold

Suppose we are given the following data for a firm:

Average Collection Period = 52 days

Inventory Period = 101 days

Average Payment Period = 63 days

And we are told…..

net sales per day was $1,918 now rises 10% to $2,110

cost of goods sold per day was $1,233 now rises 10% to $1,356

Can Work Backward to Estimate Balance Sheet Items

- Inputs: Sales/day, COGS/sale and forecasts of cash conversion cycle components
- Accounts Receivables = net sales per day x average collection period
- Inventory = COGS per day x inventory conversion period
- Accounts Payable = COGS per day x average payment period

Effect on investment (current assets), financing (current liabilities) with no change in Cash Conversion Cycle

	BASE CASE	10% INCREASE IN SALES & COGS (rounded)
Investment:		
AR	$100,000	$110,000 (2,110 x 52)
Inventories	125,000	138,000 (1,356 x 101)
Total	$225,000	$248,000
Financing:		
AP	$ 78,000	$ 85,000 (1,356 x 63)
Net Investment:	$147,000	$163,000

Effect of 10 Percent Increase in Sales and Cost of Goods Sold

We suppose we are given a forecast for shorter cash conversion cycle numbers:

Average Collection Period= 50 days (was 52)

Inventory Period = 90 days (was 101)

Average Payment Period = 70 days (was 63)

While the sales and cost of goods sold rise remains:

net sales per day= $1,918 rises 10% to $2,110

cost of goods sold per day=$1,233 rises 10% to $1,356

Effect on investment (current assets), financing (current liabilities)

	BASE CASE	10% INCREASE IN SALES & COGS (rounded)
Investment:		
AR	$100,000	$106,000 (2,110 x 50)
Inventories	125,000	122,000 (1,356 x 90)
Total	$225,000	$228,000
Financing:		
AP	$ 78,000	$ 95,000 (1,356 x 70)
Net Investment:	$147,000	$133,000

LO 15.4 Cash Budget

- Short-term forecast of cash inflows and outflows
- Daily, weekly, monthly, quarterly
- Helpful in estimating short-term borrowing needs, lender repayments

Cash Budget Inputs

- Minimum desired cash balance
- Cash inflows
  - sales forecast
  - customer payment patterns
- Cash outflows
  - fixed outflows (interest, rent, lease)
  - supplier payments
  - effect of seasonal vs. level production

Monthly Cash Inflows

	NOV.	DEC.	JAN.	FEB.
Sales	$80,000	$100,000	$30,000	$40,000
Collections:				
(50% of sales of the previous month)	40,000	50,000	15,000	
(50% of sales of the 2nd previous month)			40,000	50,000
Total Cash Receipts			$90,000	$65,000

Monthly Cash Outflows

	NOV.	DEC.	JAN.	FEB.
Sales	$80,000	$100,000	$30,000	$ 40,000
Materials and supplies purchases (50% of monthly sales)	40,000	50,000	15,000	20,000
Payments: (100% of purchases of the second previous month)			40,000	50,000
Salaries and overhead			20,000	20,000
Interest				7,000
Capital expenditures				50,000
Total Cash Payments			$60,000	$127,000

Net Monthly Cash Flows

	JAN.	FEB.
Total Cash Receipts	$90,000	$65,000
less: Total Cash Payments	60,000	127,000
Net Cash Flow	$30,000	($62,000)

Cash Budget, January and February

	JAN.	FEB.
Net cash flow	$30,000	($62,000)
Beginning cash balance	$25,000	$55,000
Cumulative cash balance	$55,000	($ 7,000)
Monthly loan (or repayment)	0	$32,000
Cumulative loan balance	0	$32,000
Ending Cash Balance	$55,000	$25,000

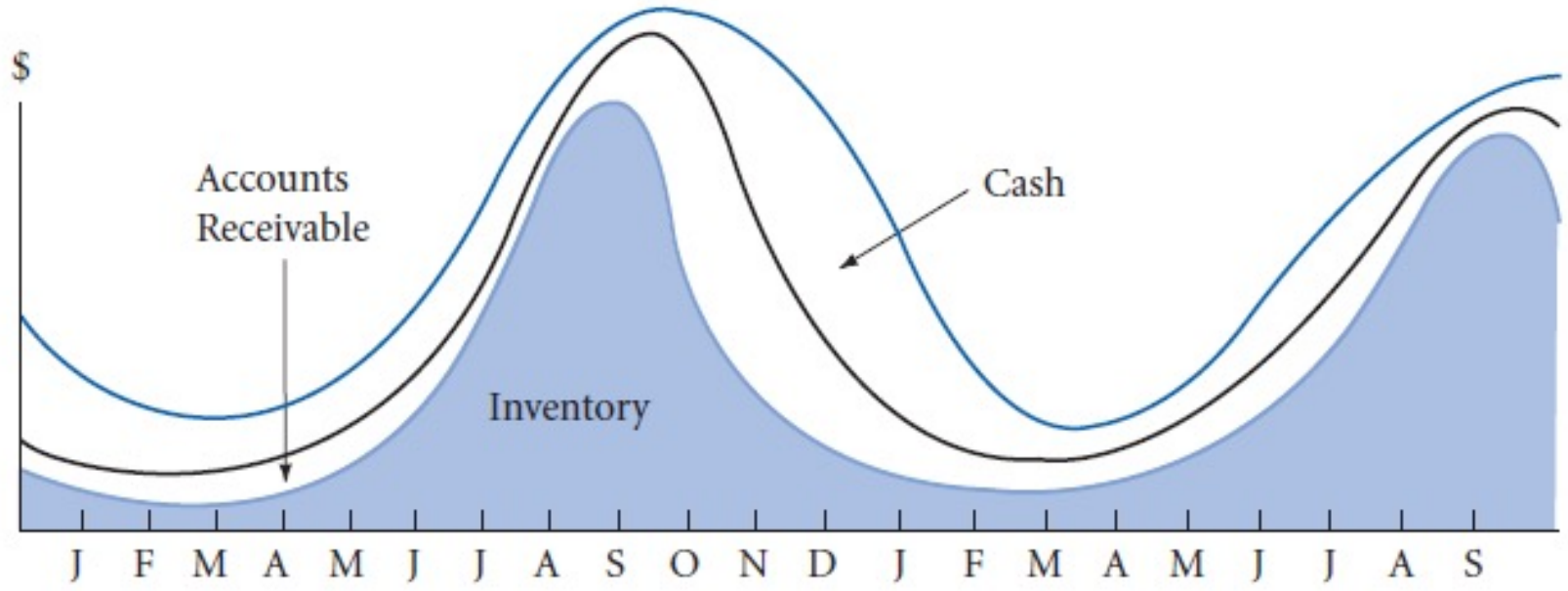
Seasonal vs. Level Production Issues for Firms with Seasonal Sales

- **Seasonal Production:**
  - **Raw materials purchased shortly before sales occur**
  - **Lower inventories**
  - **Idle plant, laid-off workers in slow season**
  - **Production bottlenecks in busy season**

Level Production Issues

- Produce equal amounts each month to meet annual sales forecast
- Inventory build up prior to selling season
- Cash outflows during year with little cash inflow

Changing Composition of Current Assets with Seasonal Sales and Level Production



LO 15.5 Management of Current Assets

- Cash and Marketable Securities
- Accounts Receivable Management
- Inventory Management

Cash and Marketable Securities

- Why should a business hold cash and marketable securities?
- Transactions motive
- Precautionary motive
- Speculative motive
- Tax motive

Desirable Characteristics of Marketable Securities

- Highly liquid
- Short-term maturity
- High quality issuer

Types of Marketable Securities

- U.S. Treasury bills
- Commercial paper
- Negotiable Certificates of Deposit
- Bankers' Acceptances
- Eurodollars

Short-term Investment Policy Statement

- For a firm's marketable securities, the investment policy statement (IPS) outlines type of allowable investments, their quality (credit rating) and maximum maturity

Short-term Investment Policy Statement

Investment	Maximum Investment per issuer	Rating	Maximum Maturity
Commercial Paper	$15 million	A1/P1	180 days
Certificates of Deposit	$25 million	A1/P1	270 days
US Treasuries	None	Not appl.	18 months
Municipal securities	$10 million	A1/MIG1	15 months
Bankers Acceptances	$15 million	A1/P1	120 days

LO 15.6 Getting and Keeping the Cash

- Goal: shorten cash conversion cycle by speeding up receipts, slowing disbursements
- Float: delay between when funds are sent by a payer to the payee
  - Collection float
  - Disbursement

Three Components of Float

- Delivery or transmission float
- Processing float
- Clearing float

Reduce Collection Float

- Lockbox system
- Pre-authorized checks
- Both help to reduce delivery, processing and clearing float
- Remote Capture of check
- On-line bill pay

The Fed Acts to Reduce Float

- Check 21: program initiated by Fed in 2004
- Will reduce clearing float
- Payee (supplier's) bank can send electronic or digital image of check (paper copy not required anymore) to the payor (customer's) bank to facilitate transfer of funds from the customer's to the supplier's bank accounts
- We can do this with some smart phone apps now!

Increase Disbursement Float

- Beware unethical practices of late payment
- Zero Balance Account
- Will float eventually disappear?
  - Electronic payment systems

LO 15.7 Accounts Receivable Management

- Credit Analysis
- Setting Credit Terms
- Collection Efforts

Credit Analysis

- 5 C's
  - Character
  - Capacity
  - Capital
  - Collateral
  - Conditions
- Credit bureaus
- Credit scoring

Credit Terms

- Payment terms and accounts receivable balance
- Terms of net 60 imply an AR turnover of about 6 (365/60)
- If net sales = $720,000,
- Average AR = $720,000/6 = $120,000
- Impose net 50 credit terms; ARTO=7.3
- Average AR = $720,000/7.3=$100,000
- Reduction of $20,000; with a 15% financing cost, savings = $3,000

Collecting from Overseas Customers

- Changing exchange rates in global business
- Selling firm can
  - Require payment in the selling firm's home currency
  - Use futures or options contracts to reduce risk if customer pays in their own currency

Collection Effort

- Cost of process
- Customer alienation versus benefits

Changes in Credit Policy

- Compare marginal benefits and marginal costs of changing credit policy, terms
- Benefits: change in net sales, profits
- Costs: changes in working capital accounts need to be financed
- Consider changing policy if marginal benefits exceed marginal costs

LO 15.8 Inventory Management

- Cost of goods sold = $600,000
- If inventory turnover is 6, the average inventory balance is $100,000
- If inventory turnover rises to 8,
- Average Inventory = $600,000/8 = $75,000,
- Reduction of $25,000; with a 15% financing cost, savings = $3,750
- Drawback: lost sales, customer dissatisfaction if stockouts occur

Modern Working Capital Management

- JIT: Just-in-time
- JIT II
- Firms have an incentive to reduce working capital to free up cash and reduce financing costs.

LO 15.9 Technology and Working Capital Management

- Manage cash, receivables, technology
- More effective communication with customers, vendors

Cash Management

- Cash balance at bank is available on-line
- Treasury workstation to track receipts, disbursement, balances, and transfer funds

Processing Orders and Processing Float

- EDI—electronic data interchange
- XML—eXtensible markup language
- EIPP—electronic invoice presentment and payment

Tracking Inventory

- Scanning on departure from supplier through shipping, warehouse, retail location and check-out line
- RFID: radio frequency identification tags