

Dividendově diskontní modely

Modely založené na diskontování CF

Dividendově
diskontní modely

Free Cash Flow
Modely
FCFF
FCFE

Modely založené na
zbytkovém důchodu

Volba modelu

Dividendově diskontní modely

- Historie dividendových plateb
- Vztah dividend k čistému zisku
- Nekontrolovatelný budoucí vývoj (vztaženo k akcionářům)

Free Cash Flow modely

- Nízké nebo nulové dividendy
- Kladné CF ve vztahu k zisku

Modely založené na zbytkovém důchodu

- Nízké nebo nulové dividendy
- Záporné free cash flow
- Vysoká kvalita účetních výkazů



DVD APPLE INC Equity

APPLE INC Equity | DVD | Related Functions Menu

AAPL US \$ C 160.55 +2.68 Q160.56 / 160.57Q 1x38
 On 19 Nov d Vol 117,305,597 O 157.65D H 161.02J L 156.533D Val 18.755B

AAPL US Equity Settings Dividend/Split Summary

Apple Inc
 Range 2000 - 2021 Adjust for Capital Change Currency As Reported

12 Month Yield .54%
 Indicated Yield .55%
 1 Yr Dividend Growth 7.12%
 3 Yr Dividend Growth 7.06%
 5 Yr Dividend Growth 9.18%
 Last Price USD 160.55
 Payment Frequency Quarterly

Type All 1) Color Legend Show Comparative BDVD Forecasts

| | Declaration | Ex Date | Record | Payable | Curr | Amount Type |
|-----|-------------|----------|----------|----------|------|---------------------|
| 11) | 02/01/22 | 02/11/22 | | | USD | .22 BDVD Forecast |
| 12) | 10/28/21 | 11/05/21 | 11/08/21 | 11/11/21 | USD | .22 Regular Cash |
| 13) | 07/27/21 | 08/06/21 | 08/09/21 | 08/12/21 | USD | .22 Regular Cash |
| 14) | 04/28/21 | 05/07/21 | 05/10/21 | 05/13/21 | USD | .22 Regular Cash |
| 15) | 01/27/21 | 02/05/21 | 02/08/21 | 02/11/21 | USD | .205 Regular Cash |
| 16) | 10/29/20 | 11/06/20 | 11/09/20 | 11/12/20 | USD | .205 Regular Cash |
| 17) | 07/30/20 | 08/31/20 | 08/24/20 | 08/28/20 | | 4 for 1 Stock Split |
| 18) | 07/30/20 | 08/07/20 | 08/10/20 | 08/13/20 | USD | .205 Regular Cash |
| 19) | 04/30/20 | 05/08/20 | 05/11/20 | 05/14/20 | USD | .205 Regular Cash |
| 20) | 01/28/20 | 02/07/20 | 02/10/20 | 02/13/20 | USD | .1925 Regular Cash |
| 21) | 10/30/19 | 11/07/19 | 11/11/19 | 11/14/19 | USD | .1925 Regular Cash |
| 22) | 07/30/19 | 08/09/19 | 08/12/19 | 08/15/19 | USD | .1925 Regular Cash |
| 23) | 04/30/19 | 05/10/19 | 05/13/19 | 05/16/19 | USD | .1925 Regular Cash |
| 24) | 01/29/19 | 02/08/19 | 02/11/19 | 02/14/19 | USD | .1825 Regular Cash |

Suggested Functions DES Study in-depth information on a security OSA Manage risk for listed & OTC options

Sem zadejte hledaný výraz H:\Documents\AC... prednaska4.pptx... DVD APPLE INC Eq... Launchpad - View 2 6°C Slabý déšť 8:55 22.11.2021

DVD VOLKSWAGEN-PREF Equity

VOLKSWAGEN-PREF Equity | DVD | Related Functions Menu

VOW3 GY € C **180.64** -4.68 Y180.46 / 180.50Y 123x140

On 19 Nov d Vol 2,004,212 O 185.14Y H 185.68Y L 178.76Y Val 362.602M

VOW3 GY Equity Settings Dividend/Split Summary

Volkswagen AG

Range 2000 - 2021 Adjust for Capital Change Currency USD

12 Month Yield 2.68%

Indicated Yield 2.68%

1 Yr Dividend Growth 0%

3 Yr Dividend Growth 7.06%

5 Yr Dividend Growth 95.54%

Last Price EUR 181.08

Payment Frequency Annual

Type All 1) Color Legend Show Comparative BDVD Forecasts

| | Declaration | Ex Date | Record | Payable | Curr | Amount | Type |
|-----|-------------|----------|----------|----------|------|----------|---------------|
| 11) | 03/15/22 | 05/13/22 | | | USD | 8.180567 | BDVD Forecast |
| 12) | 02/26/21 | 07/23/21 | 07/26/21 | 07/27/21 | USD | 5.719248 | Regular Cash |
| 13) | 02/28/20 | 10/01/20 | 10/02/20 | 10/05/20 | USD | 5.70807 | Regular Cash |
| 14) | 02/22/19 | 05/15/19 | 05/16/19 | 05/17/19 | USD | 5.446116 | Regular Cash |
| 15) | 02/23/18 | 05/04/18 | 05/07/18 | 05/08/18 | USD | 4.737348 | Regular Cash |
| 16) | 02/27/17 | 05/11/17 | 05/12/17 | 05/15/17 | USD | 2.238602 | Regular Cash |
| 17) | 04/22/16 | 06/23/16 | 06/22/16 | 06/23/16 | USD | .193001 | Regular Cash |
| 18) | 02/27/15 | 05/06/15 | 05/05/15 | 05/06/15 | USD | 5.502978 | Regular Cash |
| 19) | 02/21/14 | 05/14/14 | 05/13/14 | 05/14/14 | USD | 5.565448 | Regular Cash |
| 20) | 02/22/13 | 04/26/13 | 04/25/13 | 04/26/13 | USD | 4.634764 | Regular Cash |
| 21) | 02/24/12 | 04/20/12 | 04/19/12 | 04/20/12 | USD | 4.042872 | Regular Cash |
| 22) | 02/25/11 | 05/04/11 | 05/03/11 | 05/04/11 | USD | 3.355874 | Regular Cash |
| 23) | 02/26/10 | 04/23/10 | 04/22/10 | 04/23/10 | USD | 2.219088 | Regular Cash |
| 24) | 03/23/10 | 03/31/10 | 03/30/10 | 04/13/10 | | 6 per 37 | Rights Issue |

Suggested Functions DES Study in-depth information on a security BAS Track broker activity on an exchange

Pracovní prostor Windows Ink

Sem zadejte hledaný výraz

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6°C Slabý déšť 8:56 22.11.2021

NYSE:IBM

International Business Machines Dividend Yield, History & Payout Ratio

\$128.30 -0.76 (-0.59%)
(As of 03/23/2022 12:00 AM ET)

[ADD](#) [COMPARE](#) [SHARE](#)

| | | | | | |
|---------------|---------------------|-----------------------|------------------|----------------|-------|
| Today's Range | \$128.25 - \$129.32 | Volume | 2.91 million shs | P/E Ratio | 20.20 |
| 50-Day Range | \$121.35 - \$137.79 | Average Volume | 5.73 million shs | Dividend Yield | 5.08% |
| 52-Week Range | \$114.56 - \$152.84 | Market Capitalization | \$115.38 billion | Beta | 1.1 |

PROFILE ANALYST RATINGS CHART COMPETITORS **DIVIDEND** EARNINGS FINANCIALS INSIDER TRADES INSTITUTIONAL OWNERSHIP HEADLINES OPTIONS CHAIN SEC FILINGS SHORT INTEREST SOCIAL MEDIA SUSTAINABILITY

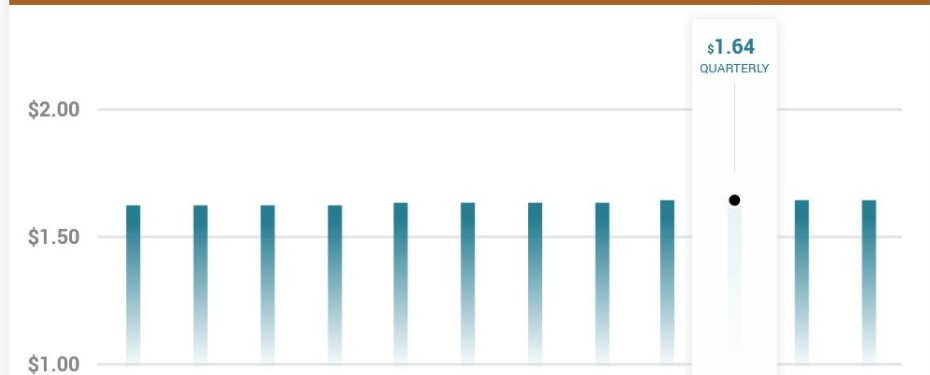
| | | |
|--|---|---|
| DIVIDEND YIELD 5.11% | ANNUAL DIVIDEND \$6.56 | DIVIDEND INCREASE TRACK RECORD 27 Years |
| 3-YEAR DIVIDEND GROWTH 1.79% | DIVIDEND PAYOUT RATIO 103.31% | RECENT DIVIDEND PAYMENT MAR. 10 |

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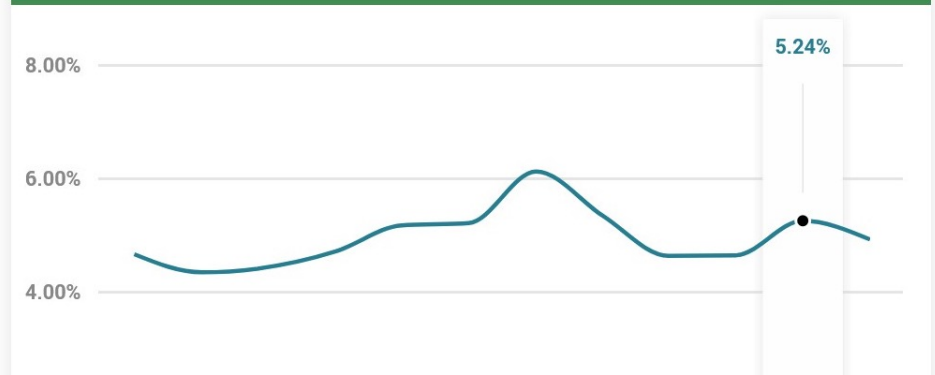
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DIVIDEND PAYMENTS BY MONTH (OR QUARTER)



DIVIDEND YIELD OVER TIME



NASDAQ:AAPL

Followed 1,293 Times

Most-Upgraded Stocks

Searched 950 Times

Apple Dividend Yield, History & Payout Ratio

\$170.21 +1.39 (+0.82%)
(As of 03/23/2022 04:00 PM ET)

ADD COMPARE SHARE

| | | | | | |
|---------------|---------------------|-----------------------|-------------------|----------------|-------|
| Today's Range | \$167.65 - \$172.64 | Volume | 97.97 million shs | P/E Ratio | 28.18 |
| 50-Day Range | \$150.62 - \$176.28 | Average Volume | 95.75 million shs | Dividend Yield | 0.52% |
| 52-Week Range | \$118.86 - \$182.94 | Market Capitalization | \$2.78 trillion | Beta | 1.19 |

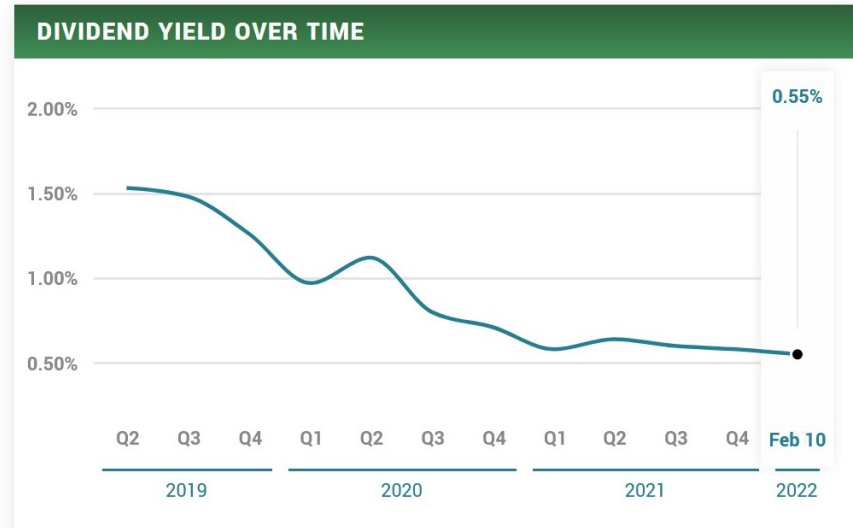
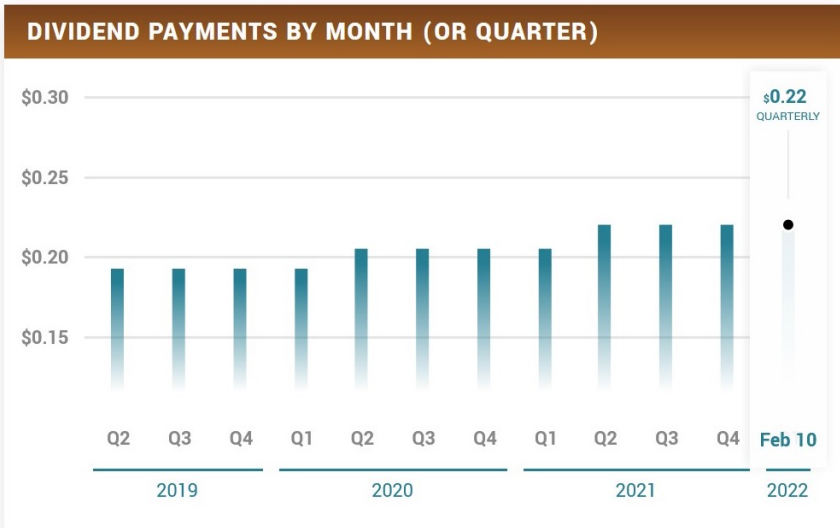
PROFILE ANALYST RATINGS CHART COMPETITORS **DIVIDEND** EARNINGS FINANCIALS INSIDER TRADES INSTITUTIONAL OWNERSHIP HEADLINES OPTIONS CHAIN SEC FILINGS SHORT INTEREST SOCIAL MEDIA SUSTAINABILITY

| | | |
|---|---|---|
| DIVIDEND YIELD 0.52% | ANNUAL DIVIDEND \$0.88 | DIVIDEND INCREASE TRACK RECORD 9 Years |
| 3-YEAR DIVIDEND GROWTH 7.06% | DIVIDEND PAYOUT RATIO 14.57% | RECENT DIVIDEND PAYMENT FEB. 10 |

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Your Email Address



Coca-Cola Bottling Company and Hormel Foods

Exhibit 1. COKE and HRL: The Earnings and Dividends Record

| Year | COKE | | | HRL | | |
|------|----------|----------|------------------|----------|----------|------------------|
| | EPS (\$) | DPS (\$) | Payout Ratio (%) | EPS (\$) | DPS (\$) | Payout Ratio (%) |
| 2012 | 3.08 | 1.00 | 32 | 1.86 | 0.60 | 32 |
| 2011 | 3.08 | 1.00 | 32 | 1.74 | 0.51 | 29 |
| 2010 | 3.94 | 1.00 | 25 | 1.51 | 0.42 | 28 |
| 2009 | 3.56 | 1.00 | 28 | 1.27 | 0.38 | 30 |
| 2008 | 1.77 | 1.00 | 56 | 1.04 | 0.37 | 36 |
| 2007 | 2.17 | 1.00 | 46 | 1.07 | 0.30 | 28 |
| 2006 | 2.55 | 1.00 | 39 | 1.03 | 0.28 | 27 |
| 2005 | 2.53 | 1.00 | 40 | 0.91 | 0.26 | 29 |
| 2004 | 2.41 | 1.00 | 41 | 0.78 | 0.23 | 29 |
| 2003 | 3.40 | 1.00 | 29 | 0.67 | 0.21 | 31 |
| 2002 | 2.56 | 1.00 | 39 | 0.68 | 0.20 | 29 |
| 2001 | 1.07 | 1.00 | 93 | 0.65 | 0.19 | 29 |
| 2000 | 0.71 | 1.00 | 141 | 0.61 | 0.18 | 30 |
| 1999 | 0.37 | 1.00 | 270 | 0.54 | 0.17 | 31 |
| 1998 | 1.75 | 1.00 | 57 | 0.41 | 0.16 | 39 |

Source: The Value Line Investment Survey, sec.edgar-online.com.

Ocenění akcií s využitím DDM pro více period

$$V_0 = \sum_{t=1}^n \frac{D_t}{(1+r)^t} + \frac{P_n}{(1+r)^n}$$

Příklad: Ocenění akcií s využitím DDM pro více period

| | 0 | 1 | 2 | 3 |
|----------|---|--------|--------|---------|
| <i>D</i> | | \$1.00 | \$1.05 | \$1.10 |
| <i>P</i> | | | | \$20.00 |

Příklad: Ocenění akcií s využitím DDM pro více period

$$V_0 = \frac{\$1.00}{1.10} + \frac{\$1.05}{1.10^2} + \frac{\$21.10}{1.10^3}$$

$$V_0 = \$17.63$$

Gordonův růstový model

$$V_0 = \frac{D_0(1+g)}{r-g} = \frac{D_1}{r-g}$$

Average Annual Real GDP Growth Rates: 1983–2012 (in Percent)

| Country | Time Period | | |
|----------------|--------------------|------------------|------------------|
| | 1983–1992 | 1993–2002 | 2003–2012 |
| Australia | 3.4% | 3.8% | 2.4% |
| Canada | 2.7 | 3.5 | 1.9 |
| Denmark | 2.1 | 2.4 | 0.6 |
| France | 2.3 | 2.0 | 1.1 |
| Germany | 3.0 | 1.4 | 1.2 |
| Italy | 2.5 | 1.6 | 0.0 |
| Japan | 4.3 | 0.8 | 0.9 |
| Netherlands | 2.9 | 3.0 | 1.1 |
| Sweden | 1.9 | 2.7 | 2.3 |
| Switzerland | 2.1 | 1.3 | 1.9 |
| United Kingdom | 2.6 | 3.4 | 1.4 |
| United States | 3.5 | 3.4 | 1.7 |

Příklad: Gordonův růstový model

| | |
|---------------------------|---------|
| Bezriziková výnosová míra | 3.0% |
| Prémie za riziko | 6.0% |
| Beta | 1.20 |
| Běžná dividenda D_0 | \$2.00 |
| Míra růstu dividendy g | 5.0% |
| Aktuální tržní cena | \$24.00 |

Příklad: Gordonův růstový model

$$\text{CAPM: } r = 3\% + 1.2(6\%) = 10.2\%$$

$$V_0 = \frac{\$2.00(1 + 0.05)}{0.102 - 0.05} = \frac{\$2.10}{0.102 - 0.05} = \$40.38$$

Příklad: Prioritní akcie

$$V_0 = \frac{\$2.00}{0.102 - 0} = \$19.61$$

WACC GENERAL ELECTRIC Equit x +

GENERAL ELECTRIC Equity | WACC | Related Functions Menu

GE US \$ C 99.96 -0.71 N99.96 / 99.97N 64x218
 On 19 Nov d Vol 6,605,069 0 99.80P H 100.74F L 99.30N Val 660.027

GE US Equity 1) Create Report 2) Output to Excel Weighted Average Cost of Capital
 General Electric Co Period MR 2021Q3

Cost of Capital - Current Market Value

| | Weight | Cost | W x C |
|---------------------|--------|---------|-------|
| 3) Equity | 63.2% | 10.9% | 6.9% |
| 4) Debt Cost (A-T) | 36.8% | 2.0% | 0.7% |
| 5) Preferred Equity | 0.0% | 6250.0% | 0.2% |
| WACC | | | 7.9% |

Capital Structure (Millions of USD)

| | | |
|------------|----------|--------|
| Market Cap | 113141,1 | 63.2% |
| ST Debt | 5459,0 | 3.1% |
| LT Debt | 60377,0 | 33.7% |
| Pref. Eqty | 6,0 | 0.0% |
| Total | 178983,1 | 100.0% |

6) History

WACC EVA ROIC EVA Spread

Economic Value Added (Millions of USD)

| | |
|-----------------------------|----------|
| 7) Net Operating Profit | 5634,00 |
| 8) Cash Operating Taxes | 2032,77 |
| NOPAT | 3601,23 |
| 9) Total Investment Capital | 90360,00 |
| Capital Charge | 7109,20 |
| Economic Value Added | -3507,96 |
| ROIC | 3,99% |
| EVA Spread | -3,88% |

Suggested Functions ANR Get analyst recommendations & ratings CACT Search for corporate actions & events

Příklad: Výpočet implikované míry růstu dividendy s využitím Gordonova modelu

S využitím předchozího příkladu a aktuální ceny 24 USD. Jaká je implikovaná míra růstu dividendy?

$$\$24 = \frac{\$2.00(1 + g)}{0.102 - g}$$

$$2.448 - 24g = 2.00(1 + g)$$

$$-26g = -0.448$$

$$g = 1.72\%$$

Kapitálový a dividendový výnos z Gordonova modelu

$$V_0 = \frac{D_1}{r - g}$$

$$r = \frac{D_1}{P_0} + g$$

Příklad: Výpočet implikované výnosové míry s využitím Gordonova modelu

S využitím předchozího příkladu a aktuální ceny 24 USD. Jaká je implikovaná výnosová míra?

$$r = \frac{D_1}{P_0} + g$$

$$r = \frac{2.10}{24} + 0.05$$

$$r = 8.75\% + 5\% = 13.75\%$$

Využití Gordonova modelu k odvození ospravedlněného předbíhajícího P/E

– justified leading nebo trailing P/Es

$$V_0 = \frac{D_1}{r - g}$$

$$\frac{P_0}{E_1} = \frac{D_1 / E_1}{r - g}$$

$$\frac{P_0}{E_1} = \frac{1 - b}{r - g}$$

Využití Gordonova modelu k odvození ospravedlněného konečného P/E

$$V_0 = \frac{D_0(1+g)}{r-g}$$

$$\frac{P_0}{E_0} = \frac{D_0(1+g)/E_0}{r-g}$$

$$\frac{P_0}{E_0} = \frac{(1-b)(1+g)}{r-g}$$

Příklad: Využití Gordonova modelu k odvození ospravedlněného konečného P/E

| | |
|--------------------------|---------|
| Cena akcie | \$50.00 |
| Konečný zisk na akcii | \$4.00 |
| Běžná dividendy | \$1.60 |
| Míra růstu dividendy | 5.0% |
| Požadovaná výnosová míra | 9.0% |

Příklad: Využití Gordonova modelu k odvození ospravedlněného konečného P/E

$$\frac{P_0}{E_0} = \frac{(1 - b)(1 + g)}{r - g}$$

$$\frac{P_0}{E_0} = \frac{(\$1.60 / \$4.00)(1.05)}{0.09 - 0.05} = 10.50$$

$$\text{Actual P/E} = \$50.00 / \$4.00 = 12.50$$

Příklad: Využití Gordonova modelu k odvození ospravedlněného předbíhajícího P/E

$$\frac{P_0}{E_1} = \frac{1 - b}{r - g}$$

$$\frac{P_0}{E_1} = \frac{\$1.60/\$4.00}{0.09 - 0.05} = 10.0$$

Problémy spojené s Gordonovým modelem

Silné stránky

Jednoduché použití pro vyspělé zavedené společnosti

Může být využit pro trh jako celek

g odhadnut z makro dat

Může být použit pro společnosti, které skupují akcie

Limity

Nevyužitelný v případě, že společnost nevyplácí dividendu

g musí být konstantní

Hodnota akcie velice citlivá na hodnotu $r - g$

Většina společností má nekonstantní změnu dividendy (g není stejné po celou dobu)

Exhibit 2. Average Annual Real GDP Growth Rates: 1983–2012 (in Percent)

| Country | Time Period | | |
|----------------|-------------|-----------|-----------|
| | 1983–1992 | 1993–2002 | 2003–2012 |
| Australia | 3.4% | 3.8% | 2.4% |
| Canada | 2.7 | 3.5 | 1.9 |
| Denmark | 2.1 | 2.4 | 0.6 |
| France | 2.3 | 2.0 | 1.1 |
| Germany | 3.0 | 1.4 | 1.2 |
| Italy | 2.5 | 1.6 | 0.0 |
| Japan | 4.3 | 0.8 | 0.9 |
| Netherlands | 2.9 | 3.0 | 1.1 |
| Sweden | 1.9 | 2.7 | 2.3 |
| Switzerland | 2.1 | 1.3 | 1.9 |
| United Kingdom | 2.6 | 3.4 | 1.4 |
| United States | 3.5 | 3.4 | 1.7 |

Source: OECD.

Analýza citlivosti

| | Growth | 1.95% | 2.05% | 2.15% | 2.25% | 2.35% | 2.45% | 2.55% | 2.65% | 2.75% | 2.85% | 2.95% |
|-------|-----------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| re | Variation | -0.50% | -0.40% | -0.30% | -0.20% | -0.10% | 0.00% | 0.10% | 0.20% | 0.30% | 0.40% | 0.50% |
| 4.44% | -0.50% | \$1.65 | \$1.71 | \$1.78 | \$1.85 | \$1.93 | \$2.02 | \$2.11 | \$2.22 | \$2.34 | \$2.48 | \$2.63 |
| 4.54% | -0.40% | \$1.59 | \$1.64 | \$1.70 | \$1.77 | \$1.84 | \$1.92 | \$2.01 | \$2.10 | \$2.21 | \$2.33 | \$2.47 |
| 4.64% | -0.30% | \$1.53 | \$1.58 | \$1.63 | \$1.70 | \$1.76 | \$1.83 | \$1.91 | \$2.00 | \$2.10 | \$2.20 | \$2.32 |
| 4.74% | -0.20% | \$1.47 | \$1.52 | \$1.57 | \$1.63 | \$1.69 | \$1.75 | \$1.83 | \$1.90 | \$1.99 | \$2.09 | \$2.19 |
| 4.84% | -0.10% | \$1.42 | \$1.47 | \$1.51 | \$1.56 | \$1.62 | \$1.68 | \$1.75 | \$1.82 | \$1.90 | \$1.98 | \$2.08 |
| 4.94% | 0.00% | \$1.37 | \$1.41 | \$1.46 | \$1.51 | \$1.56 | \$1.61 | \$1.67 | \$1.74 | \$1.81 | \$1.89 | \$1.97 |
| 5.04% | 0.10% | \$1.33 | \$1.37 | \$1.41 | \$1.45 | \$1.50 | \$1.55 | \$1.61 | \$1.66 | \$1.73 | \$1.80 | \$1.88 |
| 5.14% | 0.20% | \$1.29 | \$1.32 | \$1.36 | \$1.40 | \$1.45 | \$1.49 | \$1.54 | \$1.60 | \$1.66 | \$1.72 | \$1.79 |
| 5.24% | 0.30% | \$1.25 | \$1.28 | \$1.32 | \$1.36 | \$1.40 | \$1.44 | \$1.49 | \$1.54 | \$1.59 | \$1.65 | \$1.71 |
| 5.34% | 0.40% | \$1.21 | \$1.24 | \$1.28 | \$1.31 | \$1.35 | \$1.39 | \$1.43 | \$1.48 | \$1.53 | \$1.58 | \$1.64 |
| 5.44% | 0.50% | \$1.18 | \$1.21 | \$1.24 | \$1.27 | \$1.31 | \$1.34 | \$1.38 | \$1.43 | \$1.47 | \$1.52 | \$1.58 |

Volby modelu založeného na diskontování CF

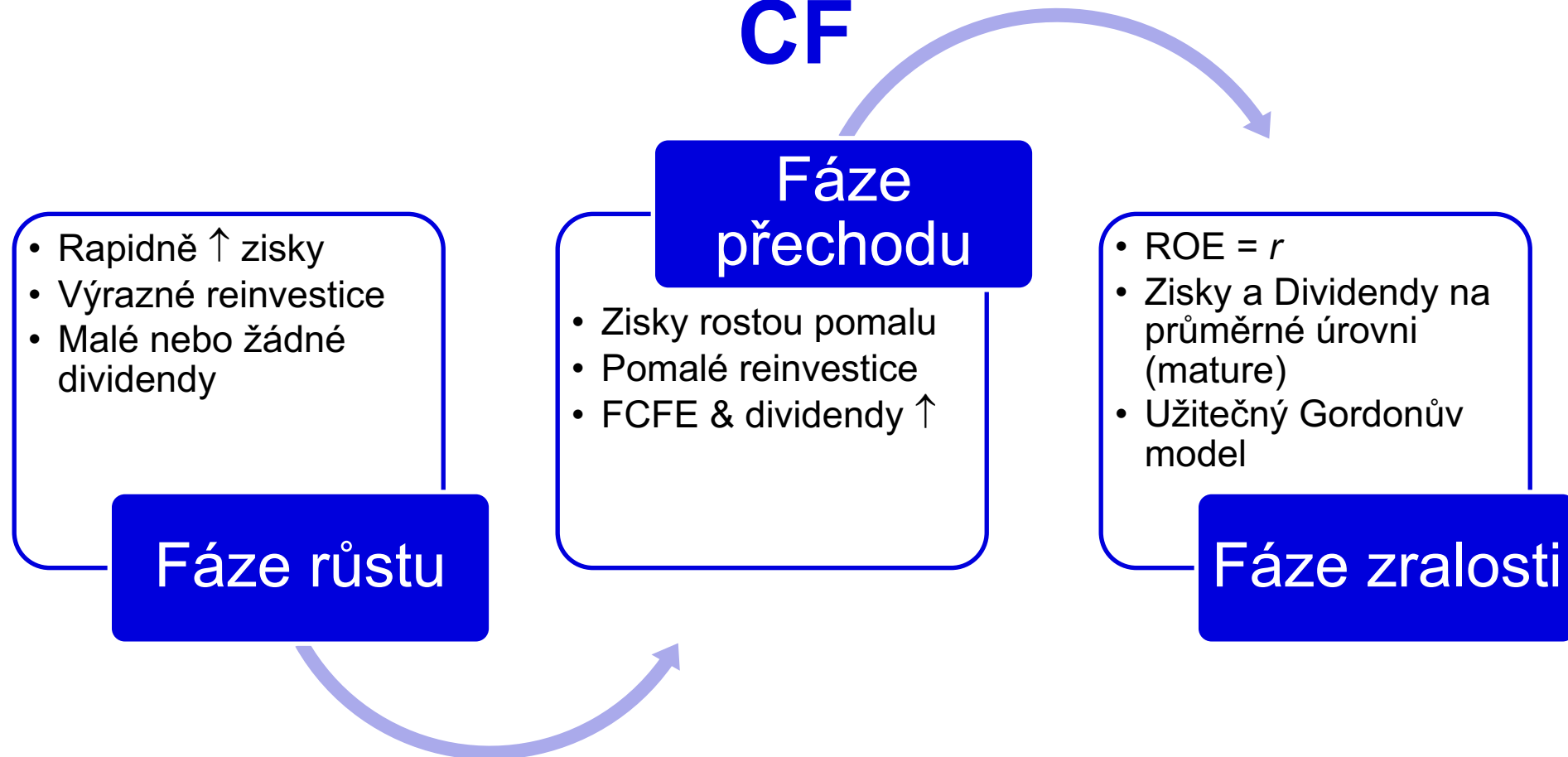
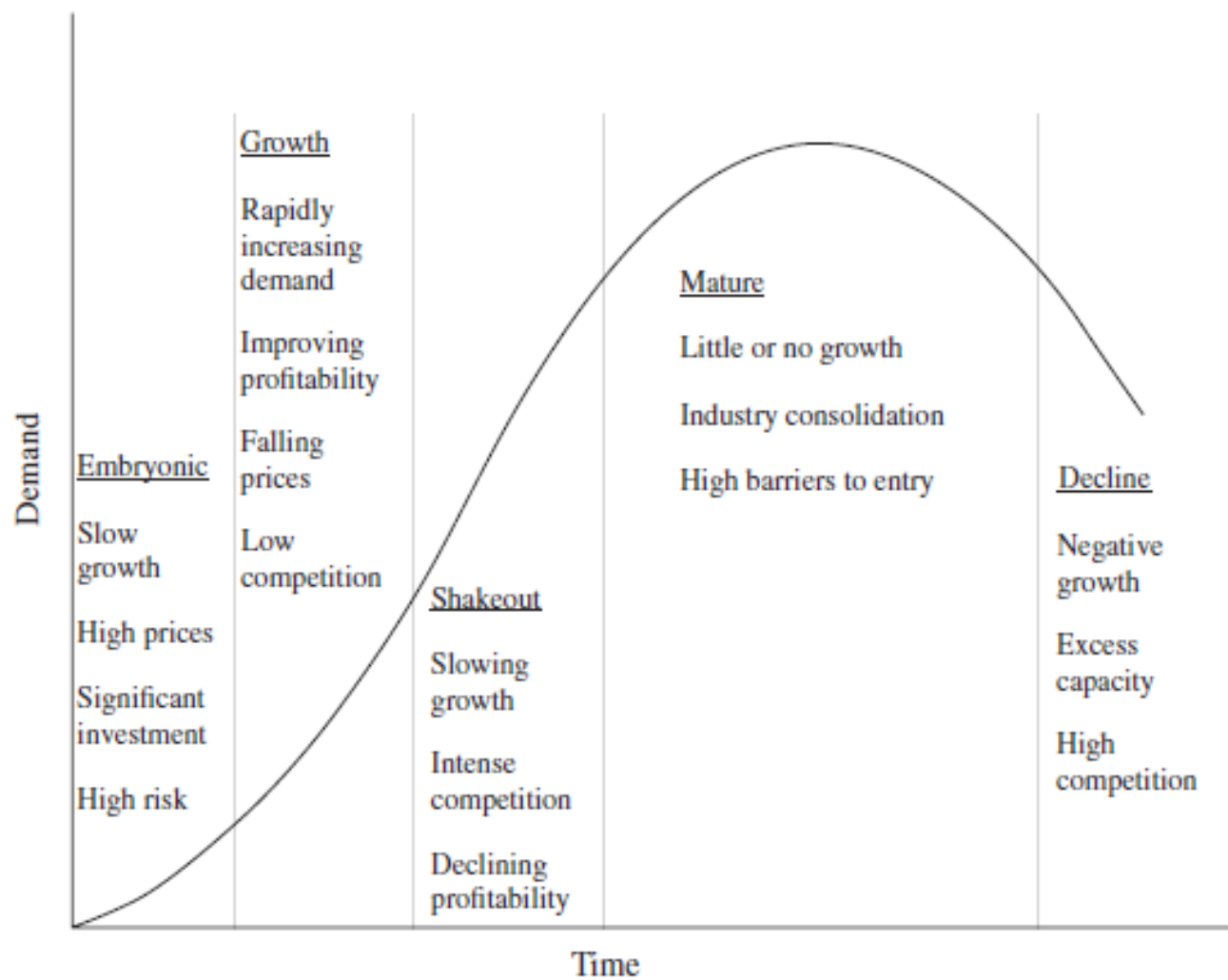


EXHIBIT 6 An Industry Life-Cycle Model



Source: Based on Figure 2.4 in Hill and Jones (2008)

Obecný dvoustupňovýDDM

$$V_0 = \sum_{t=1}^n \frac{D_0 (1 + g_S)^t}{(1 + r)^t} + \frac{D_0 \times (1 + g_S)^n \times (1 + g_L)}{(1 + r)^n \times (r - g_L)}$$

Příklad: Obecný dvoustupňový DDM

Běžná dividendy = \$2.00

Míra růstu dividendy – následující tři roky = 15 percent

Dlouhodobá míra růstu dividendy = 4 percent

Požadovaná výnosová míra = 10 percent

Příklad: Obecný dvoustupňový DDM model

Krok 1: První tři dividendy:

- $D1 = \$2.00 \times (1.15) = \2.30
- $D2 = \$2.30 \times (1.15) = \2.6450
- $D3 = \$2.6450 \times (1.15) = \3.0418

Krok 2: Dividenda 4. rok:

- $D4 = \$3.0418 \times (1.04) = \3.1634

Krok 3: Výpočet hodnoty dividend rostoucích konstantní mírou:

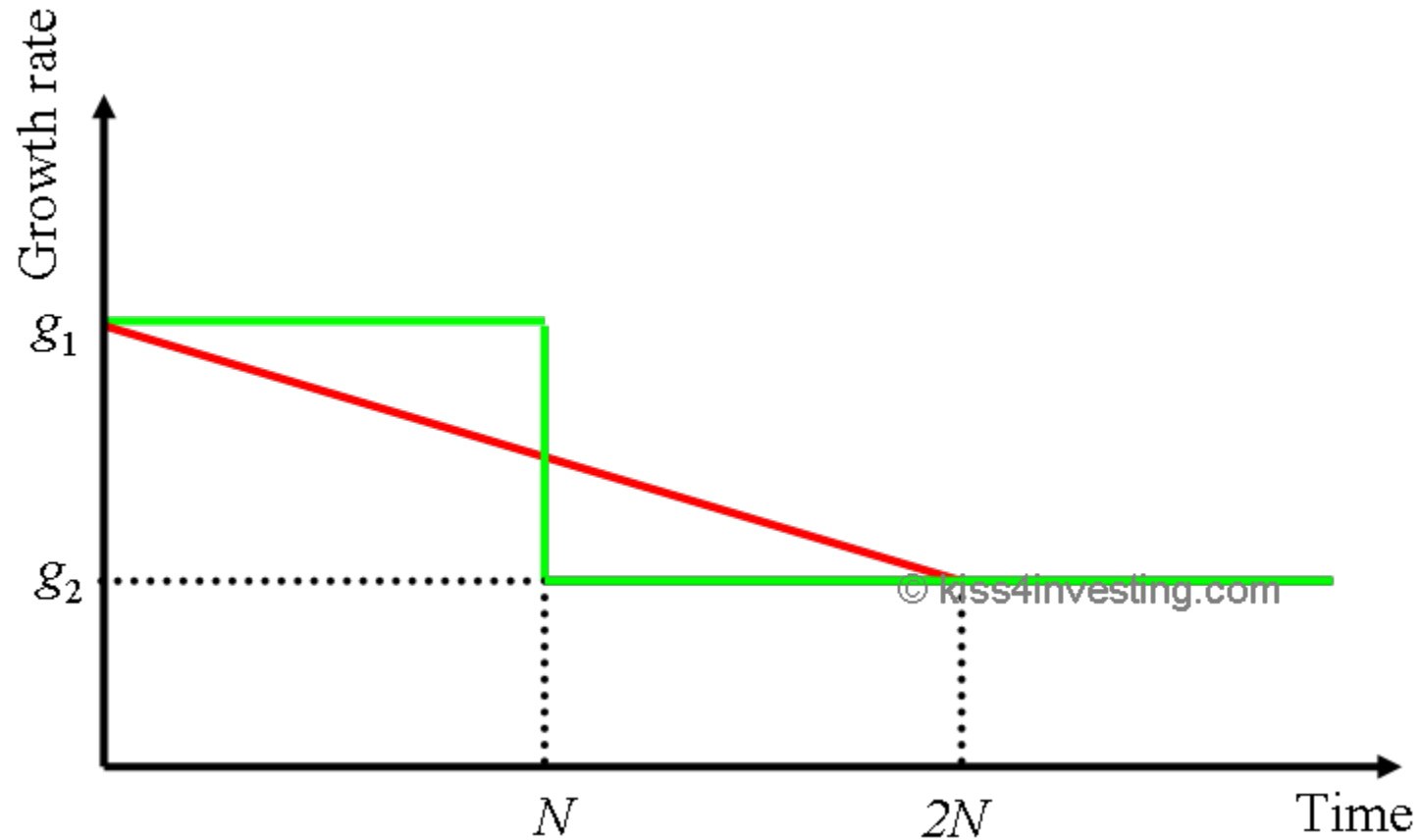
- $V3 = \$3.1634 / (0.10 - 0.04) = \52.7237

Příklad: Obecný dvoustupňový DDM model

$$V_0 = \frac{\$2.30}{1.10} + \frac{\$2.6450}{1.10^2} + \frac{\$3.0418}{1.10^3} + \frac{\$52.7237}{1.10^3}$$

$$V_0 = \$46.17$$

2stupňový DDM x H-Model



Dvoustupňový H-Model

$$V_0 = \frac{D_0 \times (1 + g_L)}{r - g_L} + \frac{D_0 \times H \times (g_S - g_L)}{r - g_L}$$

where:

$H = \left(\frac{t}{2}\right)$ = half-life (in years) of high-growth period

t = length of high growth period

g_S = short-term growth rate

g_L = long-term growth rate

r = required return

Příklad: Dvoustupňový H-Model

| | |
|--------------------------|--------|
| Běžná dividenda | \$3.00 |
| G_s | 20% |
| g_L | 6% |
| H | 5 |
| Požadovaná výnosová míra | 10% |
| Aktuální tržní cena | \$120 |

Příklad: Dvoustupňový H-Model

$$V_0 = \frac{[D_0 \times (1 + g_L)] + [D_0 \times H (g_S - g_L)]}{r - g_L}$$

$$V_0 = \frac{[\$3 \times (1 + 0.06)] + [\$3 \times 5 (0.20 - 0.06)]}{0.10 - 0.06}$$

$$V_0 = \$79.50 + \$52.50 = \$132.00$$

Příklad: Třístupňový model

- Společnost vyplácí běžnou dividendu \$1.00
- Míra růstu je očekávána 20 procent následující dva roky
- Poté 6 let klesá na úroveň 5 procent
- Požadovaná výnosová míra je 10 procent
- Aktuální cena akcie je \$50

Třístupňový model

Předpokládáme tři úrovně míry růstu dividendy/ zisku:

- 1. fáze
- 2. fáze
- Fáze stabilizace

H model může být pak aplikován na poslední dvě fáze, za předpokladu lineárního poklesu g

Příklad: Třístupňový model

$$V_0 = \frac{\$1 \times (1.20)}{1.10^1} + \frac{\$1 \times (1.20)^2}{(1.10)^2} +$$
$$\frac{\$1 \times (1.20)^2 \times \left(\frac{6}{2}\right) \times (0.20 - 0.05)}{(1.10)^2 \times (0.10 - 0.05)} + \frac{\$1 \times (1.20)^2 \times 1.05}{(1.10)^2 \times (0.10 - 0.05)}$$

$$V_0 = \$1.09 + \$1.19 + \$10.71 + \$24.99 = \$37.98$$

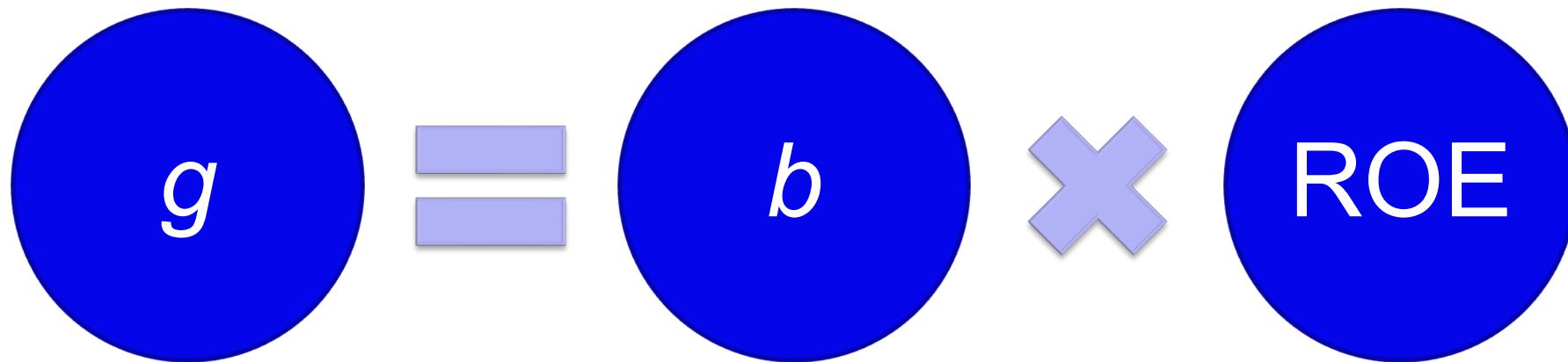
Odhad míry růstu g

Průměr za sektor nebo
makroekonomiku

$$g = b \times \text{ROE}$$

- DuPontův rozklad
- $\text{ROE} = r$
- $\text{ROE} = \text{průmyslové ROE (medián)}$

Udržitelná míra růstu

$$g = b \times \text{ROE}$$
The diagram illustrates the sustainable growth rate equation. It consists of three blue circles arranged horizontally. The first circle on the left contains the lowercase letter 'g'. To its right is a light blue box containing an equals sign (=). The second circle in the middle contains the lowercase letter 'b'. To its right is another light blue box containing a multiplication sign (x). The final circle on the right contains the acronym 'ROE' in all caps.

DuPontův rozklad

$$\text{ROE} = \left(\frac{\text{Net income}}{\text{Total assets}} \right) \left(\frac{\text{Total assets}}{\text{Shareholders' equity}} \right)$$

$$\text{ROE} = \left(\frac{\text{Net income}}{\text{Sales}} \right) \left(\frac{\text{Sales}}{\text{Total assets}} \right) \left(\frac{\text{Total assets}}{\text{Shareholders' equity}} \right)$$

$$g = \left(\frac{\text{Net income} - \text{Dividends}}{\text{Net income}} \right) \times \left(\frac{\text{Net income}}{\text{Sales}} \right) \times \left(\frac{\text{Sales}}{\text{Total assets}} \right) \times \left(\frac{\text{Total assets}}{\text{Equity}} \right)$$

Příklad: DuPontův model

| | |
|----------------------------------|-------|
| Zisková marže | 5.00% |
| Celkový obrat aktiv | 1.5 |
| Multiplikátor akciového kapitálu | 2.0 |
| Podíl zadržného zisku | 60% |

Příklad: DuPont Model

$$g = \left(\frac{\text{Net income} - \text{Dividends}}{\text{Net income}} \right) \times \left(\frac{\text{Net income}}{\text{Sales}} \right) \times \left(\frac{\text{Sales}}{\text{Total assets}} \right) \times \left(\frac{\text{Total assets}}{\text{Equity}} \right)$$

$$g = (0.60) \times (5\%) \times (1.5) \times (2.0)$$

$$g = 9.0\%$$

Ocenění na základě Free Cash Flow

Free Cash



IBM US

\$

Market



P173.09 / 174.24P

2x1

Prev 173.88

Vol 5

1) Create Report

2) Output to Excel

Weighted Average Cost of Capital

IBM US Equity

Period MR 2016 Q4

International Business Machines Corp

Capital Structure (Millions of USD)

| | Weight | Cost | W x C |
|---------------------|--------|------|-------|
| 3) Equity | 78.8% | 9.6% | 7.6% |
| 4) Debt Cost (A-T) | 21.2% | 2.5% | 0.5% |
| 5) Preferred Equity | 0.0% | 0.0% | 0.0% |
| WACC | | | 8.1% |



6) History

WACC EVA ROIC EVA Spread



Economic Value Added (Millions of USD)

| | |
|-----------------------------|----------|
| 1) Net Operating Profit | 11775.00 |
| 8) Cash Operating Taxes | 419.62 |
| NOPAT | 11355.38 |
| 9) Total Investment Capital | 91318.00 |
| Capital Charge | 7409.69 |
| Economic Value Added | 3945.70 |
| ROIC | 12.43% |
| EVA Spread | 4.32% |

CEZ CP CZK ↓ 375.80 +.80 K375.60 / 375.90K 380 x 306
 At 12:21 d Vol 119,571 0 376.00K H 378.50K L 375.30K Val 45.01M

CEZ CP Equity 1) Create Report 2) Output to Excel Weighted Average Cost of Capital
 CEZ AS Period MR 2015 Q3

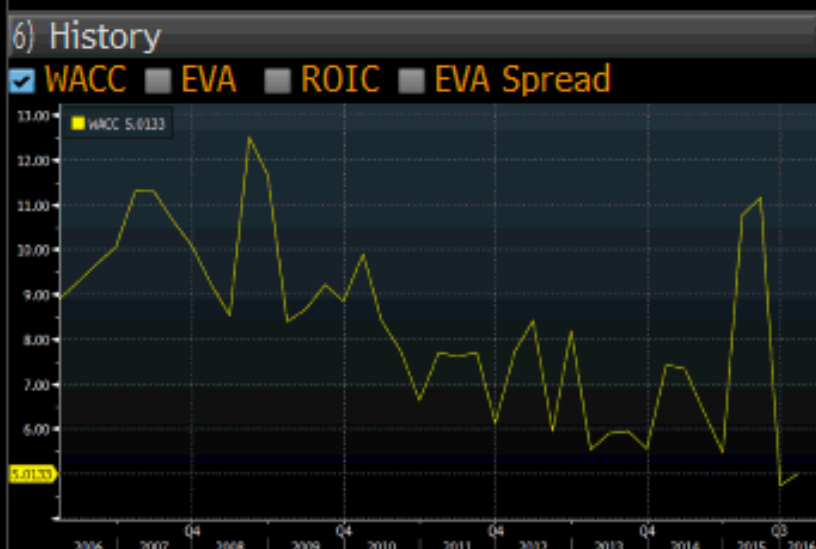
Cost of Capital - Current Market Value

| | Weight | Cost | W x C |
|---------------------|--------|------|-------|
| 3) Equity | 61.5% | 7.9% | 4.9% |
| 4) Debt Cost (A-T) | 38.5% | 0.4% | 0.1% |
| 5) Preferred Equity | 0.0% | 0.0% | 0.0% |
| WACC | | | 5.0% |

Capital Structure (Millions of CZK)



| | | |
|------------|-----------|--------|
| Market Cap | 270,401.4 | 61.5% |
| ST Debt | 12,882.0 | 2.9% |
| LT Debt | 156,652.0 | 35.6% |
| Pref. Eqty | 0.0 | 0.0% |
| Total | 439,935.4 | 100.0% |

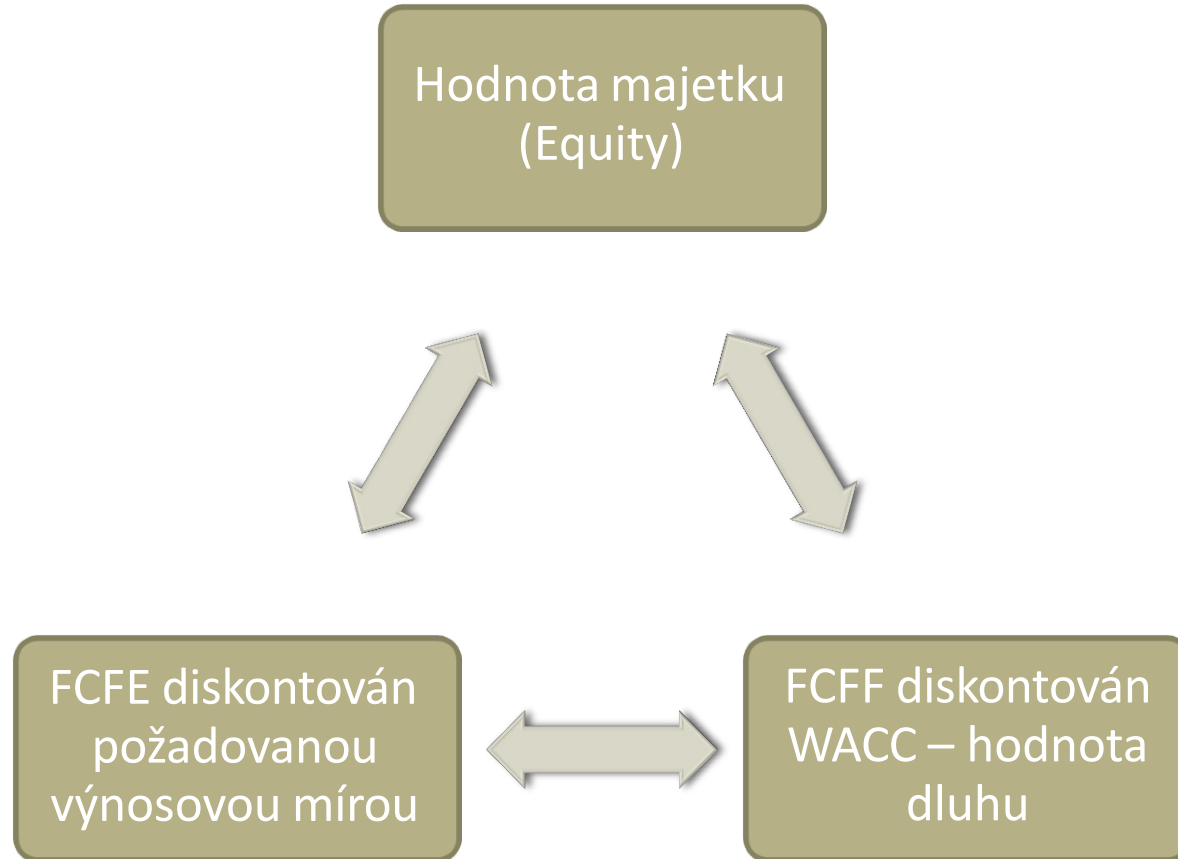


Economic Value Added (Millions of CZK)

| | |
|-----------------------------|-----------|
| 7) Net Operating Profit | 32746.00 |
| 8) Cash Operating Taxes | 6937.68 |
| NOPAT | 25808.32 |
| 9) Total Investment Capital | 459756.00 |
| Capital Charge | 23048.88 |
| Economic Value Added | 2759.44 |
| ROIC | 5.61% |
| EVA Spread | 0.60% |

Australia 61 2 9777 8600 Brazil 5511 2395 9000 Europe 44 20 7330 7500 Germany 49 69 9204 1210 Hong Kong 852 2977 6000
 Japan 81 3 3201 8900 Singapore 65 6212 1000 U.S. 1 212 318 2000
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 SN 163608 CET GMT+1:00 H429-1122-0 22-Feb-2016 12:36:16

FCFF vs. FCFE přístup k ocenění



FCFF vs. FCFE přístup k ocenění

$$\text{Firm value} = \sum_{t=1}^{\infty} \frac{\text{FCFF}_t}{(1 + \text{WACC})^t}$$

Equity value = Firm value – Debt value

$$\text{Equity value} = \sum_{t=1}^{\infty} \frac{\text{FCFE}_t}{(1 + r)^t}$$

Jednostupňový FCF model

$$\text{Firm value} = \frac{\text{FCFF}_1}{\text{WACC} - g}$$

$$\text{Equity value} = \text{Firm value} - \text{Debt value}$$

$$\text{Equity value} = \frac{\text{FCFE}_1}{r - g}$$

Příklad: Jednostupňový FCFF Model

| | |
|---------------------------------|--------------|
| Běžné FCFF | \$6,000,000 |
| Cílovaný podíl dluh ku kapitálu | 0 .25 |
| Tržní hodnota dluhu | \$30,000,000 |
| Počet akcií v oběhu | 2,900,000 |
| Požadovaná výnosová míra | 12 .0% |
| Náklady dluhu | 7 .0% |
| Dlouhodobá míra růstu FCFF | 5 .0% |
| Sazba daně z příjmu | 30 % |

Příklad: Jednostupňový FCFF Model

$$WACC = \left[\left(\frac{MV(\text{Debt})}{MV(\text{Equity}) + MV(\text{Debt})} \right) \times r_d \times (1 - \text{Tax rate}) \right] + \left[\left(\frac{MV(\text{Equity})}{MV(\text{Equity}) + MV(\text{Debt})} \right) \times r \right]$$

$$WACC = [0.25 \times 7\% \times (1 - 0.30)] + [0.75 \times 12\%] = 10.23\%$$

Příklad: Jednostupňový FCFF Model

$$\text{Firm value} = \frac{\text{FCFF}_1}{\text{WACC} - g}$$

$$\text{Firm value} = \frac{\$6,000,000(1.05)}{0.0123 - 0.05} = \$120.5 \text{ million}$$

$$\text{Equity value} = \$120.5 \text{ million} - \$30 \text{ million} = \$90.5 \text{ million}$$

$$\text{Equity value per share} = \$90.5 \text{ million} / 2.9 \text{ million} = \$31.21$$

Výpočet FCFF z čistého zisku (NI)

$$\text{FCFF} = \text{NI} + \text{NCC} + \text{Int} (1 - \text{Tax rate}) - \text{FCInv} - \text{WCInv}$$

NI = čistý zisk net income

NCC = čisté nepeněžní položky (nejčastěji odpisy)/ net noncash charges

Int = úrokové náklady/ interest expense

FCInv = investice do fixního kapitálu/
(kapitálové investice)/ investment in fixed capital

WCInv = investice do pracovního kapitálu
(změna v pracovním kapitálu: oběžná aktiva bez hotovosti - krátkodobé závazky (bez krátkodobých dluhů)/ investment in working capital

EXAMPLE 2 Calculating FCFF from Net Income

Cane Distribution, Inc., incorporated on 31 December 2009 with initial capital infusions of \$224,000 of debt and \$336,000 of common stock, acts as a distributor of industrial goods. The company managers immediately invested the initial capital in fixed capital of \$500,000 and working capital of \$60,000. Working capital initially consisted solely of inventory. The fixed capital consisted of nondepreciable property of \$50,000 and depreciable property of \$450,000. The depreciable property has a 10-year useful life with no salvage value. Exhibits 1, 2, and 3 provide Cane's financial statements for the three years following incorporation. Starting with net income, calculate Cane's FCFF for each year.

EXHIBIT 1 Cane Distribution, Inc. Income Statement (in Thousands)

| | Years Ending 31 December | | |
|--|--------------------------|----------|----------|
| | 2010 | 2011 | 2012 |
| Earnings before interest, taxes, depreciation, and amortization (EBITDA) | \$200.00 | \$220.00 | \$242.00 |
| Depreciation expense | 45.00 | 49.50 | 54.45 |
| Operating income | 155.00 | 170.50 | 187.55 |
| Interest expense (at 7 percent) | 15.68 | 17.25 | 18.97 |
| Income before taxes | 139.32 | 153.25 | 168.58 |
| Income taxes (at 30 percent) | 41.80 | 45.97 | 50.58 |
| Net income | \$97.52 | \$107.28 | \$118.00 |

EXHIBIT 2 Cane Distribution, Inc. Balance Sheet (in Thousands)

| | Years Ending 31 December | | | |
|-----------------------------------|--------------------------|-----------------|-----------------|-------------------|
| | 2009 | 2010 | 2011 | 2012 |
| Cash | \$0.00 | \$108.92 | \$228.74 | \$360.54 |
| Accounts receivable | 0.00 | 100.00 | 110.00 | 121.00 |
| Inventory | 60.00 | 66.00 | 72.60 | 79.86 |
| Current assets | <u>60.00</u> | <u>274.92</u> | <u>411.34</u> | <u>561.40</u> |
| Fixed assets | 500.00 | 500.00 | 550.00 | 605.00 |
| Less: Accumulated depreciation | 0.00 | 45.00 | 94.50 | 148.95 |
| Total assets | <u>\$560.00</u> | <u>\$729.92</u> | <u>\$866.84</u> | <u>\$1,017.45</u> |
| Accounts payable | \$0.00 | \$50.00 | \$55.00 | \$60.50 |
| Current portion of long-term debt | 0.00 | 0.00 | 0.00 | 0.00 |
| Current liabilities | <u>0.00</u> | <u>50.00</u> | <u>55.00</u> | <u>60.50</u> |
| Long-term debt | 224.00 | 246.40 | 271.04 | 298.14 |
| Common stock | 336.00 | 336.00 | 336.00 | 336.00 |
| Retained earnings | 0.00 | 97.52 | 204.80 | 322.80 |
| Total liabilities and equity | <u>\$560.00</u> | <u>\$729.92</u> | <u>\$866.84</u> | <u>\$1,017.45</u> |

EXHIBIT 3 Cane Distribution, Inc. Working Capital (in Thousands)

| | Years Ending 31 December | | | |
|--|--------------------------|--------------|--------------|--------------|
| | 2009 | 2010 | 2011 | 2012 |
| <i>Current assets excluding cash</i> | | | | |
| Accounts receivable | \$0.00 | \$100.00 | \$110.00 | \$121.00 |
| Inventory | <u>60.00</u> | <u>66.00</u> | <u>72.60</u> | <u>79.86</u> |
| Total current assets excluding cash | 60.00 | 166.00 | 182.60 | 200.86 |
| <i>Current liabilities excluding short-term debt</i> | | | | |
| Accounts payable | 0.00 | 50.00 | 55.00 | 60.50 |
| <i>Working capital</i> | \$60.00 | \$116.00 | \$127.60 | \$140.36 |
| <i>Increase in working capital</i> | | \$56.00 | \$11.60 | \$12.76 |

| | Years Ending 31 December | | |
|--|--------------------------|----------------|----------------|
| | 2010 | 2011 | 2012 |
| Net income | \$97.52 | \$107.28 | \$118.00 |
| Noncash charges - Depreciation | 45.00 | 49.50 | 54.45 |
| Interest expense \times (1 - Tax rate) | 10.98 | 12.08 | 13.28 |
| Investment in fixed capital | (0.00) | (50.00) | (55.00) |
| Investment in working capital | <u>(56.00)</u> | <u>(11.60)</u> | <u>(12.76)</u> |
| Free cash flow to the firm | \$97.50 | \$107.26 | \$117.97 |

Využití EBIT a EBITDA k určení FCFF

$$\text{FCFF} = \text{EBIT}(1 - \text{Tax rate}) + \text{Dep} - \text{FCInv} - \text{WCInv}$$

$$\text{FCFF} = \text{EBITDA}(1 - \text{Tax rate}) + \text{Dep}(\text{Tax rate}) - \text{FCInv} - \text{WCInv}$$

Využití provozního CF k stanovení FCFF

$$\text{FCFF} = \text{CFO} + \text{Int} (1 - \text{Tax rate}) - \text{FCInv}$$

Výpočet FCFE z FCFF, Čistého zisku, & CFO

$$\text{FCFE} = \text{FCFF} - \text{Int} (1 - \text{Tax rate}) + \text{Net borrowing/ Čisté výpůjčky}$$

FCFE z (NI) a FCFF:

$$\text{FCFF} = \text{NI} + \text{NCC} + \text{Int} (1 - \text{Tax rate}) - \text{FCInv} - \text{WCInv}$$

$$\text{FCFE} = \text{NI} + \text{NCC} - \text{FCInv} - \text{WCInv} + \text{Net borrowing/ Čisté výpůjčky}$$

FCFE z CFO a FCFF:

$$\text{FCFF} = \text{CFO} + \text{Int} (1 - \text{Tax rate}) - \text{FCInv} \quad \text{FCFE} = \text{CFO} - \text{FCInv} + \text{Net borrowing/ Čisté výpůjčky}$$

Příklad: Výpočet FCFF

| | |
|---------------------------|---------|
| EBITDA | \$1,000 |
| Odpisy | \$400 |
| Úrokové náklady | \$150 |
| Daňová sazba | 30% |
| Nákup fixních aktiv | \$500 |
| Změna pracovního kapitálu | \$50 |
| Čisté výpůjčky | \$80 |
| Dividendy | \$200 |

Příklad: Výpočet FCFF z NI

$$NI = (EBITDA - Dep - Int)(1 - \text{Tax rate})$$

$$NI = (\$1000 - \$400 - \$150)(1 - 0.30) = \$315$$

$$FCFF = NI + NCC + Int(1 - \text{Tax rate}) - FCInv - WCInv$$

$$FCFF = \$315 + \$400 + \$150(1 - 0.30) - \$500 - \$50 = \$270$$

Příklad: Výpočet FCFF z EBIT and EBITDA

$$\text{EBIT} = \text{EBITDA} - \text{Dep} = \$1000 - \$400 = \$600$$

$$\text{FCFF} = \text{EBIT} (1 - \text{Tax rate}) + \text{Dep} - \text{FCInv} - \text{WCInv}$$

$$\text{FCFF} = \$600 (1 - 0.30) + \$400 - \$500 - \$50 = \$270$$

$$\text{FCFF} = \text{EBITDA} (1 - \text{Tax rate}) + \text{Dep} (\text{Tax rate}) - \text{FCInv} - \text{WCInv}$$

$$\text{FCFF} = \$1000 (1 - 0.30) + \$400 (0.30) - \$500 - \$50 = \$270$$

Jednoduchý 2stupňový FCF Model

$$\text{Firm value} = \sum_{t=1}^n \frac{\text{FCFF}_t}{(1 + \text{WACC})^t} + \frac{\text{FCFF}_{n+1}}{(\text{WACC} - g)} \frac{1}{(1 + \text{WACC})^n}$$

$$\text{Equity value} = \sum_{t=1}^n \frac{\text{FCFE}_t}{(1 + r)^t} + \frac{\text{FCFE}_{n+1}}{(r - g)} \frac{1}{(1 + r)^n}$$

Příklad: Jednoduchý 2stupňový FCFE Model

| | |
|--|------|
| Current sales per share | \$10 |
| Sales growth for first three years | 20% |
| Sales growth for year 4 and thereafter | 5% |
| Net income margin | 10% |
| FCInv/Sales growth | 40% |
| WCInv/Sales growth | 25% |
| Debt financing of FCInv and WCInv growth | 30% |
| Required return on equity | 12% |

Příklad: Jednoduchý 2stupňový FCFE Model

| | <i>Year</i> | | | | |
|--------------------------|-------------|----------|----------|----------|----------|
| | 1 | 2 | 3 | 4 | 5 |
| Percentage sales growth | 20% | 20% | 20% | 5% | 5% |
| Sales per share | \$12.000 | \$14.400 | \$17.280 | \$18.144 | \$19.051 |
| EPS | \$1.200 | \$1.440 | \$1.728 | \$1.814 | \$1.905 |
| FCInv per share | \$0.800 | \$0.960 | \$1.152 | \$0.346 | \$0.363 |
| WCInv per share | \$0.500 | \$0.600 | \$0.720 | \$0.216 | \$0.227 |
| Debt financing per share | \$0.390 | \$0.468 | \$0.562 | \$0.168 | \$0.177 |
| FCFE per share | \$0.290 | \$0.348 | \$0.418 | \$1.421 | \$1.492 |
| Growth in FCFE | | 20.0% | 20.0% | 240.3% | 5.0% |

Příklad: Jednoduchý 2stupňový FCFE Model

$$\text{FCFE} = (\text{Sales} \times \text{Net income margin}) - \Delta \text{FCInv} - \Delta \text{WCInv} + \Delta \text{Debt financing}$$

$$\text{FCFE} = (\$12.00 \times 10\%) - (\$2 \times 40\%) - (\$2 \times 25\%) + (\$2 \times 65\% \times 30\%)$$

$$\text{FCFE} = (\$1.20) - (\$0.80) - (\$0.50) + (\$0.39)$$

$$\text{FCFE} = \$0.29$$

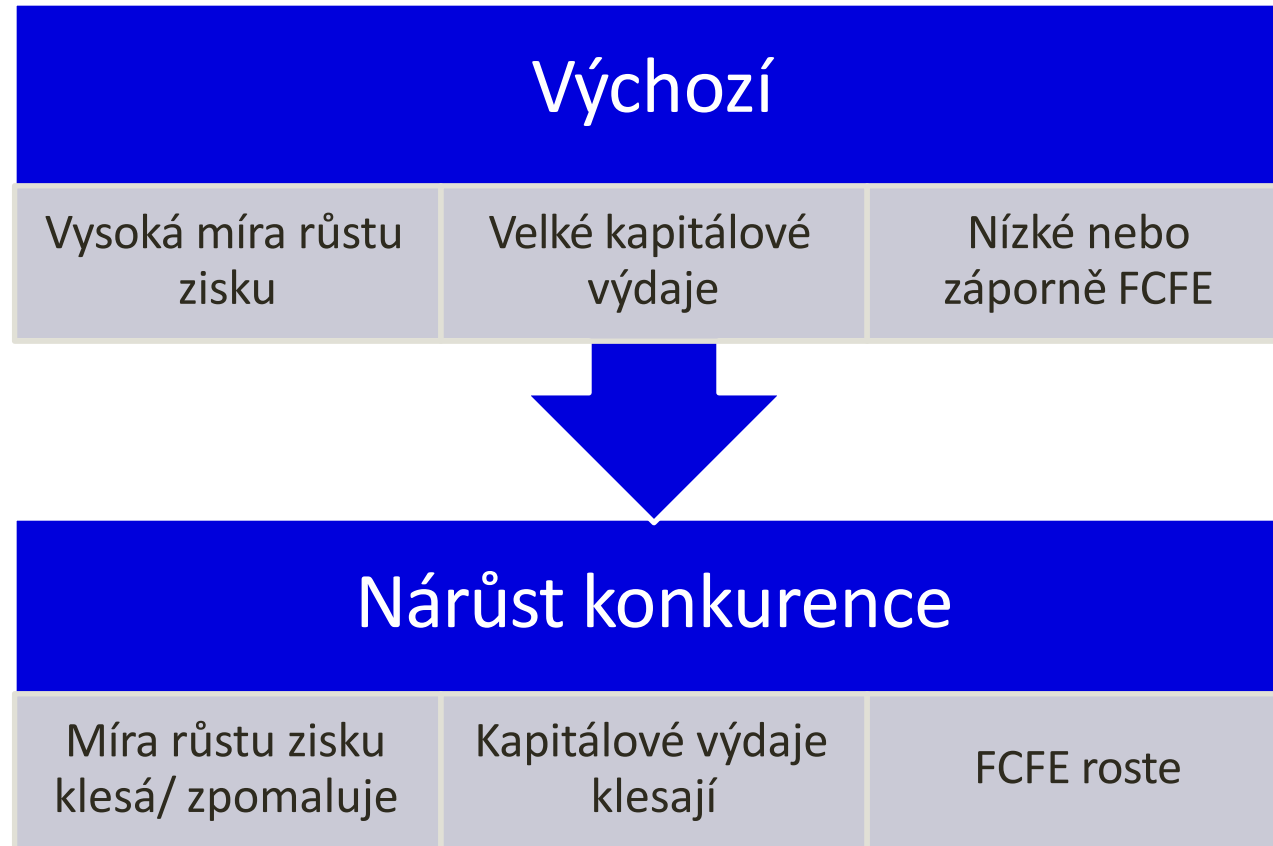
Příklad: Jednoduchý 2stupňový FCFE Model

$$\text{Equity value} = \sum_{t=1}^n \frac{\text{FCFE}_t}{(1+r)^t} + \frac{\text{FCFE}_{n+1}}{(r-g)} \frac{1}{(1+r)^n}$$

$$\text{Equity value} = \frac{\$0.29}{(1.12)^1} + \frac{\$0.348}{(1.12)^2} + \frac{\$0.418}{(1.12)^3} + \frac{\$1.421}{(0.12 - 0.05)} \frac{1}{(1.12)^3}$$

$$\text{Equity value} = \$0.2589 + \$0.2774 + \$0.2975 + \$14.4491 = \$15.28$$

Klesající míra růstu v 2stupňovém FCF Model



Příklad: Klesající 2stupňový FCFE model

| | | | | | | |
|--|--------|--------|--------|--------|--------|--------|
| Current EPS | | | | | | \$1.00 |
| WCInv/FCInv | | | | | | 40% |
| Debt financing of FCInv and WCInv | | | | | | 30% |
| Required return on equity | | | | | | 12% |
| EPS and FCInv growth viz tabulka, od Year 5 and thereafter | | | | | Year | 5% |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| EPS growth | 1 | 2 | 3 | 4 | 5 | |
| | 30% | 21% | 13% | 8% | 5% | |
| FCInv per share | \$1.50 | \$1.25 | \$1.00 | \$0.75 | \$0.50 | |

Příklad: Klesající 2stupňový FCFE model

| | Year | | | | |
|--------------------------|----------|---------|---------|---------|---------|
| | 1 | 2 | 3 | 4 | 5 |
| EPS | \$1.300 | \$1.573 | \$1.777 | \$1.920 | \$2.016 |
| FCInv per share | \$1.500 | \$1.250 | \$1.000 | \$0.750 | \$0.500 |
| WCInv per share | \$0.600 | \$0.500 | \$0.400 | \$0.300 | \$0.200 |
| Debt financing per share | \$0.630 | \$0.525 | \$0.420 | \$0.315 | \$0.210 |
| FCFE per share | -\$0.170 | \$0.348 | \$0.797 | \$1.185 | \$1.526 |

Příklad: Klesající 2stupňový FCFE model

$$\text{FCFE} = \text{EPS} - \Delta\text{FCInv} - \Delta\text{WCInv} + \Delta\text{Debt financing}$$

$$\text{FCFE} = \$1.30 - \$1.50 - (\$1.50 \times 40\%) + \left((\$1.50 + (\$1.50 \times 40\%)) \times 30\% \right)$$

$$\text{FCFE} = \$1.30 - \$1.50 - \$0.60 + \left((\$1.50 + \$0.60) \times 30\% \right)$$

$$\text{FCFE} = -\$0.17$$