Show me the Money!

In its 2006 annual report, Microsoft listed $27 billion in short-term securities on its balance sheet. This is essentially cash, but Microsoft does not keep this in its local bank. But where?

In the Money Market!
The Purpose of Money Markets

• Investors in Money Market: Provides a place for warehousing surplus funds for short periods of time

• Borrowers from money market provide low-cost source of temporary funds
The Purpose of Money Markets

• Corporations and U.S. government use these markets because the timing of cash inflows and outflows are not well synchronized. Money markets provide a way to solve these cash-timing problems.
### Who Participates in the Money Markets?

**TABLE 9.2  Money Market Participants**

<table>
<thead>
<tr>
<th>Participant</th>
<th>Role</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S. Treasury Department</td>
<td>Sells U.S. Treasury securities to fund the national debt</td>
</tr>
<tr>
<td>Federal Reserve System</td>
<td>Buys and sells U.S. Treasury securities as its primary method of controlling the money supply</td>
</tr>
<tr>
<td>Commercial banks</td>
<td>Buy U.S. Treasury securities; sell certificates of deposit and make short-term loans; offer individual investors accounts that invest in money market securities</td>
</tr>
<tr>
<td>Businesses</td>
<td>Buy and sell various short-term securities as a regular part of their cash management</td>
</tr>
<tr>
<td>Investment companies</td>
<td>Trade on behalf of commercial accounts</td>
</tr>
<tr>
<td>(brokerage firms)</td>
<td></td>
</tr>
<tr>
<td>Finance companies</td>
<td>Lend funds to individuals</td>
</tr>
<tr>
<td>(commercial leasing companies)</td>
<td></td>
</tr>
<tr>
<td>Insurance companies</td>
<td>Maintain liquidity needed to meet unexpected demands</td>
</tr>
<tr>
<td>(property and casualty insurance companies)</td>
<td></td>
</tr>
<tr>
<td>Pension funds</td>
<td>Maintain funds in money market instruments in readiness for investment in stocks and bonds</td>
</tr>
<tr>
<td>Individuals</td>
<td>Buy money market mutual funds</td>
</tr>
<tr>
<td>Money market mutual funds</td>
<td>Allow small investors to participate in the money market by aggregating their funds to invest in large-denomination money market securities</td>
</tr>
</tbody>
</table>
Money Market Instruments

- We will examine each of these in the following slides:
  - Treasury Bills
  - Federal Funds
  - Repurchase Agreements
  - Negotiable Certificates of Deposit
Money Market Instruments (cont.)

• We will examine each of these in the following slides (continued):
  – Commercial Paper
  – Banker’s Acceptance
  – Eurodollars
Money Market Instruments: Treasury Bills

- T-bills have 28-day maturities through 12-month maturities.

  **Discounting:** When an investor pays less for the security than it will be worth when it matures, and the increase in price provides a return. This is common to short-term securities because they often mature before the issuer can mail out interest checks.
Money Market Instruments: Treasury Bills Discounting Example

- You pay $996.37 for a 28-day T-bill. It is worth $1,000 at maturity. What is its discount rate?

\[ i_{\text{discount}} = \frac{F - P}{F} x \frac{360}{n} \]  

(1)

\[ i_{\text{discount}} = \frac{1,000 - 996.73}{1,000} x \frac{360}{28} = 4.665\% \]
Money Market Instruments: Treasury Bills Discounting Example

• You pay $996.37 for a 28-day T-bill. It is worth $1,000 at maturity. What is its annualized yield?

\[ i_{yt} = \frac{F - P}{P} \times \frac{365}{n} \]  

(1)

\[ i_{yt} = \frac{1,000 - 996.73}{996.37} \times \frac{366}{28} = 4.76\% \]
Money Market Instruments: Treasury Bills

Figure 9.2  Treasury Bill Interest Rate and the Inflation Rate, January 1973–January 2007

Money Market Instruments: Fed Funds

• Short-term funds transferred (loaned or borrowed) between financial institutions, usually for a period of one day.

• Used by banks to meet short-term needs to meet reserve requirements.
Money Market Instruments: Repurchase Agreements

- These work similar to the market for fed funds, but nonbanks can participate.
- A firm sells Treasury securities, but agrees to buy them back at a certain date (usually 3–14 days later) for a certain price.
Money Market Instruments: Repurchase Agreements

- This set-up makes a repo agreements essentially a short-term collateralized loan.
- This is one market the Fed may use to conduct its monetary policy, whereby the Fed purchases/sells Treasury securities in the repo market.
Money Market Instruments: Negotiable Certificates of Deposit

• A bank-issued security that documents a deposit and specifies the interest rate and the maturity date

• Denominations range from $100,000 to $10 million
Money Market Instruments: Commercial Paper

• Unsecured promissory notes, issued by corporations, that mature in no more than 270 days.

• The use of commercial paper increased significantly in the early 1980s because of the rising cost of bank loans.
Money Market Instruments: Commercial Paper Volume

**Figure 9.6** Volume of Commercial Paper Outstanding

*Source: [http://www.federalreserve.gov/releases/cp/histouts.txt](http://www.federalreserve.gov/releases/cp/histouts.txt).*
Money Market Instruments: Banker’s Acceptances

• An order to pay a specified amount to the bearer on a given date if specified conditions have been met, usually delivery of promised goods.

• These are often used when buyers / sellers of expensive goods live in different countries.
Money Market Instruments: Banker’s Acceptances Advantages

1. Exporter paid immediately
2. Exporter shielded from foreign exchange risk
3. Exporter does not have to assess the financial security of the importer
4. Importer’s bank guarantees payment
5. Crucial to international trade
Money Market Instruments: Banker’s Acceptances

• As seen, banker’s acceptances avoid the need to establish the credit-worthiness of a customer living abroad.

• There is also an active secondary market for banker’s acceptances until they mature. The terms of note indicate that the bearer, whoever that is, will be paid upon maturity.
Money Market Instruments: Eurodollars

- Eurodollars represent Dollar denominated deposits held in foreign banks.
- The market is essential since many foreign contracts call for payment in U.S. dollars due to the stability of the dollar, relative to other currencies.
Money Market Instruments: Eurodollars Rates

- London interbank bid rate (LIBID)
  - The rate paid by banks buying funds

- London interbank offer rate (LIBOR)
  - The rate offered for sale of the funds

- Time deposits with fixed maturities
  - Largest short term security in the world
Comparing Money Market Securities

• The next slide shows a comparison of various money market rates from 1990 through 2007.

• Notice that no real pattern is present among the rates, indicating that investor preferences to the features on the instruments fluctuates.
Comparing Money Market Securities: A comparison of rates

Figure 9.7  Interest Rates on Money Market Securities, 1990–2007

### Comparing Money Market Securities: Money Market Securities and Their Depth

<table>
<thead>
<tr>
<th>Money Market Security</th>
<th>Issuer</th>
<th>Buyer</th>
<th>Usual Maturity</th>
<th>Secondary Market</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treasury bills</td>
<td>U.S. government</td>
<td>Consumers and companies</td>
<td>4, 13 weeks, and 26 weeks</td>
<td>Excellent</td>
</tr>
<tr>
<td>Federal funds</td>
<td>Banks</td>
<td>Banks</td>
<td>1 to 7 days</td>
<td>None</td>
</tr>
<tr>
<td>Repurchase agreements</td>
<td>Businesses and banks</td>
<td>Businesses and banks</td>
<td>1 to 15 days</td>
<td>Good</td>
</tr>
<tr>
<td>Negotiable certificates of deposit</td>
<td>Large money center banks</td>
<td>Businesses</td>
<td>14 to 120 days</td>
<td>Good</td>
</tr>
<tr>
<td>Commercial paper</td>
<td>Finance companies and businesses</td>
<td>Businesses</td>
<td>1 to 270 days</td>
<td>Poor</td>
</tr>
<tr>
<td>Banker’s acceptance</td>
<td>Banks</td>
<td>Businesses</td>
<td>30 to 180 days</td>
<td>Good</td>
</tr>
<tr>
<td>Eurodollar deposits</td>
<td>Non-U.S. banks</td>
<td>Businesses, governments, and banks</td>
<td>1 day to 1 year</td>
<td>Poor</td>
</tr>
</tbody>
</table>