

# Managing net working capital

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# 1. The Purpose of Net Working Capital

- Every corporation maintains a stock of current assets and current liabilities to buffer the inflows and outflows of cash generated by the firm's business.
- Working capital
  - Current assets (i.e., cash, marketable securities, accounts receivable, and inventories) held by a firm at any point in time
- Net working capital (NWC)
  - $NWC = \text{Working capital} - \text{Firm current liabilities}$ 
    - Firm current liabilities: short-term debt and accounts payable
  - If a firm can be managed with a smaller stock of net working capital, cash can be paid to shareholders = run a corporation efficiently in order to minimize the need for net working capital.

# 1. The Purpose of Net Working Capital

- Inventories as assets

- Includes raw materials, goods that represent work-in-progress, and finished goods
- Cost of production are lower if production is smoothed over time
- Increases in inventories seen as an investment for future cash (rate of return to the capital/inventories )

- Other current assets

- Increases in cash marketable securities and accounts receivable should also be viewed as investment for future cash

- Short-term liabilities

- May be used to buy e.g., raw materials without changing NWC

= firms try to hold enough net working capital to smooth out the production–sales cycle.

## 2. International Cash Management

- Goals:
  - to establish control over the cash resources of the organization
  - to invest excess short-term funds in an optimal way
  - to obtain short-term financing at the lowest cost
- Constraints
  - Government restrictions on the transfers of funds
    - Blocked funds
    - Unattractive foreign exchange rates
  - Taxes that depend on the type of fund transfer
  - Transaction costs in the foreign exchange market
  - Problems maintaining the liquidity of all foreign affiliates

## 2. International Cash Management

- Cash management with a centralized pool
  - ***Transactions demand for money***: arises because a firm realizes that it has some expenditure that will be incurred in the near future.
  - ***Precautionary demand for money***: arises because a firm may need to purchase something due to unanticipated change in its environment
  - MNCs can reduce transaction costs by centralizing the management of short-term cash balances of its foreign affiliates

# Daily Cash Reports of an MNC's European Affiliates (in thousands of euros)

- The management of a firm's **centralized cash pool**
- MNC that has European affiliates operating in Great Britain, Denmark, Netherlands, Spain.
- The cash flows for each of the affiliates are converted into euros at current exchange rates.
- Month's cumulative cash flows before any multilateral netting for the European affiliates of a multinational corporation

**Exhibit 19.1** Daily cash reports of an MNC's European affiliates (in thousands of euros)

Date: October 21, 2017				Date: October 21, 2017			
British affiliate				Danish affiliate			
Current cash position: +200				Current cash position: -100			
Five-day forecasts				Five-day forecasts			
Day	Receive	Pay	Net	Day	Receive	Pay	Net
+1	200	100	100	+1	300	200	100
+2	150	500	-350	+2	400	400	0
+3	100	150	-50	+3	600	250	350
+4	200	100	100	+4	100	300	-200
+5	150	100	<u>50</u>	+5	200	300	<u>-100</u>
Net for period			-150	Net for period			150
Date: October 21, 2017				Date: October 21, 2017			
Dutch affiliate				Spanish affiliate			
Current cash position: +250				Current cash position: +150			
Five-day forecasts				Five-day forecasts			
Day	Receive	Pay	Net	Day	Receive	Pay	Net
+1	450	700	-250	+1	600	100	500
+2	400	100	300	+2	500	100	400
+3	200	700	-500	+3	400	100	300
+4	450	200	250	+4	200	700	-500
+5	400	300	<u>100</u>	+5	100	200	<u>-100</u>
Net for period			-100	Net for period			600

# Consolidated Daily Cash Reports of an MNC's European Affiliates (in thousands of euros)

**Exhibit 19.2** Consolidated daily cash reports of an MNC's European affiliates (in thousands of euros)

Daily cash balances, October 21, 2017			
	Closing balance	Minimum-desired balance	Surplus (deficit) cash balance
British	200	100	100
Danish	-100	200	-300
Dutch	250	300	-50
Spanish	150	250	-100
European total			-350

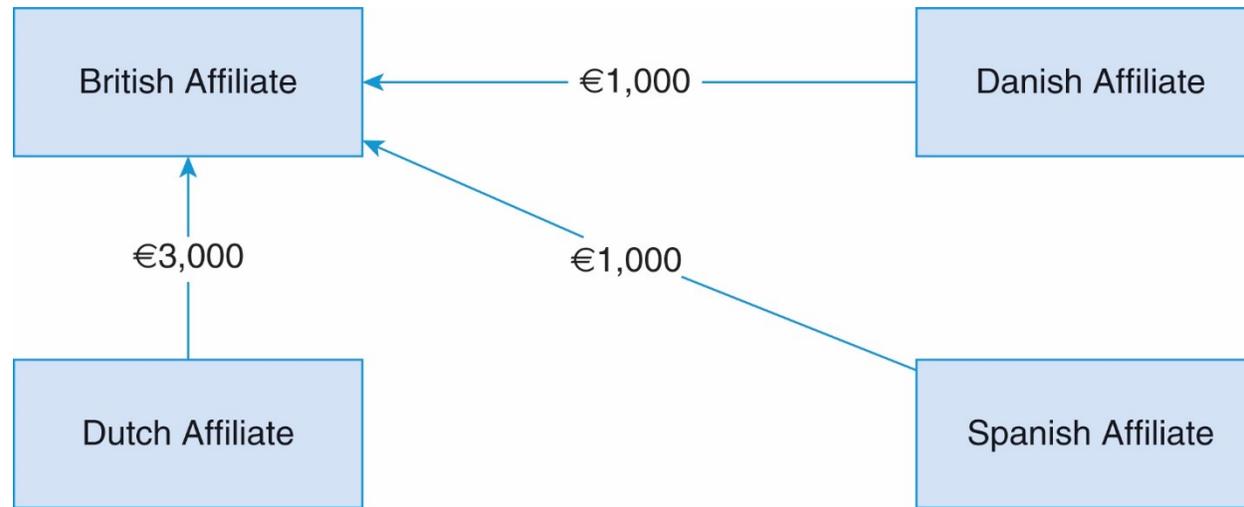
Minimum desired balance should be adjusted downward in light of the interest rates and the expectations of depreciation.

# The Cash Flows of an MNC's Affiliates Before Multilateral Netting (in thousands of euros)

**Exhibit 19.4** The cash flows of an MNC's affiliates before multilateral netting (in thousands of euros)

Receiving affiliate	Paying affiliate				Total receipts	Net receipts (payments)
	British	Dutch	Spanish	Danish		
British	–	3,000	7,000	4,000	14,000	5,000
Dutch	1,000	–	3,000	3,000	7,000	(3,000)
Spanish	5,000	6,000	–	2,000	13,000	(1,000)
Danish	3,000	1,000	4,000	–	8,000	(1,000)
Total payments	9,000	10,000	14,000	9,000	42,000	–

# Cash Flows After Multilateral Netting (in thousands of euros)



## 2. International Cash Management

- Managing surpluses and deficits
  - Surpluses can be invested in short-term money market instruments
  - Deficits can be borrowed through banks or in the commercial paper market
- Forecasts of cash flows
  - Five-day rolling forecasts
  - Can be checked for accuracy
  - Enables assessment of short-term needs of each affiliate in light of forecasted movements in exchange rate
  - Used to generate overall forecasts of the net cash flows
- Multilateral netting system
  - Save on transaction costs

## 2. International Cash Management

- Using a **centralized cash management system to reduce precautionary cash demands**
  - Can use probability distributions to help the firm manage the cash
    - Normal distribution → 97.5% probability that the cash demands will not exceed the mean plus two times the standard deviation
    - This can be done at a specific location or even by region
  - Limits:
    - MNCs must diversify across banks as even the largest banks have the potential to default

# European Affiliates' Demands for Cash

**Exhibit 19.6** European affiliates' demands for cash

	Mean demand for cash	One standard deviation	Total demand for cash
British	€1,000,000	€750,000	€2,500,000
Danish	€2,000,000	€900,000	€3,800,000
Dutch	€1,500,000	€850,000	€3,200,000
Spanish	€2,500,000	€1,150,000	€4,800,000
Total	€7,000,000		€14,300,000

# 3. Cash Transfers from Affiliates to Parents

- Dividends payments
  - Most common, makes up > 50% of transfers
  - Tax planning – policy / timing should minimize taxes
  - Political risk
    - To avoid questions from foreign governments, it is advantageous to have dividend policies in place
  - Foreign exchange risk – timing may be used to maximize benefit or minimize loss
  - Other factors, e.g., joint venture relationships

### 3. Cash Transfers from Affiliates to Parents

- Royalties and management-fees
  - Royalties – payments to owners of technology, patent or trademark for its use
  - Fees for management or consulting services
    - Tax advantages of royalties and fees – not taxes in some countries
  - Repatriation in a joint venture – important to ensure that there is no confusion about future payments
  - Paid out of pretax income, which reduces withholding taxes of other repatriated funds

### 3. Cash Transfers from Affiliates to Parents

- Transfer pricing and cash flows
  - Set prices for goods being sold to firm's affiliates
  - Not always easy to determine if these prices are fair value (especially for semi-finished goods, which have no market price)
  - High transfer pricing shifts income / tax payments from the affiliate paying to the affiliate receiving
    - Governments do not like this
  - Shift income and tax burdens between countries

**Exhibit 19.7** Effects of high and low transfer prices on net income

# Effects of High and Low Transfer Prices on Net Income

The increase in the transfer price shifted income from the distribution affiliate to the manufacturing affiliate.

## Panel A: Low-transfer-price policy

	Manufacturing affiliate (30% tax rate)	Distribution affiliate (60% tax rate)	Consolidated company
Sales	\$2,200	\$3,200*	\$3,200*
Less cost of goods sold	1,500*	2,200	1,500*
Less operating expenses	<u>200*</u>	<u>100*</u>	<u>300*</u>
Taxable income	\$ 500	\$ 900	\$1,400*
Less income taxes	<u>150</u>	<u>540</u>	<u>690</u>
Net income	\$ 350	\$ 360	\$ 710

## Panel B: High-transfer-price policy

	Manufacturing affiliate (30% tax rate)	Distribution affiliate (60% tax rate)	Consolidated company
Sales	\$2,600	\$3,200*	\$3,200*
Less cost of goods sold	1,500*	2,600	1,500*
Less operating expenses	<u>200*</u>	<u>100*</u>	<u>300*</u>
Taxable income	\$ 900	\$ 500	\$1,400*
Less income taxes	<u>270</u>	<u>300</u>	<u>570</u>
Net income	\$ 630	\$ 200	\$ 830

### 3. Cash Transfers from Affiliates to Parents

- Transfer pricing regulations establish what is an appropriate price
  - In U.S. this is one which reflects an “arm’s-length price”
    - Methods to calculate this (for U.S. and OECD member nations) include:
      - The comparable uncontrolled price method
      - The resale price method
      - The cost-plus method
      - The comparable-profits method
      - Other acceptable methods

### 3. Cash Transfers from Affiliates to Parents

- How transfer prices affect manager incentives
  - Makes it more difficult to evaluate management since it can artificially cause some locations to appear more profitable than others
- Using transfer prices to offset tariffs (taxes on imported goods)
  - Can offset tariffs by imposing a low transfer price
  - Increase gross income of the purchasing affiliate, which will result in higher income taxes

### 3. Cash Transfers from Affiliates to Parents

- Using transfer pricing to deal with foreign exchange quotas
  - Similar to offsetting tariffs, quotas push up the value of each unit so affiliates can offset this with lower transfer prices
- Transfer pricing in joint ventures
  - More difficult since partner is from another country and incentives are different

## 4. Managing Accounts Receivable

- Any firm that decides to issue trade credit must perform five tasks
  - Assess credit risk of customer
  - Determine terms of credit (term length and interest penalties for late payments)
  - Finance the receivable between the production and the receipt of funds from the sale
  - Collect the receivable
  - Bear the default risk of companies that are extended credit
- Currency of denomination
  - MNC must decide whether its foreign sales should be denominated in the domestic currency, in the currency of the foreign customer, or possibly in a third currency
  - Exports in currencies most likely to appreciate
  - Imports in currencies most likely to depreciate

## 4. Managing Accounts Receivable – Example: Currency denomination

- Pricing airplanes for British Airways
  - British Airways will have to pay Boeing \$100M in 1 year when they deliver the planes
  - The spot and forward rates are as follows: Spot: \$1.65/£; 1-yr Forward: \$1.60/£
  - Using the forward contract, BA would pay
    - $\$100M / (\$1.60/\text{£}) = \text{£}62.5M$
  - They are therefore indifferent between paying £62.5M or hedging \$100M.

## 4. Managing Accounts Receivable – Example 2

- Pricing airplanes for Bangkok Airways
  - Spot = THB25/\$ with no forward market
    - 50% chance spot will stay the same
    - 50% chance the baht will fall to THB40/\$
  - Price of plane = \$100M in 1 year
  - BA can buy \$ today and invest or bear the risk for a year:
    - $E[F] = [0.5 \times (THB25/\$)] + [0.5 \times (THB40/\$)] = THB32.5/\$$
  - Boeing thinks THB40/\$ will occur with 55% probability:
    - $E[F] = [0.45 \times (THB25/\$)] + [0.55 \times (THB40/\$)] = THB33.25/\$$
    - Boeing could charge this price in THB if they wanted to
      - If this happened, BA would prefer to be invoiced in \$s since  $THB32.5 < THB33.25$

## 4. Managing Accounts Receivable

- Timing of payments can affect liquidity of an MNC's affiliates
  - Leading payment – payment made earlier than usual
  - Lagging payment – payment made later than usual
  - Cost must be considered
    - Funds should be moved from affiliates that have low opportunity costs of NWC to affiliates with high opportunity costs

## 4. Managing Accounts Receivable

- Different borrowing and lending rates for affiliates
  - U.S. parent 8% borrowing rate; 7% lending rate
  - British affiliate 8.2% borrowing rate; 6.9% lending rate
  - The U.S. parent has surplus funds and British affiliate must borrow – parent should lend funds to the affiliate
    - $\$1M \times (8.2 - 7) / 100 \times (90 / 360) = \$3,000$
  - The U.S. parent must borrow and affiliate has surplus – the affiliate should lend to the parent
    - $\$1M \times (8.0 - 6.9) / 100 \times (90 / 360) = \$2,750$

## 4. Managing Accounts Receivable

- Both the parent and the affiliate have surplus
  - Parent can earn more so the affiliate should flow funds to parent
  - $\$1M \times (7 - 6.9) / 100 \times (90 / 360) = \$250$
- Both parent and affiliate must borrow
  - Since the parent borrows at a lower cost, funds should flow from parent to affiliate
  - $\$1M \times (8.2 - 8.0) / 100 \times (90 / 360) = \$500$

## 4. Managing Accounts Receivable - Summary

- **1. The U.S. parent has surplus funds, and the British affiliate must borrow:** The U.S. parent can invest funds at 7%, whereas the British affiliate borrows at 8.2%. Clearly, the U.S. parent should lend funds to the British affiliate.
- **2. The U.S. parent must borrow, and the British affiliate has surplus funds:** The U.S. parent borrows funds at 8.0%, whereas the British affiliate earns only 6.9% on its lending. Clearly, the British affiliate should lend to the U.S. parent.
- **3. Both the U.S. parent and the British affiliate have surplus funds:** Because both the U.S. parent and the British affiliate have funds to invest, we merely compare what they can earn. The U.S. parent can earn 7%, whereas the British affiliate can only earn 6.9%. Clearly, funds should flow from the British affiliate to the U.S.
- **Both the U.S. parent and the British affiliate must borrow:** Because both the U.S. parent and the British affiliate must borrow, we merely compare their respective borrowing rates. The U.S. parent borrows at 8.0%, whereas the British affiliate borrows at 8.2%. Clearly, funds should flow from the U.S. parent to the British affiliate.

# 5. Inventory Management

- Inventory kept to smooth the production process
- Inventory is costly, however
  - If a firm's cost of capital is 15%, \$100M of inventory costs the firm \$15M
  - Firm exposed to losses if inventory is stolen, destroyed or becomes obsolete
    - Insurance can be bought for this but will be another cost
- Optimal inventory theory
  - MB of production smoothing = MC of holding inventory
  - Devaluation or depreciation risk at foreign subsidiaries

# QUESTIONS:

- What is net working capital? Why should it be considered an investment that a firm must make to increase its future profitability?
- What distinguishes international cash management from purely domestic cash management? In particular, what constraints arise in the international environment?
- How can transfer pricing be used to shift income around the world?/How can transfer pricing be used to avoid tariffs?
- Why is the threat of devaluation an insufficient reason for a firm to build up its stocks of inventories?
- What are the five tasks involved in issuing trade credit?