Overview of Working Capital

- Working capital management involves optimizing current assets and liabilities to ensure that the firm has sufficient liquidity
- Working capital management is one of the primary responsibilities of treasury professionals
- It is influenced by the firm’s daily operating activities (ordering and paying for goods and services, as well as making and collecting on sales)
- The ebb and flow of this operating cycle results in the cash conversion cycle.

```
<table>
<thead>
<tr>
<th>Days' Inventory</th>
<th>Days' Receivables</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purchase of Resources</td>
<td>Payment for Resources</td>
</tr>
<tr>
<td>Production of Goods or Services</td>
<td>Collection of Sales Proceeds</td>
</tr>
</tbody>
</table>
```

Cash Conversion Cycle
Float

- Float refers to the time interval, or delay, between the start and the completion of a specific phase or process occurring along the cash flow timeline.
- Float can result from:
  - Wait time
  - Time lost waiting for someone else to take action
  - Time needed to transmit information
  - Inefficiencies within a specific process, often a result of paper processes and delivery systems.
Float and the Cash Flow Timeline

- Different Types of Float
  - Collection float
  - Disbursement float
  - Invoicing float
  - Payment float
  - Information float
- Benefits of Float Reduction
  - Reducing float on collections
  - Lengthening float on disbursements
  - Possible of win-win approach
  - Reducing cycle times
  - JIT inventory
  - Supply chain management
  - E-commerce and electronic payment

Group Exercise

- Working in your groups, answer the following questions:
- What is the difference between collection float and disbursement float?
- What are the key components of each of these float concepts?
- What is the most important component to manage for your company?

Collection/Disbursement Float

- Components
  - Mail Float
    - Mail Time
  - Processing Float
    - Deposit Preparation Time
  - Availability Float
    - Check Availability Time
  - Clearing Float
    - Check Clearing Time
- Measurement of Float
  - Dollar-Days
The working capital cash conversion cycle (CCC)

- **Days’ Inventory or Inventory Conversion Period**
- **Days’ Receivables or Receivables Conversion Period**
- **Days’ Payables or Payables Conversion Period**
- **Calculating the Cash Conversion Cycle (CCC)**

More on Cash Conversion Cycle (CCC)

\[
CCC = \text{Days’ Inventory} + \text{Days’ Receivables} - \text{Days’ Payables}
\]

- **Assume the following**
  - Days’ Inventory = 45 days
  - Days’ Receivables = 35 days
  - Days’ Payables = 30 days
  - Then: CCC = 45 + 35 – 30 = 50 days
- **Now assume the company can reduce inventory and A/R, while extending payables**
  - Days’ Inventory = 40 days
  - Days’ Receivables = 32 days
  - Days’ Payables = 33 days
  - Then New CCC = 40 + 32 – 33 = 39 days
- **Cash Turnover = 365 / CCC**
  - At CCC = 50 days, Cash Turnover = 7.3 times
  - At CCC = 39 days, Cash Turnover = 9.4 times
Problems in “Managing” CCC Components

- Potential lost sales
- Production stoppages
- Stretched payables
- Foregone cost-saving trade discounts
- Higher prices assessed by vendors on smaller orders or slow payments
- Refusal to sell to weak customers
- Excessive reliance on A/P rather than S/T bank credit

How Changes in Current Accounts Impact External Financing

- Changes in Current Assets
  - May require additional financing
- Changes in Current Liabilities
  - Some liabilities are spontaneous
- External Financing Requirements
  - The change in NWC (CA – CL) is the amount of new net financing needed

Working Capital Investment and Financing Strategies

- Selecting a Current Asset Investment Strategy
  - Restrictive current asset investment
  - Relaxed current asset investment
- Selecting a Current Asset Financing Strategy

<table>
<thead>
<tr>
<th>Asset Breakdown</th>
<th>Fixed Assets</th>
<th>Permanent Current Assets</th>
<th>Fluctuating Current Assets</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conservative</td>
<td>Long-Term Sources</td>
<td>Short-Term Sources</td>
<td>S/T Sources</td>
</tr>
<tr>
<td>Aggressive Policy</td>
<td>Long-Term Sources</td>
<td>Short-Term Sources</td>
<td>S/T Sources</td>
</tr>
</tbody>
</table>

Source: ETM5 - © AFP
Group Exercise

- **Working in your groups, answer the following questions:**
  - For the practitioners: What are some of the key issues related the management and financing of working capital at your company?
  - For the bankers: What kinds of products/services do you offer to help your customers in this area?

Management of Credit and Accounts Receivable (A/R)

- Relationship Between Treasury and Credit Management
- Trade Credit Policies
- Billing and Collection Methods
- Forms of Credit Extension
- Cash Application
- Considerations Pertaining to Terms of Sale
- Financing Accounts Receivable (A/R)

Relationship Between Treasury and Credit Management

- **Separate functions**
- **Credit manager** administers policies that establish credit standards, define terms of sale, approve credit sales, and set individual and aggregate credit limits
- A/R is created once a sale is made and trade credit is extended
- **A/R management** includes billing and processing payments, monitoring payment patterns, and collecting delinquent accounts
Trade Credit Policies

- To ensure consistent application and fairness, companies should maintain written credit policies and procedures that clearly define their:
  - Credit standards
  - Credit terms
  - Customer discounts
  - Methods of monitoring financial distress
  - Collection policies

Trade Credit Standards

- Two Stage Credit Granting Process:
  - Establish credit acceptance criteria that represent a maximum amount of payment risk the company is willing to assume
  - Decide whether to approve a credit applicant under the criteria, and if approved, set a credit limit for that applicant
- Two Key Considerations
  - If standards are too strict, sales could be lost
  - If standards are too lenient, bad debt loss and late payments may be increased

Credit Information Sources

- Company must consider the type, quantity and cost of information when establishing a method for analyzing credit requests
- Credit information is gathered in stages from both internal and external sources
- At each stage, costs are weighed against expected benefits
- Sources include:
  - Internal payment history
  - Financial statements
  - Trade references
  - Credit reports or ratings
The Five C's of Credit

- **Character**: An intent or willingness to pay as evidenced by payment history
- **Capacity**: Current and future financial resources that can be committed to pay obligations
- **Capital**: Short- and long-term financial resources to supplement insufficient cash flow for payments
- **Collateral**: Assets or guarantees available to secure an obligation if payment is not made
- **Conditions**: General economic environment and economic conditions for the customer and the seller

Quantitative Credit Analysis

- **Most often used measures:**
  - Liquidity and WC ratios
  - Debt management and coverage ratios
  - Profitability measures

- **Consumer Credit Scoring Process**
  1. Differentiating risks
  2. FICO Score
  3. Set cutoff score
  4. Applying further analysis where necessary

Group Exercise

- **Working in your groups, answer the following questions:**
  - Why might quantitative credit scoring be less effective for B2B sales than it is for B2C sales?
  - What are some of the other factors that should be considered in B2B credit and sales?
Why Quantitative Credit Analysis is Not as Effective for B2B

- The available databases are much smaller for B2B
- The per-transaction exposure is usually much larger
- Impact of one large default
- Difficult to obtain financial info for some customers, especially for smaller, private companies

Other Credit Considerations

- Credit Terms
  - Both terms and limits should be clearly defined, both individual and aggregate
  - Some considerations:
    - Credit policy constraints
    - Financing implications
    - Income and expenses related to granting credit
- Customer Discounts
- Payment Discrepancies
- Monitoring Financial Distress
- Collection Policy

Billing and Collection Methods

- Major objective of collection policy is to convert A/R into cash quickly while minimizing collection expense and bad debt losses
- Effective A/R management includes reducing invoicing float as much as possible
- Clear collection policies should be established and enforced
Credit & Payment Application

- Forms of Credit Extension
  - Open account
  - Installment credit
  - Revolving credit
  - Letter of credit (L/C)
- Offering Discounts
  - Evaluate costs versus benefits
- Cash Application
  - Open item
  - Balance forward

Common Terms of Sale

- Cash before delivery (CBD)
- Cash on delivery (COD)
- Cash terms
- Net terms
- Discount terms
- Monthly billing
- Draft/Bill of lading
- Seasonal dating
- Consignment

Financing Accounts Receivable

- Borrow unsecured funds to support A/R
- Pledge A/R as collateral for secured loan
- Securitize receivables
- Use captive finance subsidiary
- Third-party financing
- Card Payments
- Factoring
- Private-label financing
Financing A/R – Card Payments

- **Advantages**
  - No direct costs of running a credit department
  - Seller doesn’t have to finance A/R
  - Credit card issuer absorb debt losses
  - Sales increased
  - Payback more quickly

- **Disadvantages**
  - Seller relinquishes control over credit decision
  - Seller loses promotional opportunities
  - Seller incurs discount costs and transaction fees.
  - Maintenance expense

Management of Inventory

- The amount of inventory carried on the balance sheet impacts the firm’s production and sales activities.
- While inventory management is generally the direct responsibility of marketing or manufacturing managers, treasury is responsible for obtaining its financing
- Key elements include:
  - Benefits and costs of inventory
  - Types of inventory
  - Inventory management techniques
  - Inventory financing alternatives

Management of Accounts Payable (A/P)

- A/P is a major source of s-t financing for many companies
- A/P manager’s primary responsibility is to verify incoming invoices and authorize payments – sometimes referred to as “vouchering”
- Three-way Match
- Treasury & A/P Coordination
  - How & when invoices are paid
  - Reconciliation of cleared (paid) items
Disbursement System Considerations

- Four Considerations
  - Information Access
  - Fraud Prevention
  - Relationship Maintenance with Payees
  - Timing of Payments
- Centralized vs. Decentralized

Three-Way Match

- Purchase Order
- Invoice
- Receiving Advice
- Approved Vendor List ??

Considerations for Global Management of Working Capital

- Global Working Capital Management Tools and Techniques
- Multicurrency Accounts
- Netting
- Leading and Lagging
- Re-invoicing Center
- Internal Factoring
- In-House Banking
- Export Financing

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Multicurrency Accounts

- These are special arrangements between a bank and a company, where the bank lets the customer receive or make payments in a range of currencies from a single account or from multiple subsidiary accounts.
- Four general stipulations:
  1. The base currency in which the account is denominated
  2. The portfolio of currencies accepted
  3. The spread or margin over the spot rate to use in exchanging each currency back to the base currency
  4. The value date to apply to debits and credits for each transaction type and currency

Types of Netting

**Bilateral**
- Purchases between two subsidiaries are periodically netted against each other.
- Payments netted in different currencies are converted to a common reference currency.

**Multilateral**
- Purchases between multiple subsidiaries are periodically netted against each other.
- Payments are converted to a common, reference currency.
- Payments are combined.
- A netting center makes the necessary FX conversions.

Only the net difference is transferred. Subsidiaries either pay or receive the net amount in their own currency.

Before Netting

**INTERCOMPANY CASH FLOW BEFORE NETTING**

- **UK**
  - Transfers:
    - £110 to £90
    - £20 to £10
  - Number of Payments = 4
  - Total Cashflows = £130

- **GERMANY**
  - Transfers:
    - €150 to €110
    - €10 to €5
  - Number of Payments = 2
  - Total Cashflows = €160

- **U.S.**
  - Transfers:
    - $195 to $170
    - $30 to $20
  - Number of Payments = 4
  - Total Cashflows = $230

- **HONG KONG**
  - Transfers:
    - HKD105 to HKD80
    - HKD10 to HKD5
  - Number of Payments = 2
  - Total Cashflows = HKD160

**Source:** ETMD © AFP
With Multilateral Netting

Benefits/Costs of Netting System

**Benefits**
- A reduction in the number of FX transactions and cross-border wire transfers, and benefits from natural hedging
- More favorable FX rates due to the potential for larger FX trades resulting from consolidation
- Improved cash and currency exposure forecasting for both the subsidiary and the parent company as a result of the ability to preplan cross-border payments

**Costs**
- Setup, administration and maintenance expenses

Leading and Lagging

**Leading**
- Executing cross-border payments between subsidiaries ahead of the scheduled payment date
- Used when a subsidiary country’s currency is expected to depreciate relative to the parent company’s currency

**Lagging**
- Executing cross-border payments between subsidiaries behind the scheduled payment date
- Used when a subsidiary country’s currency is expected to appreciate relative to the parent company’s currency
Re-invoicing Center Purpose

Company Owned Subsidiary

- Buys goods from an exporting subsidiary
- Resells the goods to an importing subsidiary

Before Re-invoicing

With Re-invoicing

Transaction Exposures Before Re-invoicing

Transaction Exposures After Re-invoicing

Re-invoicing Center assumes all currency exchange risks

Source: ETMS © AFP
Other Global Treasury Techniques

- **Internal Factoring**
  - Similar to re-invoicing, but rather than transferring title, the internal factor unit buys A/R from the collecting unit and collects funds from the importing unit.

- **In-house Banking**
  - Treasury becomes the main provider of banking services for all the company’s operating entities.
  - Primary benefit is a reduction in overall banking costs.

Export Financing

- In many countries, the government supports export activities through export loans, credit guarantees or a combination of both – generally referred to as Export Credit Agencies (ECA).
  - In U.S. the EximBank is the primary ECA.
  - Advantages Include:
    - Lower interest rates, usually fixed.
    - Government involvement may offer some protection against foreign government appropriation or interference.
  - Disadvantages Include:
    - Time required to get necessary approvals.
    - Currency exposure if the currency of the loan is different from that of the cash flows from the project being financed.

Overview of Chapter Topics

- **Introduction**
- **Fundamental Working Capital Metrics**
- **Calculation of the Cash Conversion Cycle (CCC)**
- **Calculations for Trade Credit Decisions**
- **Accounts Receivable (A/R) Monitoring and Control**
Liquidity or Working Capital

**Current Ratio**

*Measures the degree to which current obligations are covered by current assets*

\[
\text{Current Ratio} = \frac{\text{Total Current Assets}}{\text{Total Current Liabilities}} = \frac{\$8,000}{\$3,400} = 2.35
\]

Source: ETM5 - © AFP

**Quick Ratio**

*Measures the degree to which a company's current liabilities are covered by its most liquid current assets*

\[
\text{Quick Ratio} = \left( \frac{\text{Cash} + (S-T \text{ Investments}) + (A/R)}{\text{Total Current Liabilities}} \right) = \left( \frac{\$1,500 + \$1,300 + \$1,700}{\$3,400} \right) = 1.32
\]

Source: ETM5 - © AFP
Liquidity or Working Capital:

**Working Capital**

Indicates the dollar amount by which current assets exceed current liabilities

\[ \text{Working Capital} = \text{Current Assets} - \text{Current Liabilities} \]

\[ = \$8,000 - \$3,400 = \$4,600 \]

Cash Conversion Cycle (CCC)

- Days' Inventory
- Days' Receivables
- Days' Payables
- Cash Conversion Cycle (CCC)
- Cash Turnover Ratio

**“Working Capital Gap”**

Cash Conversion Cycle

Elements in the cash conversion cycle:

<table>
<thead>
<tr>
<th>Days' Inventory</th>
<th>Inventory Cost of Goods Sold $ \times 365</th>
</tr>
</thead>
<tbody>
<tr>
<td>Days' Receivables</td>
<td>Accounts Receivable Sales $ \times 365</td>
</tr>
<tr>
<td>Days' Payables</td>
<td>Accounts Payable Cost of Goods Sold $ \times 365</td>
</tr>
</tbody>
</table>

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Cash Conversion Cycle (CCC)

Calculates the time required to convert cash outflows (necessary to produce goods) into cash inflows (through the collection of accounts receivable)

$$CCC = \text{Days' Inv.} + \text{Days' Rec.} - \text{Days' Pay.}$$

$$= 103.15 + 41.36 - 63.48 = 81.03 \text{ Days}$$

Cash Turnover Ratio

If a company has a cash conversion cycle of 81.03 days, how many cash conversion cycles does the company go through in a year (cash turnover)?

$$\text{Cash Turnover} = \frac{365 \text{ Days}}{\text{Cash Conversion Cycle}}$$

$$= \frac{365}{81.03 \text{ Days}}$$

$$= 4.5 \text{ Times}$$
Cost of a Buyer Not Taking a Cash Discount (Terms: 2/10, net 30)

\[
\text{Discount Cost} = \frac{D}{100 - D} \times \frac{365}{(N - T)}
\]

\[
= \frac{2}{100 - 2} \times \frac{365}{30 - 10} = \frac{2}{98} \times 365 = .0204 \times 18.25 = .3723 \text{ or } 37.23\%
\]

Where

- \(D\) = Discount percentage is 2%
- \(N\) = Net period is 30 days
- \(T\) = Discount period is 10 days

The cost of not taking the discount can be compared with the organization's opportunity cost to borrow short-term funds. If we assume a rate of 8% for this example, then borrowing cost would be less than the cost of not taking the discount – so the organization should borrow the funds and TAKE the discount.

Group Exercise

- Working in your groups, answer the following questions:
  - Under what circumstances would a buyer forego (not take) a cash discount if offered?
  - Why would a seller be willing to offer a cash discount in the first place?

When Should a Buyer Forgo an Offered Discount

- Short-term investment rates above annualized discount rate
- Buyer's cost of short-term borrowing greater than annualized discount rate
- Buyer can “stretch” payables enough to sufficiently lower annualized discount rate
Benefit to Seller of Offering a Cash Discount

**Assume credit terms of 2/10, net 30 and opp. cost = 5%**

**Present Value of Receiving Discounted Payment Amount**

\[
PV_{\text{Disc Pmt}} = \frac{\text{Total Amount of Full Pmt} \times (1 - \text{Disc Rate})}{1 + \left(\frac{\text{Days in Disc Period} \times \text{Annual Opp Cost}}{365}\right)}
\]

\[
= \frac{$1,000 \times (1 - 0.02)}{1 + \left(\frac{10 \times 0.05}{365}\right)} = $980
\]

\[
= \frac{$980}{1.00137} = $978.66
\]

**Present Value of Receiving Full Payment Amount**

\[
PV_{\text{Full Pmt}} = \frac{\text{Total Amount of Full Pmt}}{1 + \left(\frac{\text{Days in Net Period} \times \text{Annual Opp Cost}}{365}\right)}
\]

\[
= \frac{$1,000}{1 + \left(\frac{30 \times 0.05}{365}\right)} = $995.91
\]

**NPV = PV_{\text{Day 10}} - PV_{\text{Day 30}} = $978.66 - $995.91 = - $17.25**

**Float Neutral Calculation**

- Assume \( r = 5\% \) and \( TD = 20 \) days

\[
\text{Discount} = 1 - \frac{1}{1 + \left(\frac{0.05}{365}\right) \times 20}
\]

\[
= 1 - \frac{1}{1.002732} = 1 - 0.997268
\]

\[
= 0.002732 \approx 0.0027 \text{ (Rounded)} \text{ or } 0.27\%
\]

If the buyer is allowed to take a discount of 0.27%, they would be indifferent (in present value terms) between paying on day 10 (discount period) or the end of the 30-day net period.
Accounts Receivable (A/R) Monitoring and Control

- Days’ Sales Outstanding (DSO)
- A/R Aging Schedule
- Accounts Receivable (A/R) Balance Pattern

Days’ Sales Outstanding (DSO)

Assume that a company has outstanding receivables of $285,000 at the end of the first quarter and credit sales of $310,000 for the quarter. Using a 90-day averaging period, the DSO for this company can be computed as follows:

\[
\text{DSO} = \frac{\text{Outstanding A/R}}{\text{Avg. Daily Credit Sales}} = \frac{285,000}{3,444.44} = 82.74 \text{ Days}
\]

Average Past Due = DSO - Avg. Days of Credit Terms

= 82.74 Days - 30 Days = 52.74 Days

If the company’s credit terms are net 30, the average past due is computed as follows:

\[
\text{Average Past Due} = \text{DSO} - \text{Avg. Days of Credit Terms} = 82.74 \text{ Days} - 30 \text{ Days} = 52.74 \text{ Days}
\]

A/R Aging Schedule

Separates A/R into current and past-due receivables in 30-day increments (on a customer or aggregate basis) and can determine the percent past due

<table>
<thead>
<tr>
<th>Age of A/R</th>
<th>Amount of A/R</th>
<th>% of Total A/R</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current</td>
<td>$1,750,000</td>
<td>70%</td>
</tr>
<tr>
<td>1-30 Days Past Due</td>
<td>375,000</td>
<td>15%</td>
</tr>
<tr>
<td>31-60 Days Past</td>
<td>250,000</td>
<td>10%</td>
</tr>
<tr>
<td>Over 60 Days</td>
<td>125,000</td>
<td>5%</td>
</tr>
<tr>
<td>Total</td>
<td>$2,500,000</td>
<td>100%</td>
</tr>
</tbody>
</table>

Source: ETM® - © AFP
A/R Balance Pattern

Used to monitor customer payment timing
It specifies the percentage of credit sales during a time period

<table>
<thead>
<tr>
<th>SELLs FOR MONTH</th>
<th>$350,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTERNAL SALES</td>
<td>$100,000</td>
</tr>
<tr>
<td>PAYMENTS RECEIVED AT END OF MONTH</td>
<td>$110,000</td>
</tr>
<tr>
<td>PAYMENTS RECEIVED AT END OF PREVIOUS MONTH</td>
<td>$60,000</td>
</tr>
<tr>
<td>PAYMENTS RECEIVED AT END OF CURRENT MONTH</td>
<td>$40,000</td>
</tr>
<tr>
<td>PAYMENTS RECEIVED AT END OF MONTH</td>
<td>$30,000</td>
</tr>
<tr>
<td>PAYMENTS RECEIVED AT END OF PREVIOUS MONTH</td>
<td>$20,000</td>
</tr>
<tr>
<td>PAYMENTS RECEIVED AT END OF CURRENT MONTH</td>
<td>$10,000</td>
</tr>
<tr>
<td>PAYMENTS RECEIVED AT END OF MONTH</td>
<td>$5,000</td>
</tr>
</tbody>
</table>

Source: ETM5 - © AFP

Session Wrap-up

Session 3: Working Capital Management

What did we learn in this session?

What topics do we need to learn more about?

NY Cash Exchange – 2017: CTP Track

End of This Session

We will reconvene at 4:00 pm Today.

The topic will be:

More Key Concepts
Financial Statements, Analysis & Decisions