## CHAPTER 16

### Dilutive Securities and Earnings Per Share

#### OPTIONAL ASSIGNMENT CHARACTERISTICS TABLE

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BE16-4</td>
<td>Issuance of bonds with warrants.</td>
</tr>
<tr>
<td>BE16-8</td>
<td>Accounting for restricted stock.</td>
</tr>
<tr>
<td>BE16-12</td>
<td>EPS with convertible bonds.</td>
</tr>
<tr>
<td>BE16-13</td>
<td>EPS with convertible preferred stock.</td>
</tr>
<tr>
<td>BE16-14</td>
<td>EPS with stock options.</td>
</tr>
<tr>
<td>E16-1</td>
<td>Issuance &amp; conversion of bonds.</td>
</tr>
<tr>
<td>E16-4</td>
<td>Conversion of bonds.</td>
</tr>
<tr>
<td>E16-5</td>
<td>Conversion of bonds (assume reversing JE NOT made).</td>
</tr>
<tr>
<td>E16-7</td>
<td>Issuance of bonds with warrants.</td>
</tr>
<tr>
<td>E16-8</td>
<td>Issuance of bonds with detachable warrants.</td>
</tr>
<tr>
<td>E16-10</td>
<td>Issuance and exercise of stock options.</td>
</tr>
<tr>
<td>E16-11</td>
<td>Issuance, exercise, and termination of stock options.</td>
</tr>
<tr>
<td>E16-14</td>
<td>Accounting for restricted stock.</td>
</tr>
<tr>
<td>E16-17</td>
<td>EPS: Simple capital structure.</td>
</tr>
<tr>
<td>E16-18</td>
<td>EPS: Simple capital structure.</td>
</tr>
<tr>
<td>E16-21</td>
<td>EPS: Simple capital structure.</td>
</tr>
<tr>
<td>E16-22</td>
<td>EPS with convertible bonds (a. only).</td>
</tr>
<tr>
<td>E16-24</td>
<td>EPS with convertible bonds and preferred stock.</td>
</tr>
<tr>
<td>E16-28</td>
<td>EPS with stock warrants.</td>
</tr>
<tr>
<td>P16-3</td>
<td>Stock option plan.</td>
</tr>
<tr>
<td>P16-6</td>
<td>Basic EPS: Two-year income statement presentation.</td>
</tr>
<tr>
<td>P16-8</td>
<td>EPS with complex capital structure.</td>
</tr>
</tbody>
</table>
BRIEF EXERCISE 16-4

Cash ($2,000,000 x 1.01) ................................................................. 2,020,000
Discount on Bonds Payable ($2,000,000 – $1,940,784) ......................... 59,216
Bonds Payable (2,000 x $1,000) .................................................. 2,000,000
Paid-in Capital—Stock Warrants .................................................. 79,216

FV of bonds ($2,000,000 X .98) = $1,960,000 + FV of warrants (2,000 X $40) = $80,000 = Total $2,040,000

Allocated to bonds (1,960/2,040 X $2,020,000) ................................ $1,940,784
Allocated to warrants (80/2,040 X $2,020,000) ................................ 79,216

BRIEF EXERCISE 16-8

1/1/12 Unearned Compensation .................................................. 75,000
Common Stock ........................................................................... 10,000
Paid-in Capital in Excess of Par—Common ................................. 65,000
12/31/12 Compensation Expense ($75,000 / 3) ............................. 25,000
Unearned Compensation ......................................................... 25,000

BRIEF EXERCISE 16-12

Basic EPS = $300,000 / 100,000 shares = $3.00

If converted impact of bonds:
Numerator: [$800,000 x 10% = $80,000 x (1 – .40)] = $48,000; Denominator: 16,000 shares

Diluted EPS = ($300,000 + $48,000) / (100,000 + 16,000) = $3.00
Dilutive? $3.00 = $3.00, bonds are NOT dilutive ⇒ report only single EPS of $3.00

BRIEF EXERCISE 16-13

Basic EPS = ($270,000 − $25,000*) / 50,000 shares = $5.40

* preferred dividends (subtract since cumulative) = (5,000 x $5)

If converted impact of preferred stock: Numerator: $25,000; Denominator: 5,000 x 2 = 10,000 shares

Diluted EPS = ($270,000 − $25,000 + $25,000) / (50,000 + 10,000) = $270,000 / 60,000 shares = $4.50
Dilutive? Yes since $4.50 < $5.40 ⇒ report both Basic and Diluted EPS

BRIEF EXERCISE 16-14

Options are dilutive since $10 option price < $15 market price

Treasury stock method impact of options:
Numerator: $0
Denominator: shares issued
shares reacquired (45,000 x $10 = $450,000 / $15) (30,000)
incremental shares outstanding 15,000

Diluted EPS = $300,000 / (200,000 + 15,000) = $300,000 / 215,000 shares = $1.40
EXERCISE 16-1

1. Cash ($10,000,000 X .99) ........................................ 9,900,000
   Discount on Bonds Payable ........................................... 100,000
   Bonds Payable .......................................................... 10,000,000

   Unamortized Bond Issue Costs .................................. 70,000
   Cash ................................................................. 70,000

2. Cash ($10,000,000 x .98) ........................................ 9,800,000
   Discount on Bonds Payable ($10,000,000 − $9,400,000*) ........ 600,000
   Bonds Payable .......................................................... 10,000,000
   Paid-in Capital—Stock Warrants (100,000 x $4) .............. 400,000

   * Amount allocated to bonds = $9,800,000 − $400,000 = $9,400,000

3. Bonds Payable .......................................................... 10,000,000
   Discount on Bonds Payable ........................................... 55,000
   Common Stock (1,000,000 x $1) ................................... 1,000,000
   Paid-in Capital in Excess of Par—Common ....................... 8,945,000

   Debt Conversion Expense ............................................. 75,000
   Cash ................................................................. 75,000

EXERCISE 16-4

(a) Cash ............................................................................ 10,600,000
   Bonds Payable .......................................................... 10,000,000
   Premium on Bonds Payable ........................................... 600,000

(b) Bonds Payable ($10,000,000 x 20%) ................... 2,000,000
   Premium on Bonds Payable ($540,000* x 20%) ............. 108,000
   Common Stock (20,000** x $15) ................................. 300,000
   Paid-in Capital in Excess of Par—Common ....................... 1,808,000

   * Total balance of premium on Jan. 1, 2014 = [($600,000 − ($600,000 / 20 x 2 years)] = $540,000
   ** Number of bonds converted = ($2,000,000 / $1,000) .................... 2,000 bonds
   Number of shares per bond (5 x 2 to adjust for stock split) ............... x 10 shares per bond
   Number of shares issued ............................................. 20,000

EXERCISE 16-5

Note: monthly S-L amortization of discount = $10,240 / 64 remaining months to maturity = $160 per month

Interest entry (assuming NO reversing entry was made):

   Interest Payable ($600,000 x 10% x 6/12 x 2/6) ............ 10,000
   Interest Expense .......................................................... 20,640
   Discount on Bonds Payable ($160 X 4) ......................... 640
   Cash ($600,000 X 10% X 6/12) ..................................... 30,000

Conversion entry:

   Bonds Payable .......................................................... 600,000
   Discount on Bonds Payable ($10,240 − $640) .................. 9,600
   Common Stock (600 x 6 x $25) ................................... 90,000
   Paid-in Capital in Excess of Par—Common ....................... 500,400
Exercise 16-7

(a) Cash ................................................................. 150,000
Discount on Bonds Payable ($175,000 – $127,500) ..................... 47,500
Bonds Payable .......................................................... 175,000
Paid-in Capital—Stock Warrants ...................................... 22,500

Total FV = $136,000 bonds + $24,000 warrants = $160,000

Allocated to bonds = [$150,000 x (136 / 160)] = $127,500
Allocated to warrants = [$150,000 x (24 / 160)] = $22,500

(b) No separate recognition is given to the warrants if they are nondetachable. The entry is:

Cash ................................................................. 150,000
Discount on Bonds Payable ........................................... 25,000
Bonds Payable .......................................................... 175,000

Exercise 16-8

Cash [($3,000,000 x 1.04) = $3,120,000 + $60,000] ......................... 3,180,000
Bonds Payable (3,000 x $1,000) ...................................... 3,000,000
Premium on Bonds Payable ($3,102,000* – $3,000,000) .............. 102,000
Paid-in Capital—Stock Warrants [(3,000 x 2 = 6,000 x $3)] ........... 18,000
Interest Expense ($3,000,000 x 8% x 3/12) ........................................ 60,000

* amount allocated to bonds = $3,120,000 – $18,000 allocated to warrants = $3,102,000

Unamortized Bond Issue Costs ........................................ 30,000
Cash ................................................................. 30,000

Exercise 16-10

1/2/12 No entry (total FV = $600,000)

12/31/12 Compensation Expense ($600,000 / 2 yrs) ......................... 300,000
Paid-in Capital—Stock Options ...................................... 300,000

12/31/13 Compensation Expense ........................................ 300,000
Paid-in Capital—Stock Options ...................................... 300,000

1/3/14 Cash (30,000 x $40) ............................................. 1,200,000
Paid-in Capital—Stock Options ($600,000 x 30,000/40,000) .......... 450,000
Common Stock (30,000 x $10) ....................................... 300,000
Paid-in Capital in Excess of Par—Common ............................. 1,350,000

5/1/14 Cash (10,000 x $40) ............................................. 400,000
Paid-in Capital—Stock Options ($600,000 x 10,000/40,000) .......... 150,000
Common Stock (10,000 x $10) ....................................... 100,000
Paid-in Capital in Excess of Par—Common ............................. 450,000
EXERCISE 16-11

1/1/12  No entry (total FV = $400,000)

12/31/12 Compensation Expense ($400,000 / 2 years) 200,000
    Paid-in Capital—Stock Options 200,000

4/1/13  Paid-in Capital—Stock Options 30,000
    Compensation Expense ($200,000 X 3,000/20,000) 30,000

12/31/13 Compensation Expense ($400,000 X 17,000/20,000 / 2 years) 170,000
    Paid-in Capital—Stock Options 170,000

3/31/14 Cash (12,000 X $25) 300,000
    Paid-in Capital—Stock Options 240,000
    Compensation Expense ($340,000 X 12,000/17,000) 200,000
    Common Stock (12,000 x $10) 120,000
    Paid-in Capital in Excess of Par—Common 420,000

* or = ($400,000 x 12,000/20,000)

EXERCISE 16-14

(a)  1/1/12  Unearned Compensation 500,000
    Common Stock (10,000 x $10) 100,000
    Paid-in Capital in Excess of Par—Common 400,000

12/31/13 Compensation Expense ($500,000 / 5) 100,000
    Unearned Compensation 100,000

(b)  7/25/16 Common Stock 100,000
    Paid-in Capital in Excess of Par—Common 400,000
    Unearned Compensation (balance) 100,000
    Compensation Expense ($100,000 x 4 years) 400,000

EXERCISE 16-17

Earnings per common share (a):
Income before extraordinary item (b) $229,690 + 40,600 extraordinary loss = $270,290
Net income (d) = ($229,690 − $0) / 213,000 shares = $1.08

(a)  Weighted average number of shares outstanding:

<table>
<thead>
<tr>
<th>Event</th>
<th>Dates</th>
<th>Shares Outstanding</th>
<th>Restatement</th>
<th>Fraction of Year</th>
<th>Weighted Shares</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beginning balance</td>
<td>Jan. 1–May 1</td>
<td>210,000</td>
<td>4/12</td>
<td></td>
<td>70,000</td>
</tr>
<tr>
<td>Issued shares</td>
<td>May 1–Oct. 31</td>
<td>218,000</td>
<td>6/12</td>
<td></td>
<td>109,000</td>
</tr>
<tr>
<td>Reacquired shares</td>
<td>Oct. 31–Dec. 31</td>
<td>204,000</td>
<td>2/12</td>
<td></td>
<td>34,000</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>213,000</td>
</tr>
</tbody>
</table>

(b)  income before extraordinary item = $229,690 + $40,600 extraordinary loss = $270,290
    EPS = ($270,290 − $0) / 213,000 shares = $1.27

(c)  extraordinary loss EPS = ($40,600) / 213,000 = $(.19)

(d)  net income EPS = ($229,690 − $0) / 213,000 = $1.08
EXERCISE 16-18

<table>
<thead>
<tr>
<th>Event</th>
<th>Dates Outstanding</th>
<th>Shares Outstanding</th>
<th>Restatement</th>
<th>Fraction of Year</th>
<th>Weighted Shares</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beginning balance</td>
<td>Jan. 1–May 1</td>
<td>600,000</td>
<td>2</td>
<td>4/12</td>
<td>400,000</td>
</tr>
<tr>
<td>Issued shares</td>
<td>May 1–Aug. 1</td>
<td>900,000</td>
<td>2</td>
<td>3/12</td>
<td>450,000</td>
</tr>
<tr>
<td>Reacquired shares</td>
<td>Aug. 1–Oct. 1</td>
<td>750,000</td>
<td>2</td>
<td>2/12</td>
<td>250,000</td>
</tr>
<tr>
<td>2-for-1 stock split</td>
<td>Oct. 1–Dec. 31</td>
<td>1,500,000</td>
<td>3/12</td>
<td></td>
<td>375,000</td>
</tr>
</tbody>
</table>

Weighted-average number of shares outstanding = 1,475,000

Earnings per share = ($2,200,000 - $400,000*) / 1,475,000 shares = $1.22

* preferred dividend (whether or not paid since stock is cumulative) = [($100 x 8%) = $8 x 50,000]

EXERCISE 16-21

<table>
<thead>
<tr>
<th>Event</th>
<th>Dates Outstanding</th>
<th>Shares Outstanding</th>
<th>Restatement</th>
<th>Fraction of Year</th>
<th>Weighted Shares</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beginning balance</td>
<td>Jan. 1–Apr. 1</td>
<td>800,000</td>
<td>3/12</td>
<td></td>
<td>200,000</td>
</tr>
<tr>
<td>Issued shares</td>
<td>Apr. 1–Oct. 1</td>
<td>1,250,000</td>
<td>6/12</td>
<td></td>
<td>625,000</td>
</tr>
<tr>
<td>Reacquired shares</td>
<td>Oct. 1–Dec. 31</td>
<td>1,140,000</td>
<td>3/12</td>
<td></td>
<td>285,000</td>
</tr>
</tbody>
</table>

Weighted-average number of shares outstanding = 1,110,000

adj. for stock dividend in 2013 (before statements issued) = x 1.05

Adjusted weighted-average number of shares outstanding = 1,165,500

* shares issued for stock dividend = 800,000 x 5% = $40,000

Earnings per share = ($2,830,000 - $980,000*) / 1,165,500 shares = $1.59

* preferred dividends = $50 x 7% = $3.50 x 280,000 = $980,000

EXERCISE 16-22 (a. only)

(a) Revenues: $17,500

Expenses:

- Other than interest: $8,400
- Interest expense (75 X $1,000 X 8%) 6,000 14,400
- Income before income taxes: $3,100
- Income taxes (40%) 1,240
- Net income: $1,860

Basic EPS: $1,860 / 2,000 shares = $.93

If-converted impact of bonds:

Numerator: [$6,000 x (1 – .40)] = $3,600
Denominator: 75 bonds x 100 = 7,500 shares

Diluted EPS = ($1,860 + $3,600) / (2,000 + 7,500) = $5,460 / 9,500 = $.57

Dilutive? Yes since $.57 < $.93 ⇒ report dual EPS numbers for Basic and Diluted EPS
EXERCISE 16-24

(a) Basic EPS = $7,500,000 / 2,000,000 shares = $3.75

If converted impact of bonds:
  Numerator: [($288,000 x (1 - .35)] = $187,200
  Denominator: $4,000,000 ÷ $1,000 = 4,000 bonds x 18 (max) = 72,000 shares

* interest expense = $4,000,000 x 7% = $280,000 + $8,000** = $288,000
** discount = $4,000,000 x .02 = $80,000 / 10 years = $8,000

Diluted EPS = ($7,500,000 + $187,200) / (2,000,000 + 72,000) = $7,687,200 / 2,072,000 = $3.71

Dilutive? Yes, since $3.71 < $3.75 ⇒ report dual EPS numbers for Basic and Diluted EPS

(b) If the convertible security were preferred stock:

Basic EPS would be $3.75 (assuming either no preferred dividends declared or P/S is noncumulative)
Diluted EPS would be $7,500,000 / 2,072,000 = $3.62 (assuming same conversion ratio)

EXERCISE 16-28

(a) Yes, the warrants are dilutive since $10 exercise price < $15 market price

(b) Basic EPS = $260,000 / 100,000 shares = $2.60

(c) Treasury stock method impact of warrants:

Numerator: $0
Denominator: shares issued (30,000 x 1) 30,000
  shares reacquired (30,000 x $10 = $300,000 / $15) (20,000)
  incremental shares outstanding 10,000

Diluted EPS = $260,000 / (100,000 + 10,000) = $260,000 / 110,000 shares = $2.36

PROBLEM 16-3

2011 November 30: No journal entry would be recorded at the time the stock option plan was adopted.

2012
Jan. 2 No entry (total FV = 28,000 + 14,000 = 42,000 options X $4 = 168,000).
Dec. 31 Compensation Expense [(15,000 + 7,000) = 22,000 options X $4] 88,000
  Paid-in Capital—Stock Options ........................................ 88,000

2013
Dec. 31 Compensation Expense [(13,000 + 7,000) = 20,000 options X $4] 80,000
  Paid-in Capital—Stock Options ........................................ 80,000
  Paid-in Capital—Expired Stock Options ................................ 88,000
  Paid-in Capital—Expired Stock Options ................................ 88,000

2014
Dec. 31 Cash (20,000 X $9) ........................................ 180,000
  Paid-in Capital—Stock Options (20,000 X $4) ...................... 80,000
  Common Stock (20,000 X $5) ........................................ 100,000
  Paid-in Capital in Excess of Par—Common ....................... 160,000
PROBLEM 16-6

(a) Melton Corporation has a simple capital structure since there are no potentially dilutive securities.

(b) FYE May 31, 2012

<table>
<thead>
<tr>
<th>Event</th>
<th>Dates</th>
<th>Outstanding</th>
<th>Shares</th>
<th>Restatement</th>
<th>Outstanding</th>
<th>Shares</th>
<th>Fraction of Year</th>
<th>Weighted Shares</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beginning balance</td>
<td>June 1–Oct. 1</td>
<td>1,000,000</td>
<td>1.20</td>
<td>4/12</td>
<td>400,000</td>
<td></td>
<td></td>
<td>1,400,000</td>
</tr>
<tr>
<td>Issued shares</td>
<td>Oct. 1–Jan. 1</td>
<td>1,500,000</td>
<td>1.20</td>
<td>3/12</td>
<td>450,000</td>
<td></td>
<td></td>
<td>1,950,000</td>
</tr>
<tr>
<td>20% stock dividend*</td>
<td>Jan. 1–May 31</td>
<td>1,800,000</td>
<td>1.20</td>
<td>5/12</td>
<td>750,000</td>
<td></td>
<td></td>
<td>2,550,000</td>
</tr>
</tbody>
</table>

Weighted-average number of shares outstanding | 1,600,000

* shares issued for stock dividend = 1,500,000 x 20% = 300,000

FYE May 31, 2013

<table>
<thead>
<tr>
<th>Event</th>
<th>Dates</th>
<th>Outstanding</th>
<th>Shares</th>
<th>Restatement</th>
<th>Outstanding</th>
<th>Shares</th>
<th>Fraction of Year</th>
<th>Weighted Shares</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beginning balance</td>
<td>June 1–Dec. 1</td>
<td>1,800,000</td>
<td>1.20</td>
<td>6/12</td>
<td>900,000</td>
<td></td>
<td></td>
<td>2,700,000</td>
</tr>
<tr>
<td>Issued shares</td>
<td>Dec. 1–May 31</td>
<td>2,600,000</td>
<td>1.20</td>
<td>6/12</td>
<td>1,300,000</td>
<td></td>
<td></td>
<td>3,900,000</td>
</tr>
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Weighted-average number of shares outstanding | 2,200,000

(c) MELTON CORPORATION

Income Statement
For Fiscal Years Ended May 31, 2012 and 2013

<table>
<thead>
<tr>
<th></th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Income from operations</td>
<td>$1,800,000</td>
<td>$2,500,000</td>
</tr>
<tr>
<td>Interest expense (a)</td>
<td>240,000</td>
<td>240,000</td>
</tr>
<tr>
<td>Income before taxes</td>
<td>1,560,000</td>
<td>2,260,000</td>
</tr>
<tr>
<td>Income taxes (40%)</td>
<td>624,000</td>
<td>904,000</td>
</tr>
<tr>
<td>Income before extraordinary item</td>
<td>936,000</td>
<td>1,356,000</td>
</tr>
<tr>
<td>Extraordinary loss, net of income taxes of $240,000</td>
<td>(360,000)</td>
<td></td>
</tr>
<tr>
<td>Net income</td>
<td>$936,000</td>
<td>$996,000</td>
</tr>
</tbody>
</table>

Earnings per share:

Income before extraordinary item (b) $0.55 $0.59
Extraordinary loss (c) (0.16)
Net income (d) $0.39

(a) $2,400,000 x .10 = $240,000
(b) 2012: ($936,000 − $60,000*) / 1,600,000 shares
       2013: ($1,356,000 − $60,000*) / 2,200,000 shares
       preferred dividends = ($50 x 6%) = $3 x 20,000 shares = $60,000
(c) 2013: $360,000 / 2,200,000 shares
(d) 2012: ($936,000 − $60,000) / 1,600,000 shares
       2013: ($996,000 − $60,000) / 2,200,000 shares

PROBLEM 16-8

(a) Basic EPS = \(
\frac{($1,200,000 − $240,000*)}{600,000**}\) = $1.60

* # shares P/S = $4,000,000 / $100 = 40,000; dividend = $100 x 6% = $6 x 40,000 = $240,000
** $6,000,000 / $10 = 600,000 shares

(b) Incremental impacts of potentially dilutive securities:

Convertible Bonds:
Numerator: \([160,000* X (1 − .40)]\) = $96,000
Denominator: \(2,000,000 / 1,000 = 2,000 \text{ bonds} \times 30 = 60,000 \text{ shares}\)

* interest expense (no prem/disc) = $2,000,000 x 8% = $160,000
Convertible Preferred Stock:
Numerator: $240,000
Denominator: $4,000,000 / $100 = 40,000 x 3 = 120,000 shares

Options (dilutive since $20 option price < $25 market price):
Numerator: $0
Denominator: Shares issued 75,000
Shares reacquired (75,000 x $20 = $1,500,000 / $25)..... (60,000)
Incremental shares outstanding............................................. 15,000

Dilution/Antidilution Check:

<table>
<thead>
<tr>
<th>Security</th>
<th>Ratio Result</th>
<th>Rank (1= most dilutive)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Convertible bonds</td>
<td>$96,000 / 60,000 = $1.60</td>
<td>2</td>
</tr>
<tr>
<td>Convertible preferred stock</td>
<td>$240,000 / 120,000 = $2.00</td>
<td>3</td>
</tr>
<tr>
<td>Stock options</td>
<td>$0 / 15,000 = $0</td>
<td>1</td>
</tr>
</tbody>
</table>

1. Options:

Recalculated EPS: \[
\frac{\$1,200,000 - \$240,000}{60,000 + 15,000} = \frac{\$960,000}{615,000} = \$1.56
\]

Dilutive? Yes, since $1.56 < $1.60 \(\Rightarrow\) continue

2. Convertible Bonds:

Recalculated EPS: \[
\frac{\$960,000 + \$96,000}{615,000 + 60,000} = \frac{\$1,056,000}{675,000} = \$1.56
\]

Dilutive? No, since $1.56 not < $1.56 \(\Rightarrow\) STOP! Do not assume conversion of bonds or preferred stock since they are antidilutive (the recalculated EPS with the bonds is $1.564 vs. $1.561 with the options)

Presentation of EPS on Income Statement:

Earnings per common share:
Basic \(\$1.60\)
Diluted \(\$1.56\)