

# Valuation of Companies



# Value vs. Price



Price is what  
you pay. Value is  
what you get.

*Startup Quote!*

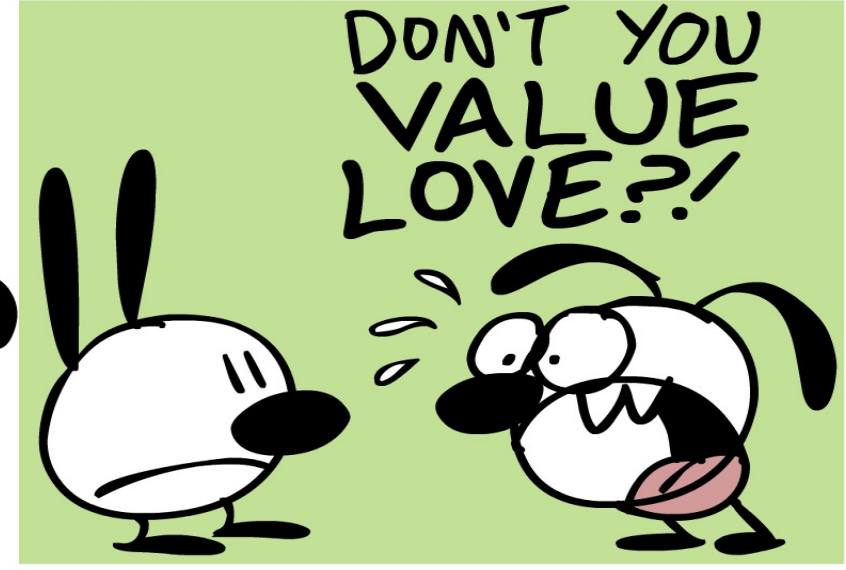
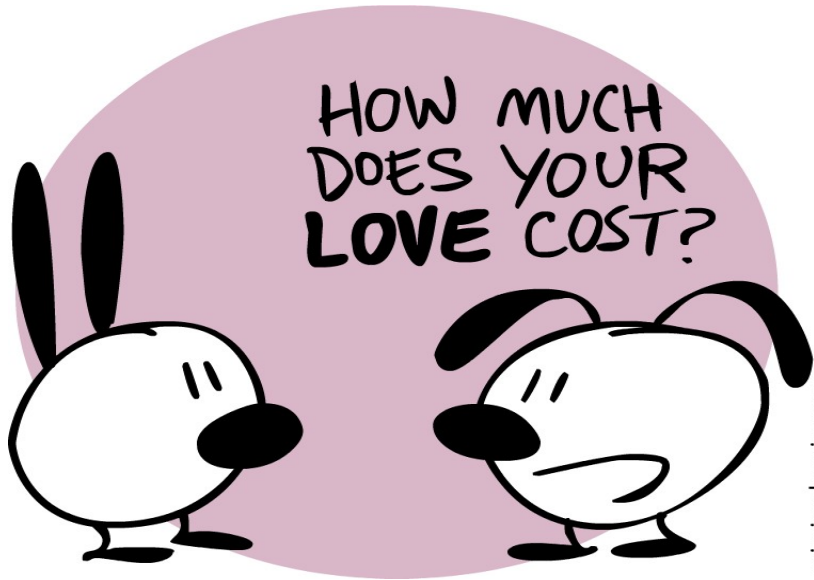


**WARREN BUFFET**

*CHAIRMAN, BERKSHIRE HATHAWAY*



# The Price of Love ...





**We all do deals ... some of them simple ...**



**... some more complex ...  
and we set prices ...**





# VALUE CATEGORIES

Valuation object

Business

Asset

Valuation scope

**Deal:**

- supporting the price setting
- price setting
- *Fairness Opinion*

**Financial reporting:**

- assets
- *Purchase Price Allocation*

**Management support:** (“*Value Based Management*”)

Fiscal

Per se



## VALUE CATEGORIES - DEFINITIONS

**MARKET VALUE** = “the estimated amount for which an asset or liability should exchange on the valuation date between a willing buyer and a willing seller in an arm’s length transaction, after proper marketing and where the parties had each acted knowledgeably, prudently and without compulsion” (IVS)

**EQUITABLE VALUE** = “the estimated price for the transfer of an asset or liability between identified knowledgeable and willing parties that reflects the respective interests of those parties” (IVS)

**INVESTMENT VALUE** = “the value of an asset to a particular owner or prospective owner for individual investment or operational objectives” (IVS)

**SYNERGISTIC VALUE** = “the result of a combination of two or more assets or interests where the combined value is more than the sum of the separate values. If the synergies are only available to one specific buyer then Synergistic Value will differ from Market Value, as the Synergistic Value will reflect particular attributes of an asset that are only of value to a specific purchaser. The added value above the aggregate of the respective interests is often referred to as “**marriage value.**” (IVS)



## VALUE CATEGORIES - DEFINITIONS

**LIQUIDATION VALUE** = “the amount that would be realised when an asset or group of assets are sold on a piecemeal basis. Liquidation Value should take into account the costs of getting the assets into saleable condition as well as those of the disposal activity. Liquidation Value can be determined under two different premises of value:  
(a) an orderly transaction with a typical marketing period, or  
(b) a forced transaction with a shortened marketing period.” (IVS)

**STAND ALONE VALUE** = value estimated without taking into account any synergies

**INTRINSIC VALUE / FUNDAMENTAL VALUE** = value based on fundamental analysis without reference to market capitalisation

**BOOK VALUE** = value recorded in the financial statements

**SALVAGE VALUE** = value given to an asset at the end of its useful life (scrap value).





# VALUATION APPROACHES

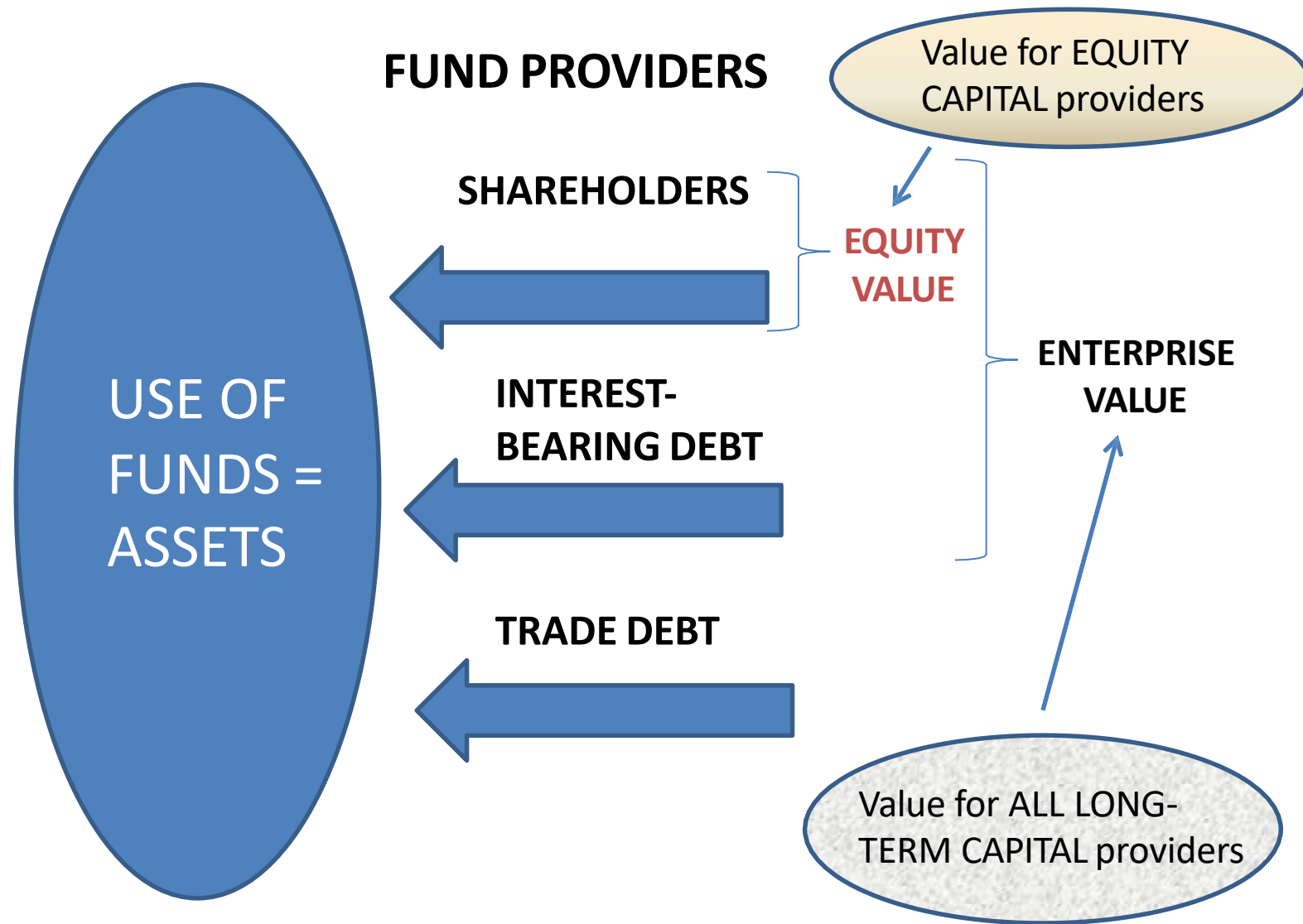
**1. COST**

**2. INCOME**

**3. MARKET**



# BUSINESS VALUATION GENERIC APPROACH



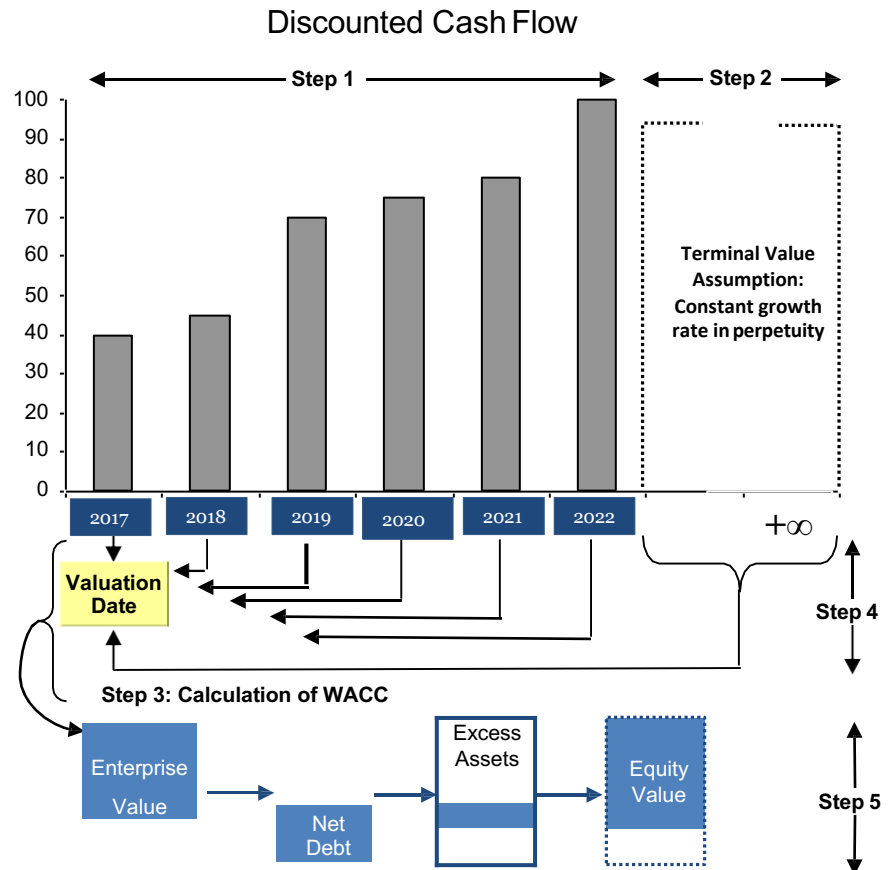
# COST APPROACH

<b>LONG TERM ASSETS</b>	<b>SHAREHOLDERS EQUITY</b>
	<b>INTEREST-BEARING DEBT</b>
<b>CASH</b>	
<b>CURRENT TRADE ASSETS</b>	<b>CURRENT TRADE LIABILITIES</b>



# INCOME APPROACH - DISCOUNTED CASH FLOWS

1. FORECAST CASH FLOWS
2. ESTIMATE TERMINAL VALUE
3. SELECT DISCOUNT RATE
4. ESTIMATE ENTERPRISE VALUE
5. ESTIMATE EQUITY VALUE



# DCF – AREAS OF ATTENTION

- **Business Plan**
  - *“Ice Hockey Stick” Effect*



- **Excess Assets**



- **Terminal Value**



# MARKET APPROACH

**Concept:** Identify assets comparable with the valuation subject to derive multiples to be applied to the valuation subject indicators

## Comparable transactions

Transactions with comparable companies  
(ideally same sector, similar size, recent)



**Step 1: Identify comparable companies**

**Step 2: Compute multiples (Enterprise Value as a multiple of Sales, EBITDA, EBIT or Equity Value as a multiple of Net Assets, Net Profit or Ev/EqV as a multiple of operational/commercial indicators)**

**Step 3: Determine quartiles, median and average value for each multiples category**

**Step 4: Apply multiples to the financial indicators of the company subject to valuation to estimate Enterprise Value or Equity Value**

**Step 5: Deduct Net Debt and add Excess Assets to estimate Equity Value (when not directly derived in Step 4)**

**Step 6: Reconcile results**

## Comparable listed companies

Listed companies in the same  
sector (ideally similar size)





# VALUATION IN THE M&A PROCESS

## “Think Like An Investor”

- Through the acquisition (directly or by applying a post-deal strategy) the buyer will become richer
- The acquisition worth if it creates value! Make a fundamental value analysis!
- Look in the future, not (only) in the past!
- Focus on Economic Reality (cash flows and NOT accounting profits)

**Warren Buffett: “because of the conventional accounting limitations, the profits reported in the financial statements reveals relatively few information related to the real economic performance”**



# VALUATION IN THE M&A PROCESS

## “Think Like An Investor”

- The higher the risks you are ready to accept, the higher return you are going to seek!
- Time is Money! Use Present Value!

***Warren Buffett: “... regardless if a business grows or not, if it is volatile or not, if it has a market capitalisation small or big relative to the current profits, investment based on a Discounted Cash Flow calculation shall be taken into account by an investor”***



# PRICE IN TRANSACTIONS

$$\begin{aligned} \text{PRICE} &= \text{EQUITY VALUE} = \\ &= \text{ENTERPRISE VALUE} - \text{DEBT} + \text{EXCESS ASSETS} +/- \text{WORKING CAPITAL VARIATION} \end{aligned}$$

**DEBT = all liabilities having the nature of a loan (eg bank or shareholder loans\*, leasing), obligations towards the shareholders (eg declared and unpaid dividends\*) or overdue payables (eg trade payables or taxes)**

**Working Capital (WC) Variation = Actual WC at Closing – Normalised (expected) WC**

**Working Capital = Current Trade Assets + Inventory – Current Trade Liabilities**

**(\*) Debts towards the shareholders are quasi-equity and could be treated as such**



## What makes a merger unattractive?

*In financial terms, mergers are problematic when the buyer does not earn the expected return on investment in a reasonable period of time.*

*One broad standard of performance is that a merger should not produce any **dilution** in earnings per share (EPS) for the acquiring bank greater than 5 percent.*

*EPS dilution is measured as:*

**Current EPS of acquiring bank - pro forma EPS of consolidated entity**

**Current EPS of acquiring bank**

*Where;*

*pro forma consolidated EPS is a forecast value for the*  
*period.*

*upcoming*



## EPS dilution constraints

*The 5% standard suggests that some dilution is acceptable because:*

most transactions are financed by an exchange of stock

EPS for both the target and acquirer are not the same initially.

*Most bank acquisitions do have a negative short-term effect on earnings, dilute the acquirer's EPS, largely because the acquiring bank pays a premium for the target.*

To be a successful merger, however, this decline in EPS should be of negligible size and short-lived for a merger to be attractive to the purchaser.



A second hurdle is whether the acquisition, when treated as an investment, earns the expected rate of return over time.

*EPS dilution analysis focuses on short-run performance.*

*Many firms perform a workout time analysis that focuses on long-run results.*

The analysis essentially computes the time necessary for the acquirer to earn enough to pay for the initial investment and meet the cumulative target return objective.

*Obviously, the less that the acquirer pays and the greater the earnings growth, the shorter the time required to generate the target return.*





# Valuations procedures

*Any merger or acquisition should be treated as an investment and evaluated accordingly*

*Thus, theoretically correct procedure for determining value is to discount expected cash flows from the new entity at the appropriate discount rate.*

Because this approach involves estimating many key components of the present value model, market participants typically use a variety of less rigorous techniques to obtain a range of fair price estimates.



## Levels or types of value

Controlling interest value *...there are actually several types or levels of value.*

*...the value of the enterprise as a whole assuming that the stock is freely traded in a public market and includes a control premium.*

Control premium

*...reflects the risks and rewards of a majority or controlling interest.*

A controlling interest is assumed to have control power over the minority interests.

Minority interest value

*...represents the value of a minority interest “as if freely tradable” in a public market.*

Minority interest discount

*...represents the reduction in value from an absence of control of the enterprise.*



Controlling interest value and minority interest value  
assume that the interest is freely tradable in a public  
**market.**

*If the entity were closely held with no (or little) active market for the shares or interest in the company, then a nonmarketability discount would be subtracted from the value.*

*Nonmarketability Discounts.*

*...represents the reduction in value from a marketable interest level of value to compensate an investor for illiquidity of the security, all else equal.*

*The size of the discount varies base on:*

- relative liquidity (such as the size of the shareholder base);
- the dividend yield, expected growth in value and holding period;
- and firm specific issues such as imminent or pending initial public offering (IPO) of stock to be freely traded on a public market.



## Valuation methods

*...several methods of valuation exist but generally fall into two broad categories*

### *Comparable analysis*

*...often referred to as “comps” uses a direct comparison of the target bank with similar banks engaged in the same or similar lines of business.*

### *Discounted cash flow analysis*

*...often referred to as DCF, estimates value by summing the present value of all future economic benefits (cash earnings) that will come to the investors in the future.*



# Comparable analysis uses several value metrics

## *Price to Book Value*

many bankers and market analysts discuss merger prices in terms of book values.

## *Price to Earnings per Share (EPS)*

many analysts prefer to focus on earnings rather than balance sheet values when estimating a market price to pay

## *Price to Total Assets*

a bank uses stockholders and depositors funds to invest in the assets of the bank, theoretically, therefore, the assets of the bank create value.

## *Price to Total Deposits*

inexpensive core deposits are often seen as a bank's greatest asset.



Price to book value

*... the book value of a share of stock equals the book value of a firm's stockholders' equity divided by the number of shares outstanding*

*The book value of stockholders' equity equals the dollar amount of assets minus the dollar amount of liabilities.*

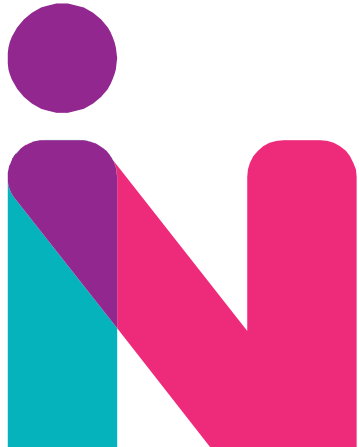
*The premium to book value in a transaction compares the per share price offered to target bank stockholders with the book value of the target's stock:*

*where:*

$MP_t =$  per share market price offered for target's stock

$BV_t =$  per share book value of target's stock

$$\text{Premium to Book Value} = \frac{MP_t - BV_t}{BV_t}$$





Example: Premium to book value

*If the target bank's book value per share is \$12.2 and an acquirer offers \$22.2 per share, the premium to book value equals \_\_\_\_\_ percent.*



## Example: Premium to book value

*If the target bank's book value per share is \$12.2 and an acquirer offers \$22.2 per share, the premium to book value equals 81.97 percent.*

$$(\$22.2 - \$12.2) / \$12.2 = 0.8197$$



## Valuing a bank using price to book value

*...calculate the average premium offered for similar banks and extrapolate an equivalent price for the target if the same premium is applied.*

*Average premiums for minority interests are found by using a comparable companies analysis in which comparable companies are those in similar lines of business with similar assets sizes and profitability characteristics.*

*Average premiums for controlling interest value are calculated using data from successful acquisitions of similar type using a comparable acquisitions analysis.*

*The transaction price per share  $P_{bv}$  is:*

$$P_{bv} = \left[ \frac{MP_t}{BV_t} \right]_{avg} \times BV_t$$



## Example (continued): Price to book value

*If the target bank's book value per share is \$12.2 and an acquirer offers \$22.2 per share, the premium to book value equals 81.97 percent.*

$$(\$22.2 - \$12.2) / \$12.2 = 0.8197$$

*If average premium on comparable transactions is 100 percent, the average purchase price to book value multiple will equal 2.0x and the transactions price for the target bank's stock should equal \_\_\_\_\_*



## Example (continued): Price to book value

*If the target bank's book value per share is \$12.2 and an acquirer offers \$22.2 per share, the premium to book value equals 81.97 percent.*

$$(\$22.2 - \$12.2) / \$12.2 = 0.8197$$

*If average premium on comparable transactions is 100 percent, the average purchase price to book value multiple will equal 2.0x and the transactions price for the target bank's stock should equal \$24.4:*

$$(2.0 \times \$12.2) = 24.4$$



Merger terms are also described in terms of exchange ratios  
*...the number of shares of the acquiring bank's stock that target bank stockholders receive for each share in the target bank.*

*Exchange Ratio:*

$$e = \frac{P_{bv}}{MP_a} = \frac{BV_t (1 + \text{Premium})}{MP_a}$$

*where:*

$e$  = *exchange ratio, and*

$MP_a$  = *per share market price of the acquirer's stock*



## Example (continued): Exchange ratio

*If the target bank's book value per share is \$12.2 and an acquirer offers \$22.2 per share, the premium to book value equals 81.97 percent.*

$$(\$22.2 - \$12.2) / \$12.2 = 0.8197$$

*If average premium on comparable transactions is 100 percent, the average purchase price to book value multiple will equal 2.0x and the transactions price for the target bank's stock should equal \$24.4:*

$$(2.0 \times \$12.2) = 24.4$$

*If the price of the acquires stock is \$55, then the exchange ratio is \_\_\_\_\_:*



## Example (continued): Exchange ratio

*If the target bank's book value per share is \$12.2 and an acquirer offers \$22.2 per share, the premium to book value equals 81.97 percent.*

$$(\$22.2 - \$12.2) / \$12.2 = 0.8197$$

*If average premium on comparable transactions is 100 percent, the average purchase price to book value multiple will equal 2.0x and the transactions price for the target bank's stock should equal \$24.4:*

$$(2.0 \times \$12.2) = 24.4$$

*If the price of the acquires stock is \$55, then the exchange ratio is 0.4463:*

$$0.4463 = \frac{\$24.4}{\$55} = \frac{\$12.2 (1 + 100\%)}{\$55}$$





## Normalized equity capital

*...capital levels at the target bank are “normalized” to a minimum level of capital and then excess capital is purchased dollar for dollar*

*One surprise to potential sellers of banks is the impact of “excess” capital. The 1990’s produced record profits and many banks found their capital to asset levels at well over 10 percent.*

*Since capital, in excess of what is “required” to satisfy regulatory requirements and insure success of the bank, can be acquired by simply issuing stock or injecting this capital into the bank, potential acquirers will not pay more than dollar for dollar for “excess” capital.*



Although what is considered normal capital varies, 8% is often considered a general guideline.

*Multiplying the average price to book premium by the “normalized” equity for the target bank and then adding back “excess” capital, determines value.*

*The normalized book value of equity ( $BV_{norm}$ ) and excess equity is found by:*

*Normalized book value of equity ( $BV_{norm}$ )*

= total assets of target bank x normal equity

*Excess equity*

= total equity - normalized equity



The transaction price per share of target stock under a normalized book value per share approach ( $P_{nbv}$ ) is determined by:

*Transaction price with normalized book value:*

$$P_{nbv} = \left[ \frac{MP_t}{BV_t} \right]_{avg} \times BV_t^{norm} + \$ \text{ excess equity}$$



# Example: Normalized book value approach

*Assume the target bank has:*

3 million shares,  
\$338 million in assets,  
\$35.5 million in equity,  
normal equity is 8 percent, and  
the average price to book multiple is 2x.

*Normal equity is \_\_\_\_\_ million and excess equity is \$ \_\_\_\_\_ million.*

*The price per share of the company is:*



# Example: Normalized book value approach

*Assume the target bank has:*

3 million shares,  
\$338 million in assets,  
\$35.5 million in equity,  
normal equity is 8 percent, and  
the average price to book multiple is 2x.

*Normal equity is \$27 million and excess equity is \$8.5 million.*

*The price per share of the company (assuming 1 million shares of stock) is:*

$$\begin{aligned} P_{nbv} &= \$20.83 \text{ share} \\ &= [(2) \times (\$27 \text{ million} / 3 \text{ million shares})] \\ &\quad + (\$8.5 \text{ million} / 3 \text{ million shares}) \end{aligned}$$



## Premium to book value procedure has many weaknesses:

*The most obvious weakness is that book value may not even closely resemble a bank's true economic value.*

*Premiums paid on other bank acquisitions have no relation to the rate of return that an acquirer can potentially earn on the investment, and completely ignore risk.*



## Premium to Adjusted Book Value

*Because reported book value may differ substantially from true economic value, it is appropriate to compute an adjusted book value of equity for the target bank that recognizes the measurement error.*

*Adjusted book value can be obtained by adding or subtracting from the stated book value the following items:*

- Change in loan loss reserve,
- Change in market value of investments,
- Change in other asset appraisals,
- Value of off-balance sheet activities,
- Value of core deposits.



## Price to earnings per share

*...many analysts prefer to focus on earnings rather than balance sheet values when estimating a market price to pay for a target bank.*

*Valuation involves computing the average purchase price to EPS ratio for similar banks and then multiplying this mean ratio by the target bank's earnings per share (EPS).*

Average price to EPS ratios for minority interests are found by using a *comparable companies analysis*.

Value for controlling interest is calculated using data from successful acquisitions of similar type using a *comparable acquisitions analysis*.





## Valuing a bank using Price to earnings per share

*Transaction price,  $P_{eps}$  is:*

$$P_{eps} = \left[ \frac{MP_t}{EPS_t} \right]_{avg} \times EPS_t$$

*Premium to book value is:*

$$\text{Premium to EPS} = \frac{MP_t - EPS_t}{EPS_t}$$

*Exchange ratio is:*

$$e = \frac{P_{eps}}{MP_a} = \frac{EPS_t \times (1 + \text{Premium})}{MP_a}$$



**A. Pre-Acquisition: December 31, 2001**

	Bank ABC	Bank XYZ
Net income (\$millions)	\$ 160.0	\$ 14.0
Number of shares outstanding	32	4
Earnings per share	\$ 5.00	\$ 3.50
Total assets (\$billions)	\$ 22.2	\$ 1.5

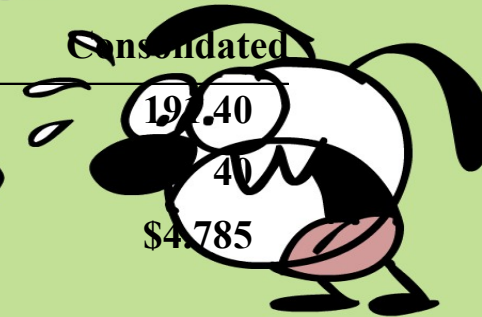
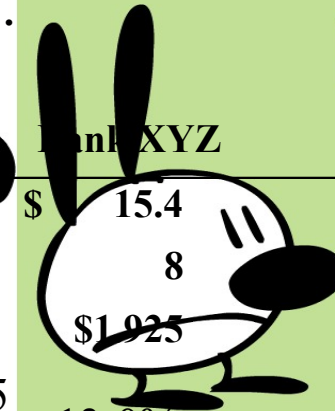
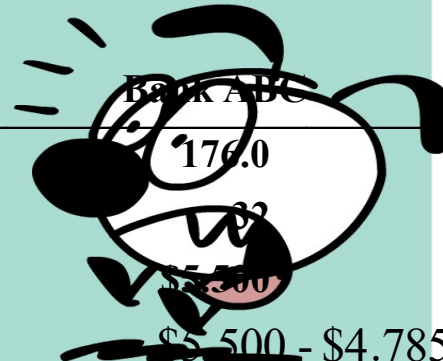
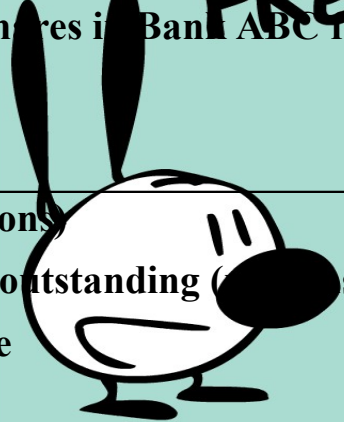
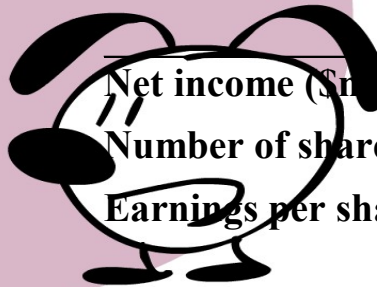
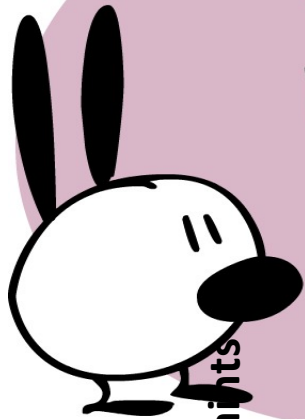
**B. Forecasts for 2002**

Assume: i) Net income for both banks increases by 10 percent.  
ii) Bank ABC offers a 2-for-1 stock exchange whereby shares in Bank ABC for every share of Bank XYZ.

HOW MUCH DOES YOUR LOVE COST?

LOVE IS FREE!

DON'T YOU VALUE LOVE?!



Net income (\$millions)  
Number of shares outstanding (s)  
Earnings per share

Bank ABC

Bank XYZ

Consolidated

176.0  
64  
\$5.500

\$ 15.4  
8  
\$1.925

192.40  
40  
\$4.785

$$\frac{\$5.500 - \$4.785}{\$5.500} = 13.0\%$$

EPS dilution

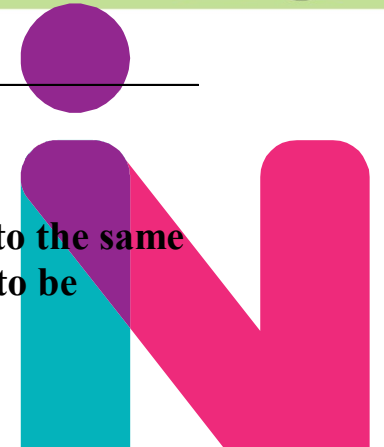
= 13.0%

**Summary**

1. With no acquisition, Bank ABC's EPS would increase to \$8.05 by 2006.
2. Earnings at Bank XYZ would have to increase to \$64.4 million in 2006 to increase its EPS to the same \$8.05 by 2006. Thus, earnings would have to grow at a 35.7 percent annual rate for dilution to be recovered within five years.

EPS Dilution Constraints

mimianet.com



**A. Pre-Acquisition: December 31, 2001**

	Bank ABC	Bank XYZ
Net income (\$millions)	\$ 160.0	\$ 14.0
Number of shares outstanding	32	4
Earnings per share	\$ 5.00	\$ 3.50
Total assets (\$billions)	\$ 22.2	\$ 1.5

**B. Forecasts for 2002**

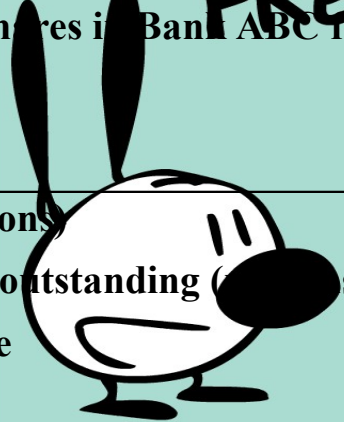
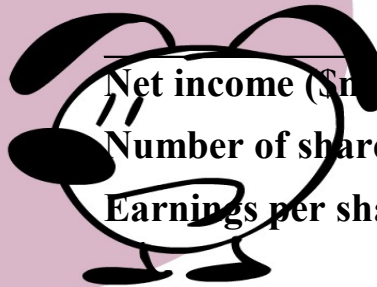
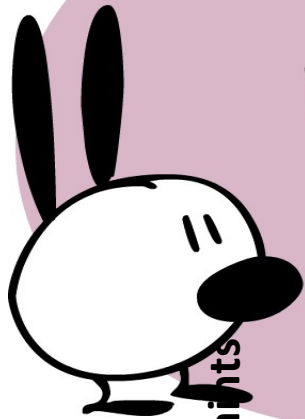
Assume: i) Net income for both banks increases by 10 percent.  
ii) Bank ABC offers a 2-for-1 stock exchange whereby shares in Bank ABC for every share of Bank XYZ.

HOW MUCH DOES YOUR LOVE COST?

LOVE IS FREE!

DON'T YOU VALUE LOVE?!

Bank XYZ	Consolidated
Net income (\$millions)	19.40
Number of shares outstanding (s)	40
Earnings per share	\$4.785



Bank ABC

Net income (\$millions)	176.0
Number of shares outstanding (s)	32
Earnings per share	\$5.500

Bank XYZ

Net income (\$millions)	15.4
Number of shares outstanding (s)	8
Earnings per share	\$1.925

Consolidated

Net income (\$millions)	19.40
Number of shares outstanding (s)	40
Earnings per share	\$4.785

Net income (\$millions)  
Number of shares outstanding (s)  
Earnings per share

EPS dilution

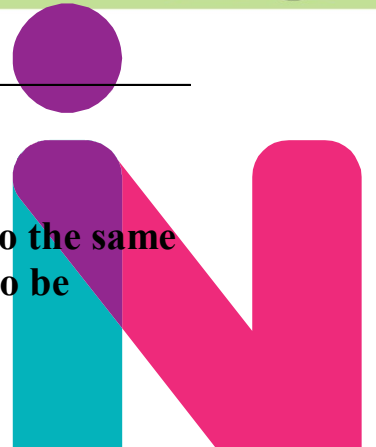
$$\frac{\$5.500 - \$4.785}{\$5.500} = 13.0\%$$

= 13.0%

**Summary**

1. With no acquisition, Bank ABC's EPS would increase to \$8.05 by 2006.
2. Earnings at Bank XYZ would have to increase to \$64.4 million in 2006 to increase its EPS to the same \$8.05 by 2006. Thus, earnings would have to grow at a 35.7 percent annual rate for dilution to be recovered within five years.

EPS Dilution Constraints



# One period earnings measure as a base has numerous weaknesses:

- 1. An appropriate earnings measure would reflect the volatility of earnings, which gives some indication of the riskiness of the bank's operations.*
- 2. It is not clear what time interval is appropriate.*

The current year's EPS may be dramatically different from EPS over the past few years, and different still from expected EPS.

*Analysts get around these problems by using a weighted average of historical earnings per share figures, and then using a forecast average value of EPS over the near future.*



## Price to total assets

*...A bank uses stockholders and depositors funds to invest in the assets of the bank. Theoretically, therefore, the assets of the bank create value.*

*Average price per share to total assets per share for similar banks are calculated using comparable analysis*

These average ratios are multiplied by the target banks total assets to determine value.

*Formally, if we define TA as total assets per share, the transaction price per share of target stock under this approach ( $P_{ta}$ ) is determined by:*

$$P_{ta} = \left[ \frac{MP_t}{TA_t} \right]_{avg} \times TA_t$$



## Valuing a bank using price to total assets

*Calculate the average total asset premium offered for similar banks and extrapolate an equivalent price for the target if the same premium is applied.*

*Average asset premiums for minority interests are found by using a **comparable companies analysis***

*Value for controlling interest is calculated using data from successful acquisitions of similar type using a **comparable acquisitions analysis**.*



## Example: Price to total assets

*Using the data from the previous example:*

3 million shares,

\$338 million in assets,

\$35.5 million in equity, and

assuming the median price to total asset multiple is 19.3 percent,

the price per share of the company is:



## Example: Price to total assets

*Using the data from the previous example:*

3 million shares,

\$338 million in assets,

\$35.5 million in equity, and

assuming the median price to total asset multiple is 19.3 percent,

the price per share of the company

(assuming 1 million shares of stock) is:

$$\begin{aligned} P_{ta} &= \$21.7 \text{ share} \\ &= [(0.193) \times (\$338 / 3 \text{ million shares})] \end{aligned}$$





The price to total assets approach suffers from many weaknesses as well.

*Many of these weaknesses are similar to those of the price to book value procedure outlined above.*

1. Reported total assets may not represent true economic value.  
The book value of assets may be artificially small in that many banks have significant “off balance sheet” activities which enhance value
2. The prices paid on other bank acquisitions of total assets have no relation to the rate of return that an acquirer can potentially earn on the investment and they completely ignore risk.



## Price to total deposits

*...Inexpensive core deposits are often seen as a bank's greatest asset*

*The growth in core deposits is on the decline today as investors continue to move their money to mutual funds and direct equity investments.*

*As such, a bank could enhance its value as a future acquisition target by capturing a greater share of its deposit market.*

*A larger market share of deposits can also lead to an enhanced product line and open new markets.*



## Valuing a bank using Price to total deposits

*Average price per share to total deposits per share for similar banks is calculated using comparable analysis and these average ratios are multiplied by the target banks total deposits to determine value.*

*Formally, if we define TD as total deposits per share, the transaction price per share of target stock under this approach ( $P_{td}$ ) is determined by:*

$$P_{td} = \left[ \frac{MP_t}{TD_t} \right]_{avg} \times TD_t$$



## Example: Price to total deposits

*Using the data from the previous example:*

3 million shares,

\$279 million in deposits,

\$35.5 million in equity, and

assuming the median price to total deposits ratio of 24.6 percent, the price per share of the company is:



## Example: Price to total deposits

*Using the data from the previous example:*

3 million shares,

\$279 million in deposits,

\$35.5 million in equity, and

assuming the median price to total deposits ratio of 24.6 percent, the price per share of the company (assuming 1 million shares of stock) is:

$$\begin{aligned} P_{td} &= \$22.9 \text{ share} \\ &= [(0.246) \times (\$279 / 3 \text{ million shares})] \end{aligned}$$



The price to total deposits approach suffers from many weaknesses as well.

*Many of these weaknesses are similar to those of the price to book value procedure outlined above.*

1. Reported total deposits may not represent true core deposits.  
The bank may have obtained their deposits as brokered deposits or by offering a premium rate over the Internet.
2. Just because a bank acquires core deposits, these deposits will only enhance the acquiring banks profitability if they are successful in reinvesting these funds at a profitable spread and these deposits remain with the bank.

