# Lease & Post Retirement Benefit

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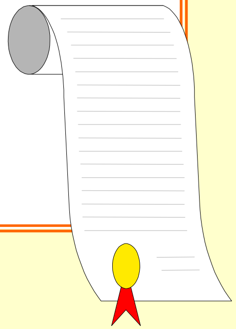
# Leases

## Leasing Facts

Lease – **contractual agreement between a lessor (owner) and a lessee (user or renter) that gives the lessee the right to use an asset owned by the lessor for the lease term**

MLP – **minimum lease payments (MLP) of the lessee to the lessor according to the lease contract**



# Leases

## Lease Accounting and Reporting

**(1) *Capital Lease Accounting*   For leases that transfer substantially all benefits and risks of ownership—accounted for as an asset acquisition and a liability incurrence by the lessee, and as a sale and financing transaction by the lessor**

**A lessee classifies and accounts for a lease as a capital lease if, at its inception, the lease meets *any* of four criteria:**

**(i) lease transfers ownership of property to lessee by end of the lease term**

**(ii) lease contains an option to purchase the property at a bargain price**

**(iii) lease term is 75% or more of estimated economic life of the property**

**(iv) present value of rentals and other minimum lease payments at beginning of lease term is 90% or more of the fair value of leased property less any related investment tax credit retained by lessor**

**(2) *Operating Lease Accounting*   For leases other than capital leases—the lessee (lessor) accounts for the minimum lease payment as a rental expense (income)**

# Leases

## Lease Disclosure and Off-Balance-Sheet Financing

### Lease Disclosure

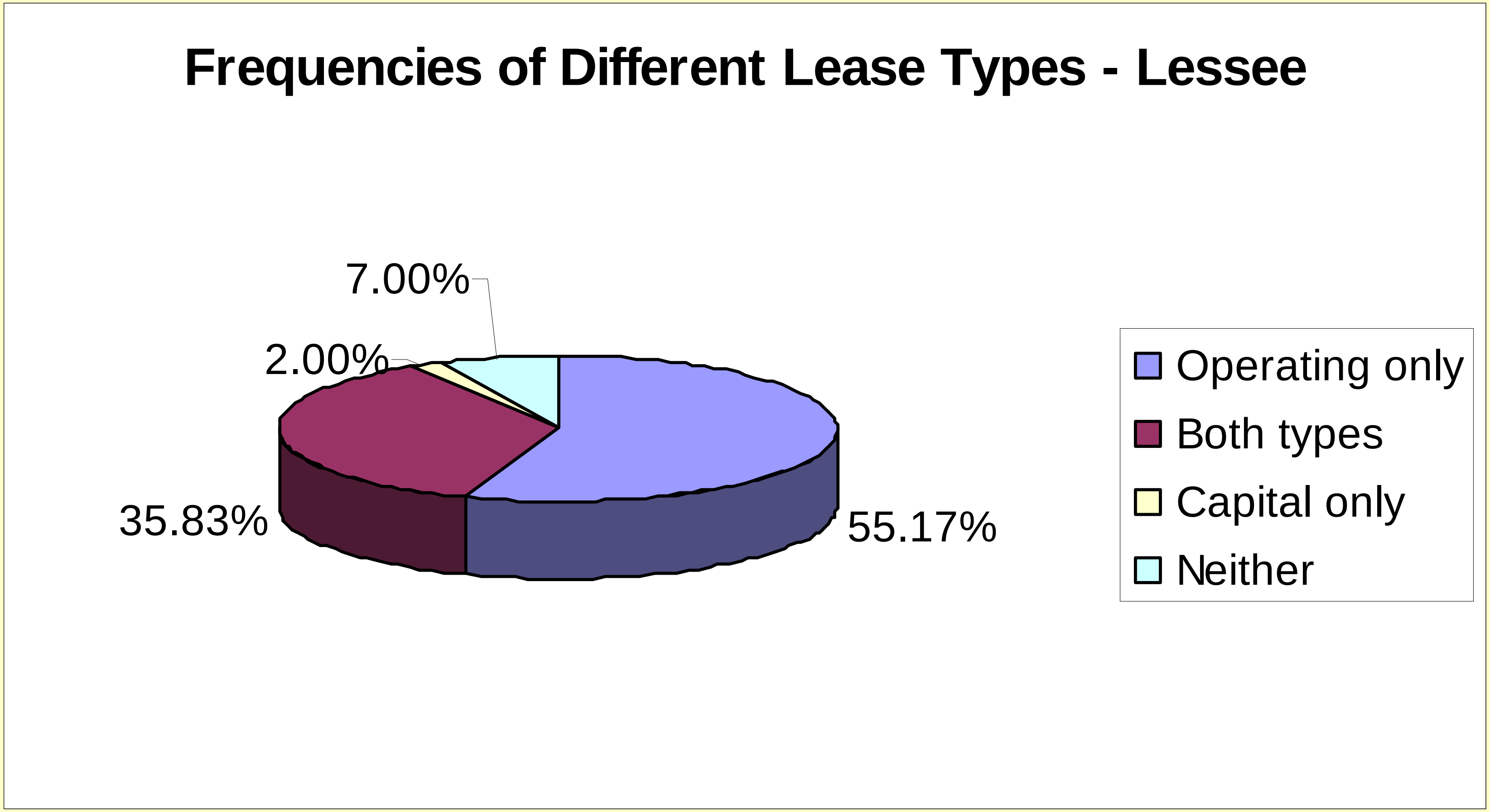
**Lessee must disclose: (1) future MLPs separately for capital leases and operating leases — for each of five succeeding years and the total amount thereafter, and (2) rental expense for each period an income statement is reported**

### Off-Balance-Sheet Financing

**Off-Balance-Sheet financing is when a lessee structures a lease so it is accounted for as an operating lease when the economic characteristics of the lease are more in line with a capital lease—neither the leased asset nor its corresponding liability are recorded on the balance sheet**

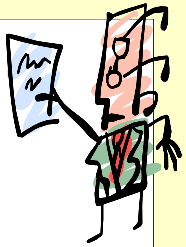
# Leases

## Frequency of Capital and Operating Leases



# Leases

## Accounting for Leases – An Illustration



Lease Facts

- A company leases an asset on January 1, 2000 -- it has no other assets or liabilities
- Estimated economic life of leased asset is 5 years with no salvage value -- company will depreciate the asset on a straight-line basis over its life
- Lease has a fixed non-cancelable term of 5 years with annual MLPs of $2,505 paid at the end of each year
- Interest rate on the lease is 8% per year

# Leases

## Accounting for Leases – Illustration (continued)

### Lease Amortization Schedule

| Year | Beg. Year Liability | Interest and Principal Components of MLP | | | Year-end Liability |
|---|---|---|---|---|---|
| | | Interest | Principal | Total | |
| 2000 | $10,000 | $ 800 | $ 1,705 | $ 2,505 | $8,295 |
| 2001 | 8,295 | 664 | 1,841 | 2,505 | 6,454 |
| 2002 | 6,454 | 517 | 1,988 | 2,505 | 4,466 |
| 2003 | 4,466 | 358 | 2,147 | 2,505 | 2,319 |
| 2004 | 2,319 | 186 | 2,319 | 2,505 | 0 |
| Totals | | $2,525 | $10,000 | $12,525 | |

### Straight-line depreciation

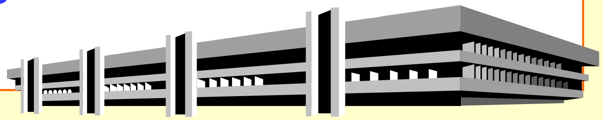
**$2,000 per year ([$10,000 - $0]/5 years)**

# Leases

## Effects of Lease Accounting

Impact of Operating Lease when Capital Lease is Apt:

- **Operating lease understates liabilities—improves solvency ratios such as debt to equity**
- **Operating lease understates assets—can improve return on investment ratios**
- **Operating lease delays expense recognition—overstates income in early term of the lease and understates income later in lease term**
- **Operating lease understates current liabilities by ignoring current portion of lease principal payment—inflates current ratio & other liquidity measures**
- **Operating lease includes interest with lease rental (an operating expense)—understates both operating income and interest expense, inflates interest coverage ratios, understates operating cash flow, & overstates financing cash flow**



# Postretirement Benefits

## Postretirement Benefits Facts

**Defined -- Employer-provided benefit(s) to employees after retirement**

## Two kinds of Postretirement Benefits

**Pension benefits -- Employer-provided monetary pension benefits to employees after retirement, e.g., monthly stipend until death**

**Other Postretirement Employee Benefits (OPEB) -- Employer-provided non-pension (usually nonmonetary) benefits after retirement, e.g., health care and life insurance**

# Postretirement Benefits

## Pension Basics

**Pension Plan – agreement with employer to provide pension benefits involving 3entities: employer-who contributes to the plan; employee-who derives benefits; and pension fund**

**Pension Fund Assets – account administered by a trustee, independent of employer, entrusted with responsibility of receiving contributions, investing them in a proper manner, & disbursing pension benefits to employees**

**Vesting – specifies employee's right to pension benefits regardless of whether employee remains with the company or not; usually conferred after employee serves some minimum period with the employer**

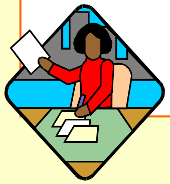
## Pension Plan Categories

**Defined benefit – a plan specifying amount of pension *benefits* that employers promise to provide retirees; *employer* bears risk of pension fund performance**

**Defined contribution – a plan specifying amount of pension *contributions* that employers make to the pension plan; *employee* bears risk of pension fund performance**

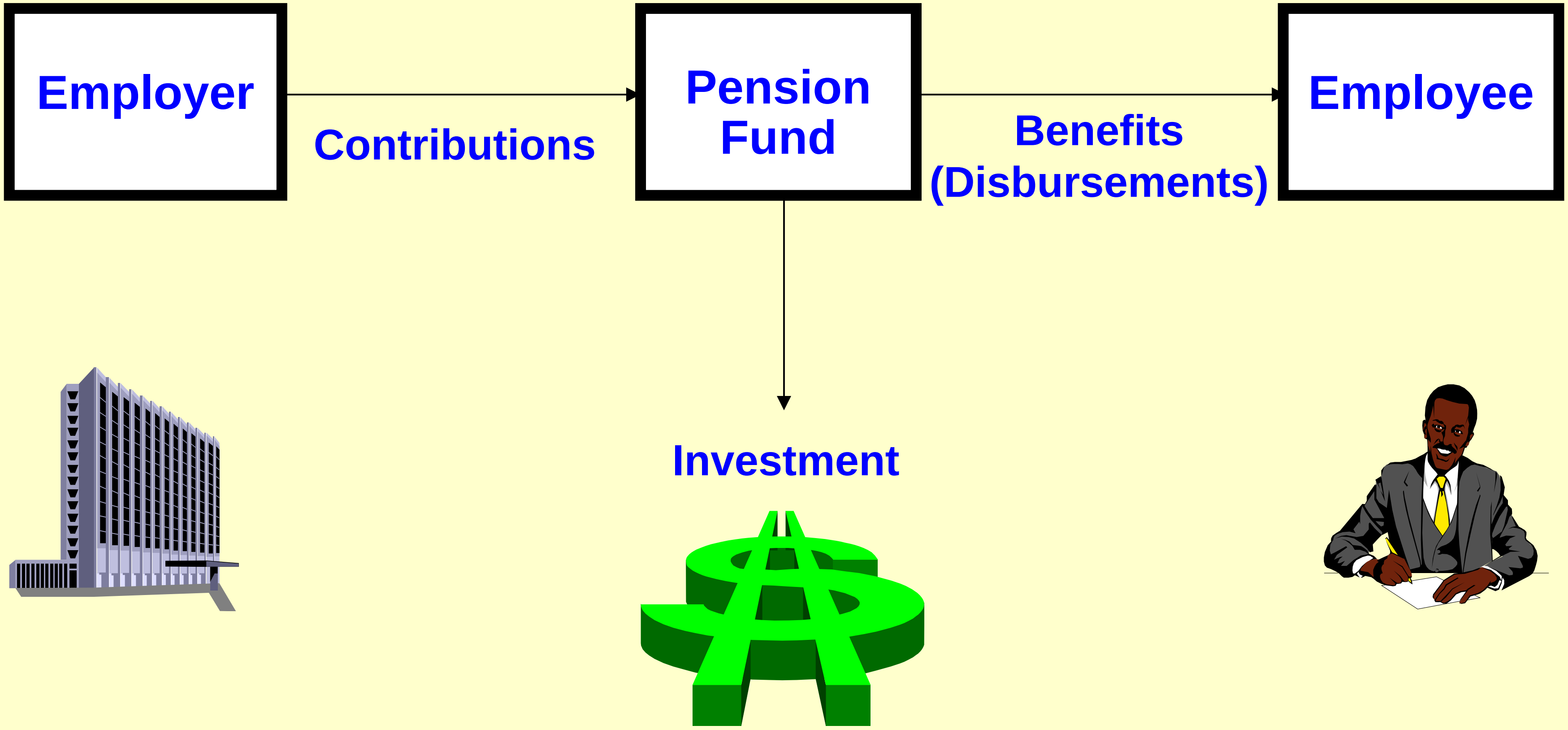
## Focus of Pension Analysis

**Defined benefit plans constitutes the major share of pension plans and are the focus of analysis given their implications to future company performance and financial position**



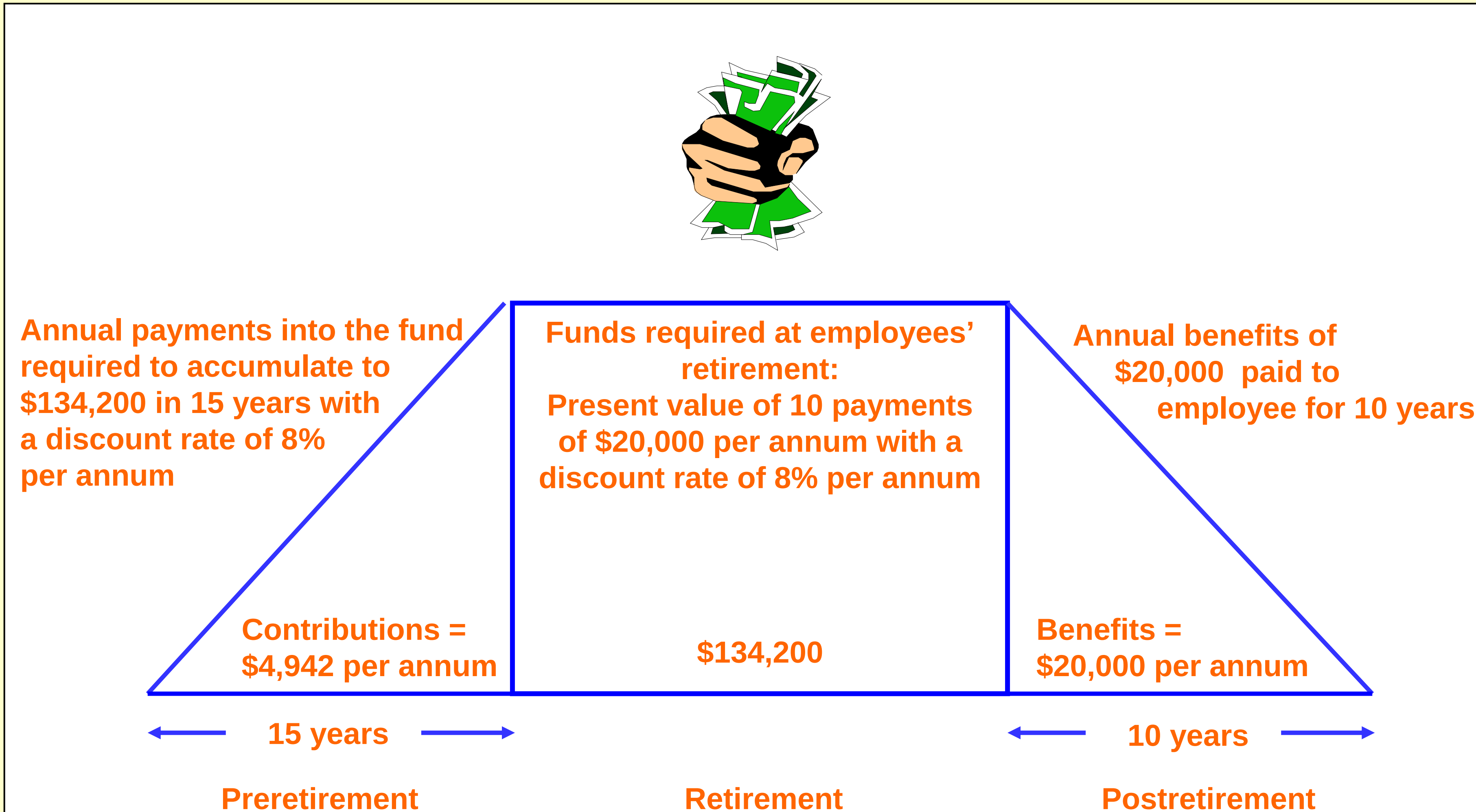
# Postretirement Benefits

## Elements of the Pension Process



# Postretirement Benefits

## Illustration of Pension Accumulation and Disbursement for a Defined Benefits Plan



# Postretirement Benefits

## Three Alternative Definitions of Pension Obligation

Accumulated benefit obligation (ABO) – actuarial present value of pension benefits payable to employees at retirement based on their current compensation and service to-date

Project benefit obligation (PBO) – actuarial estimate of future pension benefits payable to employees on retirement based on expected future compensation and service to-date

Vested benefit obligation (VBO) – actuarial estimate of future pension benefits payable to employees at retirement based on current compensation & benefits vested to employees

## Relation between Plan Assets and Funded Status

Funded Status – Difference between the value of the plan assets and the PBO

Note: Plan is *overfunded* (*underfunded*) when value of plan assets exceeds (is less than) PBO

Net Economic Position – PBO less the value of the plan assets

# Postretirement Benefits

## Economic Pension Cost

Economic pension cost **-- net cost arising from changes in net economic position for a period; includes both *recurring* and *nonrecurring* components along with *return on plan assets***

*Recurring pension costs* **consist of two components:**

**Service cost – actuarial present value of pension benefit earned by employees**

**Interest Cost – increase in projected benefit obligation arising when pension payments are one-period closer to being made; computed by multiplying beginning-period PBO by the discount rate**

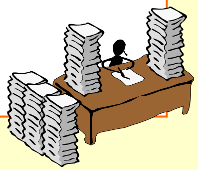
*Nonrecurring pension costs* **consist of two components:**

**Actuarial Gain or Loss – change in PBO that occurs when one or more actuarial assumptions are revised in estimating PBO**

**Prior Service Cost – effects of changes in pension plan rules on PBO**

*Return on plan assets:*

**Actual return on plan assets – pension plan's earnings, consisting of investment income—capital appreciation and dividend and interest received, less management fees; plus realized and unrealized appreciation (or minus depreciation) of other plan assets**



# Postretirement Benefits

## Pension Accounting Example – The Facts

- **A pension plan with a single employee, J. Smith, who joins the plan exactly 5 years ago on January 1, 1996; Smith is due to retire on Dec. 31, 2020, and is expected to live for 10 years after retirement**
- **J. Smith's current compensation is $10,000 per year; actuarial estimates indicate compensation is expected to increase 4% per year over the next 20 years**
- **Pension plan specifies the following formula for determining an employee's pension benefit: "Annual pension is equal to one week's compensation at time of retirement for each year with the plan"; employees vest 4 years after joining the plan**
- **At Dec. 31, 2000, the fair value of assets in the pension fund is $2,000; in 2001, the employer contributes $200 to the pension fund**
- **Return on pension assets is 22% in 2001; long-term return is expected to be 10% per year**
- **Discount rate is 7% per year**

# Postretirement Benefits

## Pension Accounting Example – Pension Obligation

**Determining Pension Obligations under Different Assumptions—J. Smith Example**

| | 2000 Formula | | 2001 Formula | | |
|---|---|---|---|---|---|
| | Actual | Projected | Projected | Assumption Change: Actuarial | Assumption Change: Plan |
| **At Dec. 31, 2020 (Retirement)** | | | | | |
| Salary per year | $10,000 | $21,911 | $21,911 | $26,533 | $26,533 |
| Pension per year | 962 | 2,107 | 2,528 | 3,061 | 4,592 |
| Value of pension | 6,753 | 14,798 | 17,757 | 21,503 | 32,254 |
| **At Dec. 31, 2000** | | | | | |
| Present value of pension | 1,745 | 3,824 | | | |
| **At Dec. 31, 2001** | | | | | |
| Present value of pension | | 4,091 | 4,910 | 5,946 | 8,919 |

| | |
|---|---|
| Vested benefits (VBO) | $1,745 |
| + Benefits not vested | 0 |
| = Accumulated benefit obligation (ABO) | $1,745 |
| + Effect of estimated increase in compensation | 2,079 |
| = Projected benefit obligation (PBO) | $3,824 |

Note: PBO ≥ ABO ≥ VBO

# Postretirement Benefits

## Pension Accounting Example – Economic Pension Cost

### Recurring costs for J. Smith example:

- PBO increases by $819 in 2001 because Smith works an extra year – hence, the term *service* cost
- Present value increases from $3,824 in 2000 to $4,092 in 2001—this $267 increase arises from the time value of money – hence, the term *interest* cost (also computed as 7% x $3,824)

### Nonrecurring costs for J. Smith example:

- Actuarial change (4% to 5% growth) increases estimated compensation at retirement from $21,911 to $26,533 and increases the PBO at end of 2001 by $1,036 (from $4,910 to $5,946) — an actuarial loss
- Pension formula changes to one-and-one-half week's compensation per year of service results in the pension benefit per year increasing by 50% from $3,061 to $4,592, which increases PBO by $2,973 ($8,919 - $5,946) — a prior service cost

### Return on plan assets for J. Smith example:

- Actual return on plan assets is $440 (22% of $2,000)

In sum, net economic pension cost for the J. Smith example is:

| | |
|---|---|
| Recurring costs: | |
| Service cost | $ 819 |
| Interest cost | 267 |
| Nonrecurring costs: | |
| Actuarial gain or loss | 1,036 |
| Prior service cost | 2,973 |
| Gross economic pension cost | $ 5,095 |
| Less return on plan assets | (440) |
| Net economic pension cost | $ 4,655 |

# Postretirement Benefits

## Pension Accounting Example – Articulation of Net Economic Position and Economic Pension Cost: J. Smith Example

### Pension Asset

| | | | |
|---|---|---|---|
| Beginning balance | 2,000 | | |
| Contributions | 200 | | |
| Return on assets | 440 | Benefits paid | 0 |
| Ending balance | 2,640 | | |

### Pension Obligation

| | | | | |
|---|---|---|---|---|
| | | Beginning balance | | 3,824 |
| | | Service cost | 819 | |
| | | Interest cost | 267 | |
| | | Actuarial gain or loss | 1,036 | |
| Benefits paid | 0 | Prior service cost | 2,973 | 5,095 |
| | | Ending balance | | 8,919 |

### Net Economic Position (Funded Status)

| | | | |
|---|---|---|---|
| Contributions | 200 | Beginning balance | 1,824 |
| Return on assets | 440 | Gross pension cost | 5,095 |
| Ending balance | 6,279 | | |

### Economic Pension Cost

| | |
|---|---|
| Recurring costs | |
| Service cost | 819 |
| Interest cost | 267 |
| Nonrecurring costs | |
| Actuarial gain or loss | 1,036 |
| Prior service cost | 2,973 |
| Gross pension cost | 5,095 |
| Less return on assets | (440) |
| Net pension cost | 4,655 |

# Postretirement Benefits

## Reported (or Net Periodic) Pension Cost

Reported pension cost -- defers recognition of economic effects vis-à-vis economic pension cost; each deferral (and amortization) follows:

- Expected return on plan assets reduces reported pension cost -- gains and losses from the difference between expected and actual returns are deferred and amortized to reduce volatility; expected return on plan assets is computed by multiplying the expected long-term rate of return on plan assets by the market value of plan assets at the beginning of the period.
- Deferral and amortization of net gains and losses arise from the delayed recognition of deviations from expectations regarding both pension obligations and pension assets—net gains and losses consist of (1) the difference between actual and expected return on plan assets and (2) actuarial gains and losses
- Deferral and amortization of prior service cost is the process of delaying recognition of prior service cost effects on reported pension cost (through amortization)
- Deferral and amortization of transition loss or gain arise when a plan is initially adopted—amortized over the average remaining service period of qualified employees

## Net Reported Position (or Reported Status)

Net Reported Position -- is the cumulative reported pension cost net of cumulative contributions—for this reason, the liability (or asset) reported in the balance sheet is called Accrued (or Prepaid) Pension Cost.

# Postretirement Benefits

## Pension Accounting Example – Reported Pension Cost

- **Expected return on plan assets — $200 (10% of $2,000) in the J. Smith example**
- **Deferral and amortization of net gains and losses — deferred net gains or losses is $796 ($1,036 actuarial loss less $240 nonrecurring return), of which $21 (1/20 of the excess of $796 over 10% of $3,824) is amortized in 2001 for the J. Smith example**
- **Deferral and amortization of prior service cost — prior service cost of $2,973 is deferred and $149 (1/20 x $2,973) is amortized in the J. Smith example**
- **Deferral and amortization of transition loss or gain — no transition gain or loss in the J.Smith example**

**Economic Pension Cost versus Reported Pension Cost—J. Smith Example**

| Economic pension cost | | | Smoothing | | | Reported pension cost* | | |
|---|---|---|---|---|---|---|---|---|
| Service cost | $ | 819 | $ | — | | Service cost | $ | 819 |
| Interest cost | | 267 | | — | | Interest cost | | 267 |
| Actual return | | (440) | | (240) | | Expected return | | (200) |
| Actuarial gain or loss | | 1,036 | | 1,036 | | | | — |
| Net gain or loss | | — | $ | 796 | → | | | — |
| Prior service cost | | 2,973 | | 2,973 | → | | | — |
| Amortization: | | | | | | | | |
| | | | | (21) | | Net gain or loss | | 21 |
| | | | | (149) | | Prior service cost | | 149 |
| Total | $ | 4,655 | $ | 3,612 | | | $ | 1,056 |

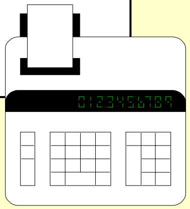
* This also is referred to as Net Periodic Pension Cost.

# Postretirement Benefits

## Pension Accounting Example – Net Reported Position (Reported Status)

Reported Status of Pension Fund in Balance Sheet—J. Smith Example

| | |
|---|---|
| **Projected benefit obligation** | **$(8,919)** |
| **Plan assets** | **2,640** |
| **Funded status** | **$(6,279)** |
| **Unrecognized transition asset** | **0** |
| **Unrecognized net gain or loss** | **775** |
| **Unrecognized prior service cost** | **2,824** |
| **Accrued pension cost (reported status)** | **$(2,680)** |



# Postretirement Benefits

## Features of OPEB Accounting

**(similar to pension accounting)**

*Net cost reporting* **– consequences of events and transactions affecting OPEB plans are reported as a single amount—this amount includes at least three components: (1) present value of the accrued cost of deferred compensation promised in exchange for employee service, (2) interest cost accruing from the passage of time until these benefits are paid, and (3) returns from the investment in the plan's assets**

*Delayed recognition* **-- certain changes in postretirement obligations, including those arising as a result of a plan initiation or amendment, and certain changes in the value of plan assets that are set aside to meet these obligations, are recognized through a process of deferral and amortization**

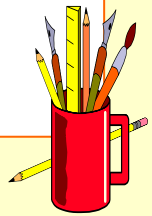
*Offsetting* **-- plan assets restricted for payment of postretirement benefits offset the accumulated postretirement benefit obligation in determining amounts recognized in the balance sheet**

## Language of OPEB Accounting

Accumulated Postretirement Benefit Obligation (APBO) **– employer's OPEB obligation**

Expected Postretirement Benefit Obligation (EPBO) **– total actuarially determined costs of providing future OPEB, recognized over the employee's expected service period**

**Note: APBO is the portion of EPBO "earned" by employee services as of a given date (accumulated benefits recognized to-date). Funded status of OPEB is the difference between APBO and the value of OPEB plan assets**



# Postretirement Benefits

## Reported OPEB Cost

**<u>Reported OPEB cost includes these components:</u>**

Service costs **— actuarial present value of OPEB "earned" by employees during the period; portion of EPBO attributable to the current year**

Interest costs **— imputed growth in APBO during the period using an assumed discount rate; interest is compounded because APBO is recognized on a present value basis**

Amortization of net gains and losses **— amounts arising when actual experience of the plan differs from initial estimates or, alternatively, if the expected return on assets differs from actual return; these amounts are deferred and amortized**

Amortization of prior service costs **— costs arising from plan amendments that change benefits and are attributed to employee service rendered prior to the amendment date; these costs are deferred and amortized**

Amortization of transition obligation **— costs arising from initial adoption, called *transition obligation*, are identified and measured as the difference between APBO and plan assets (if any) minus any postretirement liabilities previously recorded; either immediately recognize the transition obligation with a charge to income or amortize it**

Expected return on plan assets **— this return reduces the net annual postretirement expense if the plan is funded; the difference between actual and expected return is deferred and included in the unrecognized portion of net gains and losses**

# Postretirement Benefits

## Economic and Reported Postretirement Costs-Merck & Co. Inc.

| Pension | Economic | Deferred | Amortized | Reported |
|---|---|---|---|---|
| Service cost | $ 190 | $ 0 | $ 0 | $ 190 |
| Interest cost | 217 | 0 | 0 | 217 |
| Losses(gains) n investment | 258 | (546) | 0 | (288) |
| Actuarial (gains) losses | 283 | (283) | 0 | 0 |
| Other losses (gains) | (6) | 6 | 0 | 0 |
| Amortization | _0 | _0 | 28 | 28 |
| Total costs (gains) | $ 943 | $ (823) | $ 28 | $ 148 |
| **OPEB** | | | | |
| Service cost | $ 53 | $ 0 | $ 0 | $ 53 |
| Interest cost | 77 | 0 | 0 | 77 |
| Losses(gains) in investments | 57 | (141) | 0 | (85) |
| Actuarial (gains) losses | 177 | (177) | 0 | 0 |
| Other | 0 | 0 | 0 | 0 |
| Amortization | _0 | _0 | (11) | (11) |
| Total costs | $ 364 | $ (318) | $ (11) | $ 34 |
| **Total** | | | | |
| Service cost | $ 243 | $ 0 | $ 0 | $ 243 |
| Interest cost | 295 | 0 | 0 | 295 |
| Losses(gains) in investments | 315 | (687) | 0 | (373) |
| Actuarial (gains) losses | 460 | (460 | 0 | 0 |
| Other losses | (6) | 6 | 0 | 0 |
| Net amortization | 0 | 0 | 17 | 17 |
| Total costs (gains) | $ 1,307 | $ (1,141) | $ 17 | $ 182 |

# Postretirement Benefits

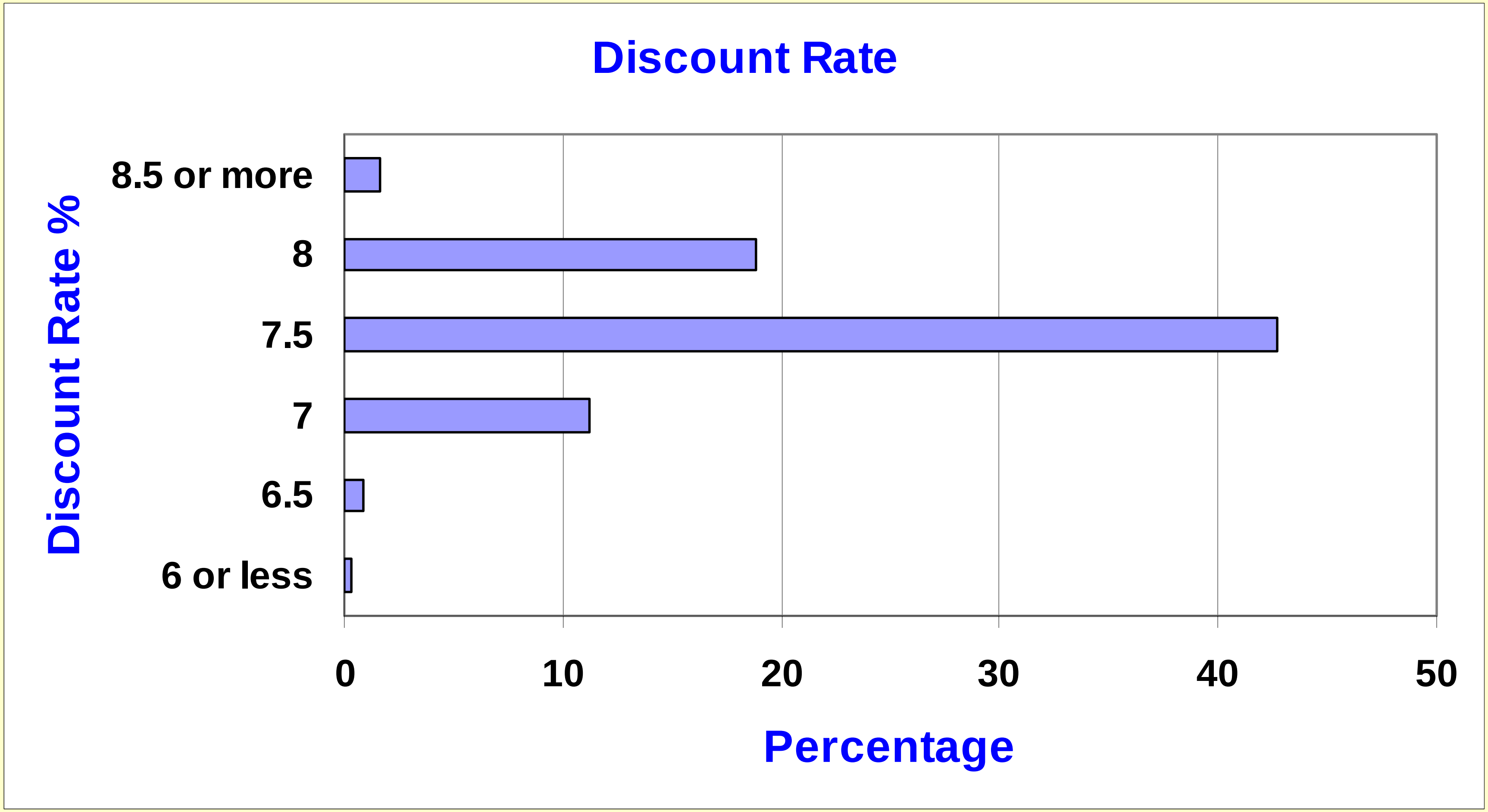
## Effect of Actuarial Assumptions on Benefit Obligation and Cost

| Assumption | Direction of Change | Direction of Effect on | | | |
|---|---|---|---|---|---|
| | | Economic* | | Reported* | |
| | | Position | Cost | Position | Cost |
| Discount Rate | +<br>- | +<br>- | -<br>+ | Indefinite<br>Indefinite | Indefinite<br>Indefinite |
| Expected Return | +<br>- | No effect<br>No effect | No effect<br>No effect | +<br>- | -<br>+ |
| Growth Rate** | +<br>- | -<br>+ | +<br>- | -<br>+ | +<br>- |

Notes: * Economic position refers to funded status and reported position refers to accrued benefit or cost.
** Growth rate pertains to both compensation and health care costs.

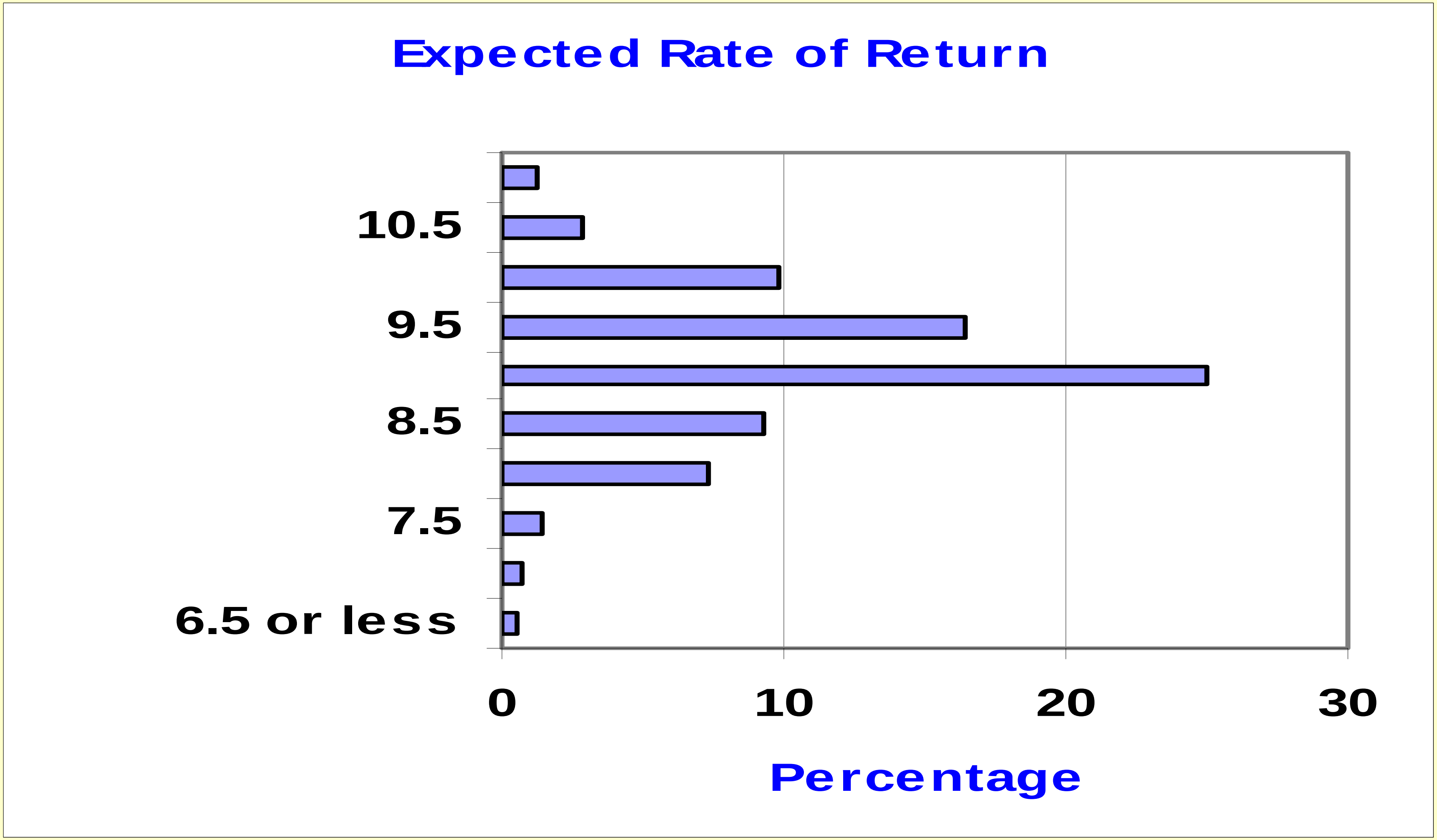
# Postretirement Benefits

## Frequency Distribution of Actuarial Assumptions



# Postretirement Benefits

## Frequency Distribution of Actuarial Assumptions



# Postretirement Benefits

## Frequency Distribution of Actuarial Assumptions