# MIDWESTONE FINANCIAL GROUP, INC.

FAIR VALUE OPTIONS GRANTED MARCH 31, 2006 10721 Chestnut Ridge - Austin, TX 78726 phone 512.918.0909 - fax 512.918.0910

May 1, 2006

MidwestOne Financial Group, Inc. 1245 34<sup>th</sup> Street Des Moines, IA 55235

Dear Management:

This sample valuation letter is written as if Informed Decisions, LLC (Informed Decisions) had been engaged to provide its opinion as to the fair market value of the employee stock option grants by MidwestOne Financial Group, Inc. (Company). The assumption is that the options were issued for the purchase of the Company's common stock as of March 31, 2006. For such an engagement, this opinion would be used for reporting the expenses related to the option grants given the assumptions reflected below. In this example, the option is assumed to convey the right to purchase one share of the Company's common stock at an exercise price of \$19.80 and with an expected term of 7.5 years.

Based on the calculations presented in EXHIBITS ONE through FIVE, as discussed below, the fair value of such an option could be set at \$3.72 as of the date of grant.

### Black-Scholes, Merton Formula and Inputs

Fischer Black and Myron Scholes presented the basic formula widely accepted for valuing common stock options in their paper titled "The Pricing of Options and Corporate Liabilities", (Journal of Political Economy, Volume 81, 1973, pages 637-654). The paper sets forth a "theoretical valuation formula for options" based on the premise that "if options are correctly priced in the market, it should not be possible to make sure profits by creating portfolios of long and short positions in options and their underlying stocks".

The original Black-Scholes formula did not provide for dividend payments. This constraint was relaxed based on subsequent analysis by Robert C. Merton. His work led to an adjustment that is reflected in the commonly used Black-Scholes-Merton model presented on page one of EXHIBIT ONE. The inputs listed with the formula were determined as follows:

- Price of the underlying stock S: Company stock price as of the date of grant generally provided by management and confirmed against published market quotes.
- 2. **Option exercise price X**: Set to equal the Company stock price as of the date of grant, per management.
- Years remaining to expiration t: Per management, the expected term is set at 7.5 years based on observed employee termination and exercise patterns.
- <u>Risk-free interest rate r</u>: Constant maturity yields based on Nominal 10 year U.S. Treasury bond yields as reported as of the date of grant in the Federal Statistical Release.
- Annual dividend yield on the stock d: The dividend yield through the expected term is calculated based on the market price as of the date of grant; 2006 projected annual dividends of \$.68 per share as reported by the Company; and an expected growth rate of 4.0%.
- 6. <u>Standard deviation</u>: The annualized, daily standard deviation for the change in the Company's stock price for the twelve months ending March 31, 2006.

The standard deviation and variance are measures of the dispersion of returns on an asset. These are used to represent the volatility or risk of the returns on a stock. The standard deviation required for the Black-Scholes-Merton model is the current, instantaneous standard deviation as of the valuation date. It is generally estimated based on an historical standard deviation calculated for the Company's stock prices.

MidwestOne is a publicly-traded stock. Based on the changes in its stock price over the five years ending March 31, 2006, the annualized standard deviation is calculated to be 23.8%. This is lower than the standard deviation calculated for the ten years ending March 31, 2006: 32.6% The volatility of the Company's stock priced declined significantly from the first five years to the latter five years, from 39.4% to 23.8%. For each of the five years ending December 31, 2000 to 2005, the annual standard deviation for the NASDAQ Financial 100 (^ISF), an industry sector index, declined from 27.8% to 13.0%.

The standard deviation for the Company's stock price continued to decline into 2006. For the twelve months ending March 31, 2006, the standard deviation was 20.90%. In comparison to other historical standard deviations, the most reasonable input for expected volatility is the 20.90% for the twelve months ending March 31, 2006.

Per the Company's audited financial statements, the weighted average assumptions for expected volatility were .275 for 2005, .280 for 2004, and .290 for 2003. No information was provided as to the source of these assumptions. The annualized standard deviation calculated to be 20.90% is used as the volatility input for the Black-Scholes-Merton formula.

### Black-Sholes-Merton Calculation

The detailed calculations for the Black-Scholes-Merton model formula are presented on page two of EXHIBIT ONE. Based on the inputs presented above, these calculations generate a value of \$3.72 for the options assumed to be granted by MidwestOne as of March 31, 2006. The formulas presented on page two of EXHIBIT ONE were tested by running data from <u>Futures, Options & Swaps</u>, Robert W. Kolb (2<sup>nd</sup> ed., Blackwell Publishers, Ltd., 1997) in the formula and running the inputs presented on page one through calculators based on the Black-Scholes formula available on three websites. The calculators provide a valid check for reasonableness but are not incorporated into the valuation process. The lack of access to the specific equations used in these calculators precludes direct reliance on the values produced.

## **Standard Deviation**

Several issues arise related to the volatility input. Conceptually, the standard deviation input represents the instantaneous volatility at the valuation date. An "ideal condition" listed in the Black-Scholes paper is that the stock price will follow a random walk. Volatility is assumed to remain constant through the expiration date. Whereas these conditions have been shown to hold for short-term, market-traded options, their validity for longer-term employee option grants is not as well established.

Volatility changes over longer periods. Given the return premium observed for equity investments, relative to the risk-free return, stock prices are more likely to follow an upward trend over long periods rather than a random walk. These factors raise questions regarding use of a standard deviation to measure volatility for the Black-Scholes-Merton model over longer periods.

### Minimum Value Calculation

The replication argument developed by Robert C. Merton is discussed in the original Black-Scholes paper and justified the Black-Scholes equation. A simple version of the concept can be used to create a portfolio combining a call option and a risk-free bond that equates to owning the stock. This is discussed in the Kolb book as establishing the minimum value of a call option (page 394). An investor will be in the same position whether owning the stock directly or holding a portfolio that includes the call option and a risk-free bond.

EXHIBIT TWO presents a sample calculation of the minimum value, which does not include an input for volatility, using the expected inputs presented in EXHIBIT ONE. The derived option value is a \$.97.

FASB 123R specifically prohibits using the minimum valuation model to determine the fair value of an option. The reasoning for this is presented in paragraphs B54 through B57 of Appendix B - Basis for Conclusions. Whereas this valuation approach includes the time value of an option arising from the ability to defer payment it ignores the right to benefit from price increases while limiting the exposure to losses. The discussion goes on to draw a clear distinction between fair value and minimum value. Essentially, the minimum value can never equal fair value.

### Pricing Parity

Per the pricing parity theory, an investor could purchase the stock or a portfolio that includes the option and a risk-free bond. At the expiration date, the investor would be in the same position given either investment. For this to hold, the option must be properly priced. This analysis is presented in EXHIBIT THREE, which is broken into three sections: (1) the cash flows from the two investments; (2) the risk-free rate and resulting discount factors; and (3) the present values for the cash flows. Section three shows that if the option were valued at \$3.72 the investor would be better off by \$2.61 if the stock were purchased rather than the portfolio. This analysis indicates that, based on the pricing parity theory, including the volatility measure in the option pricing model overstates the option's value by \$2.61, which would indicate that the option should be valued at \$1.11.

EXHIBIT FOUR presents a similar calculation based on the minimum value of \$.97 from EXHIBIT TWO. This shows that the option is undervalued by \$.14, consistent with the previous exhibit. The difference in the present values in section three is reduced to zero by setting the option value in section one at \$1.11.

### Insurance Premium

Neither the Black-Scholes-Merton model nor the minimum value calculation gives consideration to the downside protection available from an option. In the Black-Scholes-Merton model volatility is used to reflect the probability that the option will be in the money at expiration. This is a valid consideration for the short-term options to which the model was originally applied but is less relevant for employee option grants with terms measured in years, not months.

The apparent excess value of \$2.61 calculated in EXHIBIT THREE is directly attributable to the volatility input to the Black-Scholes-Merton model. For the longer-term employee option grants, the reasoning presented in FASB 123R attributes this incremental value to the protection against losses that the option provides. This insurance premium equates to 13.2% of the stock price at the grant date.

A very abbreviated version of a lattice model can be developed to evaluate the reasonableness of this premium. The Black-Scholes and Merton theories assumed that exercise would occur only at the expiration date, which maximizes the value of the risk-free return and volatility factors. With this assumption, a range of potential payoff scenarios can be developed for the two alternative investments at the end of the 7.5 year expected term. The four scenarios presented below are used to represent this range.

Scenario	Portfolio >	Weighted	
<b>Probability</b>	Stock	Value	
45%	(\$2.61)	(\$1.17)	in the money
5%	\$0.00	-	\$3.73 decline
25%	\$4.25	1.06	Pay dividends, \$12.00 value
25%	\$9.85	2.46	Pay dividends, \$2.00 value
	AVERAGE	\$2.35	

For an option costing \$3.72, the stock provides a better payoff by \$2.61 if the stock finishes in the money; a \$3.73 decline in value provides the same return for both the stock and the portfolio; if the dividends are paid as indicated and the stock value declines to \$12.00, the portfolio provides a better payoff. Larger reductions in the stock's price increases the favorable payoff for the option portfolio. To justify the derived option prices, the investor would need to have relatively strong expectations that the stock price would decline significantly.

### Industry Sector Index Standard Deviation

The standard deviation for the NASDAQ Financial 100 (^ISF) was calculated to be 16.9% for the five years ending March 31, 2006. As with the Company's stock, the standard deviation for the index has been declining. For the year ending December 31, 2005, the standard deviation was 12.96%; it declined to

12.74% for the twelve months ending March 31, 2006,. This latter standard deviation is substituted into the Black-Scholes-Merton model as presented in EXHIBIT FIVE. The derived option value given this input for expected volatility would be \$2.50.

The following lattice model was developed using this option value in the pricingparity model presented in EXHIBIT THREE.

Scenario	Portfolio >	Weighted	
Probability	Stock	Value	
45%	(\$1.39)	(\$0.63)	in the money
5%	(\$0.00)	(0.00)	\$1.99 decline
25%	\$4.07	1.02	Pay dividends, \$12.00 value
25%	\$11.07	2.77	Pay dividends, \$2.00 value
	AVERAGE	\$3.16	

The derived option value declined from \$3.72 to \$2.50, \$1.22 or 33%, when the index standard deviation of 12.74% was substituted for the Company standard deviation of 20.90%. The \$1.22 reduction in the option price did increase the benefits from holding the option in comparison to the previous table.

This second table reflect the same probabilities as shown in table one for comparison purposes. Reducing the probabilities assigned to the price declines would bring the average price calculation into line with the implicit insurance premium of \$1.39. In essence, the investor that values the option at \$2.50 based on the protection against potential losses must have lower expectations of significant price declines than presented in the first table.

## **Conclusion**

The option value was calculated to be \$3.72 based on the Black-Scholes-Merton formula using the Company's standard deviation of 20.9% for the twelve months ending March 31, 2006. In comparison to the minimum value of \$1.11 from EXHIBITS THREE and FOUR, the implied insurance premium is \$2.61. To justify this premium, based on the simple lattice models presented here, a potential investor must have relatively strong expectations that the stock price will decline.

Alternative values were calculated using the industry sector standard deviation of 16.9%. A lattice analysis was prepared for the potential payoff scenarios for the end of the expected term. At \$3.72, the option value appears to be at the high based on the stock's standard deviation, which has been declining over time and is significantly higher than the standard deviation calculated for the industry sector index; and the expected price declines required to justify the implicit insurance premium. However, other than these observations, there is no data

that would readily show that the \$2.50 value is more appropriate than the \$3.72 value.

These values could be viewed as setting the lower and upper limits for the option value. If the volatility input were set at 16.1% the derived value would be \$3.00. This standard deviation could be based on a comparison of the Company's historical standard deviations, which have been declining, and the index standard deviation, which is low due to diversification. Although the implicit insurance premium is reduced to \$1.89 this is more reasonable than the premium implicit in the \$2.50 value.

Based on the calculations presented in the attached EXHIBITS, as discussed above, the fair value for the options granted by MidwestOne as of March 31, 2006 with an exercise price of \$19.80 and an expected term of 7.5 years is determined to be \$3.72. By the standard set in the original Black-Scholes paper, at this value it should "not be possible to make sure profits by creating portfolios of long and short positions in options and their underlying stocks".

This valuation would address only the fair value of any options issued as of March 31, 2006 with the assumed characteristics presented above. It may not be relied on to determine the value of any other options nor is it valid as of any other date. The report is provided solely for the confidential use relating to the stated purpose.

Respectfully submitted,

Richard A. Place Informed Decisions, LLC 10721 Chestnut Ridge - Austin, TX 78726 phone 512.918.0909 - fax 512.918.0910

## **CERTIFICATION**

- 1. The statements of fact contained in this report are true and correct to the best of my knowledge.
- 2. The reported analysis, opinions, and conclusions are limited only by the reported assumptions and limiting conditions and reflect my impartial and unbiased professional opinion.
- 3. I do not have any current or prospective interest in the subject assets and have no interest or bias with respect to the parties involved.
- 4. Neither this engagement nor any related compensation was contingent on a predetermined conclusion or an action or event resulting from the analysis, opinions, or conclusions in this report or its use.
- 5. The analysis, opinions, and conclusions were developed and this report has been prepared in conformity with the Uniform Standards of Professional Appraisal Practice.
- 6. No one provided significant professional assistance to the person signing this report.

INFORMED DECISIONS, LLC

### QUALIFICATIONS

Richard A. Place, the principal of Informed Decisions, LLC, has twenty-eight years of experience in financial management and consulting, including accounting, financial analysis, business valuations, and mergers and acquisitions. He served as Director of Valuations with Alex Sheshunoff & Company Investment Banking for six years. He was responsible for delivering nearly 200 bank valuations each year for ESOPs, shareholder agreements, charitable gifts, estate taxes, ownership grants, fairness opinions, corporate reorganizations, and dissenter rights cases.

From 1990 to 1999, Rich was in mergers and acquisitions with Norwest Corporation, now Wells Fargo & Company. His responsibilities included financial modeling, managing due diligence, and supporting negotiations leading to the definitive agreement. He devised acquisition strategies and recommended specific targets in fifteen states; performed analysis on more than 250 banks and/or savings and loans; and managed 40 due diligence projects that led to 36 acquisitions with total assets exceeding \$7.0 billion.

Prior to joining Norwest's M&A department, Rich worked in investment banking with Norwest Corporation and First Bank System, both in Minneapolis, and has prior experience preparing business valuations and in public accounting. He has a BS degree in Finance from Drake University, an MBA with specializations in Finance and Economics from the University of Chicago, and his CPA certificate. He holds the Chartered Financial Analyst designation from the CFA Institute and the Accredited Senior Appraiser designation from the American Society of Appraisers. Rich served as an Adjunct Professor in the MBA program at St. Edwards University in Austin, Texas for four years where he taught corporate finance.

## STATEMENT OF LIMITING CONDITIONS

This appraisal is subject to the following conditions, limitations, and assumptions:

- The information provided to Informed Decisions, LLC was relied on in this analysis without independent verification of its accuracy or completeness. Publicly-available information that is believed to be accurate was also relied on without independent verification.
- 2. Forward looking statements and/or financial projections provided by the client and/or the subject company were considered in the valuation process. No assurance regarding the accuracy, reasonableness, or completeness of any such statements and projections is made herein. Actual performance and results will invariably differ from expectations and these differences may be material.
- 3. This letter and attached exhibits do not constitute a fairness opinion, solvency opinion, or an investment recommendation and should not be construed as such. No responsibility is assumed for market prices that differ from the values presented in this report.
- 4. Informed Decisions has no obligation to update this letter due to events subsequent to the valuation date.
- 5. This report was prepared for the purposes stated and may not be used for any other purpose. The letter, its contents, and its conclusions may not be referred to or quoted, in whole or in part, in any registration statement, prospectus, public filing, loan agreement or other document without the prior written approval of Informed Decisions, LLC. The analysis and the letter are not intended for general circulation or publication; they are not to be reproduced or distributed except for the stated purpose of the valuation.

## DATA SOURCES AND REFERENCES

- FR Y9Cs for MidwestOne Financial Group, Inc. as of December 31 for the six years 2000 2005 and March 31, 2006 as reported on the Federal Reserve System website.
- Form 10-K for MidwestOne Financial Group, Inc. as of December 31 for the six years
- Form 10-K for MidwestOne Financial Group, Inc. as of December 31 for 2005 and 2004 provided by the company.
- Proxy Statements for the years 2000 2005 and as reported on the U.S. Securities and Exchange Commission website.
- Proxy Statement dated March 23, 2006 for the year-ending December 31, 2005 provided by management.
- Annual Reports for MidwestOne Financial Group, Inc. as of December 31 for 2005 and 2004 provided by the company.
- MidwestOne Bank website.
- Financial data for MidwestOne Financial Group, Inc. as reported on Yahoo Finance.
- Federal Reserve Statistical Release, Selected Interest Rates as reported on the Federal Reserve website.
- Black, Fischer and Scholes, Myron. "The Pricing of Options and Corporate Liabilities." *Journal of Political Economy*, Volume 81, 1973, pages 637-654.
- Kolb, Robert W. <u>Futures, Options & Swaps</u>, 2<sup>nd</sup> ed. Blackwell Publishers, Ltd., 1997.
- Smart, Scott B., Megginson, William L., and Gitman, Lawrence J. <u>Corporate Finance</u>. Thomson South-Western, 2004.
- Websites with Black-Scholes calculators maintained by TradingToday.com, BloBek AB, and Peter Hoadley.

# EXHIBIT ONE MIDWESTONE FINANCIAL GROUP, INC. OPTION VALUATION MARCH 31, 2006

#### **BLACK & SCHOLES OPTION PRICING MODEL**

 $C = SN(d1) - X(e^{-(rt)})N(d2)$ 

C = price of the call option

#### N() = AREA UNDER THE NORMAL CURVE

 $d1 = [ln(S/X) + (r + variance/2)t] / (standard deviation t^(1/2))$ 

 $d2 = d1 - (standard deviation t^{(1/2)})$ 

#### MERTON ADJUSTMENT FOR CONTINUOUS DIVIDENDS

 $C = S(e^{-(-dt)})N(d1) - X(e^{-(-rt)})N(d2)$ 

#### <u>INPUTS</u>

- (1) S = price of the underlying stock
- (2) X = option exercise price
- (3) t = years remaining to expiration
- (4) r = risk-free interest rate
- (5) d = annual dividend yield on stock
- (6) standard deviation

#### INPUT VALUES

	\$19.80 \$19.80	S = X =
years	7.50 4.86% 3.95%	t = r = d =
	2.7183 74.37% 69.45%	e = e^(-dt) = e^(-rt) =
	20.90% 4.37%	standard deviation = variance (std dev^2) =

# EXHIBIT ONE MIDWESTONE FINANCIAL GROUP, INC. OPTION VALUATION MARCH 31, 2006

### BLACK-SCHOLES-MERTON: COMPONENT CALCULATIONS

0.00%	ln(S/X) =
4.86%	r =
3.95%	d =
0.91%	r - d =
2.18%	variance/2 =
3.10%	r - d + variance/2 =
7.50	t =
23.22%	(r -d + variance/2)t =
0.00%	ln(S/X) =
23 22%	(r - d + variance/2)t =
23.22%	$\ln(S/X) + (r + variance/2)t =$
20.90%	standard deviation =
273.86%	$t^{(1/2)} =$
57.24%	standard deviation $t^{1/2}$ =
23.22%	$\ln(S/X) + (r + variance/2)t =$
57.24%	$(standard deviation t^{(1/2)}) =$
40.58%	$\left[\ln(S/X) + (r + variance/2)t\right] / (standard deviation t^(1/2)) =$
65.75%	N(d1) =
40.58%	d1 =
57.24%	$(standard deviation t^{(1/2)}) =$
-16.66%	d2 =
43.38%	N(d2) =

#### BLACK-SCHOLES-MERTON: SUMMARY CALCULATIONS

S =	\$19.80
e^(-dt) =	74.37%
S(e^(-dt)) =	\$14.73
N(d1) =	65.75%
$S(e^{-dt})N(d1) =$	\$9.68
X =	\$19.80
e^(-rt) =	69.45%
X(e^(-rt)) =	\$13.75
N(d2) =	43.38%
$X(e^{-rt})N(d2) =$	\$5.97
SN(d1) =	\$9.68
$X(e^{-rt})N(d2) =$	5.97
$SN(d1)(e^{-dt}) - X(e^{-rt})N(d2) =$	\$3.72
C =	\$3.72

# EXHIBIT TWO MIDWESTONE FINANCIAL GROUP, INC. MINIMUM VALUE CALCULATION DECEMBER 31, 2005

#### MINIMUM VALUE FORMULA

 $C = S(e^{-t}) - X(e^{-t})$ 

#### PRESENT VALUE FACTORS

e^(-dt) =	74.37%
e^(-rt) =	69.45%

#### DIFFERENCE IN PRESENT VALUES

S =	\$19.80
e^(-dt) =	74.37%
S(e^(-dt)) =	\$14.73
X =	\$19.80
e^(-rt) =	69.45%
X(e^(-rt)) =	\$13.75
S(e^(-dt)) =	\$14.73
X(e^(-rt)) =	13.75
$S(e^{-dt}) - X(e^{-rt}) =$	\$0.97
C =	\$0.97
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# EXHIBIT THREE MIDWESTONE FINANCIAL GROUP, INC. DISCOUNTED CASH FLOWS COMPARISON MARCH 31, 2006

	Cash F	lows	Discount	Р	resent Value	es
YEAR	Stock	Option	Factors	Stock	Option	Difference
Current						
Stock	(\$19.80)			\$18.69	\$16.08	\$2.61
Option	(+ )	(\$3,72)		•	•	• -
Bond		(\$16.08)	4.86%			
		( ,				
1	\$0.17		0.9882	\$0.168		
2	\$0.17		0.9766	0.166		
3	\$0.17		0.9650	0.164		
4	\$0.17		0.9537	0.162		
5	\$0.18		0.9424	0.167		
6	\$0.18		0.9313	0.165		
7	\$0.18		0.9203	0.163		
8	\$0.18		0.9095	0.161		
9	\$0.18		0.8987	0.165		
10	\$0.18		0.8881	0.163		
11	\$0.18		0.8777	0.161		
12	\$0.18		0.8673	0.159		
13	\$0.19		0.8571	0.164		
14	\$0.19		0.8470	0.162		
15	\$0.19		0.8370	0.160		
16	\$0.19		0.8271	0.158		
17	\$0.20		0.8174	0.163		
18	\$0.20		0.8077	0.161		
19	\$0.20		0.7982	0.159		
20	\$0.20		0.7888	0.157		
21	\$0.21		0.7795	0.161		
22	\$0.21		0.7703	0.159		
23	\$0.21		0.7612	0.157		
24	\$0.21		0.7522	0.156		
25	\$0.22		0.7433	0.160		
26	\$0.22		0.7346	0.158		
27	\$0.22		0.7259	0.156		
28	\$0.22		0.7173	0.154		
29	\$0.22		0.7089	0.159		
30	\$0.22		0.7005	0.157		
Stock price	\$19.80		0.7005	13.870		
E	xercise price	\$0.00				
Procee	ds from bond	22.95				
	Stock price	\$0.00				
	TOTAL	\$22.95	0.7005		\$16.08	

# EXHIBIT FOUR MIDWESTONE FINANCIAL GROUP, INC. DISCOUNTED CASH FLOWS COMPARISON MARCH 31, 2006

	Cash F	lows	Discount	P	Present Value	es
YEAR	Stock	Option	Factors	Stock	Option	Difference
Current						
Stock	(\$19.80)			\$18.69	\$18.83	(\$0.14)
Option	(+ )	(\$0.97)		•	•	(+ - )
Bond		(\$18.83)	4.86%			
		(, ,				
1	\$0.17		0.9882	\$0.168		
2	0.17		0.9766	0.166		
3	0.17		0.9650	0.164		
4	0.17		0.9537	0.162		
5	0.18		0.9424	0.167		
6	0.18		0.9313	0.165		
7	0.18		0.9203	0.163		
8	0.18		0.9095	0.161		
9	0.18		0.8987	0.165		
10	0.18		0.8881	0.163		
11	0.18		0.8777	0.161		
12	0.18		0.8673	0.159		
13	0.19		0.8571	0.164		
14	0.19		0.8470	0.162		
15	0.19		0.8370	0.160		
16	0.19		0.8271	0.158		
17	0.20		0.8174	0.163		
18	0.20		0.8077	0.161		
19	0.20		0.7982	0.159		
20	0.20		0.7888	0.157		
21	0.21		0.7795	0.161		
22	0.21		0.7703	0.159		
23	0.21		0.7612	0.157		
24	0.21		0.7522	0.156		
25	0.22		0.7433	0.160		
26	0.22		0.7346	0.158		
27	0.22		0.7259	0.156		
28	0.22		0.7173	0.154		
29	0.22		0.7089	0.159		
30	0.22		0.7005	0.157		
Stock price	\$19.80		0.7005	13.870		
E	xercise price	(\$19.80)				
Procee	ds from bond	26.88				
	Stock price	\$19.80				
	TOTAL	\$26.88	0.7005		\$18.83	

# EXHIBIT FIVE MIDWESTONE FINANCIAL GROUP, INC. OPTION VALUATION MARCH 31, 2006

#### **BLACK & SCHOLES OPTION PRICING MODEL**

 $C = SN(d1) - X(e^{-rt})N(d2)$ 

C = price of the call option

#### N() = AREA UNDER THE NORMAL CURVE

 $d1 = [ln(S/X) + (r + variance/2)t] / (standard deviation t^(1/2))$ 

 $d2 = d1 - (standard deviation t^{(1/2)})$ 

#### MERTON ADJUSTMENT FOR CONTINUOUS DIVIDENDS

 $C = S(e^{-(-dt)})N(d1) - X(e^{-(-rt)})N(d2)$ 

#### <u>INPUTS</u>

- (1) S = price of the underlying stock
- (2) X = option exercise price
- (3) t = years remaining to expiration
- (4) r = risk-free interest rate
- (5) d = annual dividend yield on stock
- (6) standard deviation

#### INPUT VALUES

	\$19.80 \$19.80	S = X =
years	7.50 4.86% 3.95%	t = r = d =
	2.7183 74.37% 69.45%	e = e^(-dt) = e^(-rt) =
	12.74% 1.62%	standard deviation = variance (std dev^2) =

# EXHIBIT FIVE MIDWESTONE FINANCIAL GROUP, INC. OPTION VALUATION MARCH 31, 2006

### BLACK-SCHOLES-MERTON: COMPONENT CALCULATIONS

ln(S/X) =	0.00%
r =	4.86%
d =	3.95%
r - d =	0.91%
variance/2 =	0.81%
r - d + variance/2 =	1.72%
t =	7.50
(r -d + variance/2)t =	12.93%
ln(S/X) =	0.00%
(r - d + variance/2)t =	12.93%
$\ln(S/X) + (r + variance/2)t =$	12.93%
standard deviation =	12.74%
t^(1/2) =	273.86%
standard deviation $t^{(1/2)} =$	34.89%
$\ln(S/X) + (r + variance/2)t =$	12.93%
$(standard deviation t^{(1/2)}) =$	34.89%
$[\ln(S/X) + (r + variance/2)t] / (standard deviation t^(1/2)) =$	37.06%
N(d1) =	64.45%
d1 =	37.06%
$(standard deviation t^{(1/2)}) =$	34.89%
d2 =	2.17%
N(d2) =	50.87%
BLACK-SCHOLES-MERTON: SUMMARY CALCULA	

$S = e^{(-dt)} = S(e^{(-dt)}) = N(d1) = S(e^{(-dt)})N(d1) = S(e^{$	\$19.80 74.37% \$14.73 64.45% \$9.49
X =	\$19.80
e^(-rt) =	69.45%
X(e^(-rt)) =	\$13.75
N(d2) =	50.87%
X(e^(-rt))N(d2) =	\$7.00
SN(d1) =	\$9.49
X(e^(-rt))N(d2) =	7.00
SN(d1)(e^(-dt)) - X(e^(-rt))N(d2) =	\$2.50
C =	\$2.50

# EXHIBIT SIX MIDWESTONE FINANCIAL GROUP, INC. OPTION VALUATION MARCH 31, 2006

**BLACK-SCHOLES-MERTON: COMPONENT CALCULATIONS** 

 $C = SN(d1) - X(e^{-(-rt)})N(d2)$ 

C = price of the call option

#### N() = AREA UNDER THE NORMAL CURVE

 $d1 = [ln(S/X) + (r + variance/2)t] / (standard deviation t^(1/2))$ 

 $d2 = d1 - (standard deviation t^{(1/2)})$ 

#### MERTON ADJUSTMENT FOR CONTINUOUS DIVIDENDS

 $C = S(e^{-(-dt)})N(d1) - X(e^{-(-rt)})N(d2)$ 

#### <u>INPUTS</u>

- (1) S = price of the underlying stock
- (2) X = option exercise price
- (3) t = years remaining to expiration
- (4) r = risk-free interest rate
- (5) d = annual dividend yield on stock
- (6) standard deviation

#### INPUT VALUES

BLACK-SCHOLES-MER	S = X =	\$19.80 \$19.80	
	t =	7.50	years
	r =	4.86%	
	d =	3.95%	
	e =	2.7183	
	e^(-dt) =	74.37%	
	e^(-rt) =	69.45%	
standard variance (s	l deviation = std dev^2) =	16.10% 2.59%	

# EXHIBIT SIX MIDWESTONE FINANCIAL GROUP, INC. OPTION VALUATION MARCH 31, 2006

### **BLACK & SCHOLES, MERTON: COMPONENT CALCULATIONS**

ln(S/X) =	0.00%		
r_	1 86%		
– I – b	4.00%		
r - d =	0.00%		
variance/2 =	1 30%		
r - d + variance/2 =	2.21%		
t =	7.50		
(r -d + variance/2)t =	16.56%		
ln(S/X) =	0.00%		
(r - d + variance/2)t =	16 56%		
$\ln(S/X) + (r + variance/2)t =$	16.56%		
standard deviation =	16.10%		
t^(1/2) =	273.86%		
standard deviation $t^{1/2}$ =	44.09%		
ln(S/X) + (r + variance/2)t =	16.56%		
$(standard deviation t^{(1/2)}) =$	44.09%		
$[\ln(S/X) + (r + variance/2)t] / (standard deviation t^(1/2)) =$	37.57%		
N(d1) =	64.64%		
d1 =	37.57%		
$(standard deviation t^{(1/2)}) =$	44.09%		
$\frac{d2}{d2} =$	-6.52%		
N(d2) =	47.40%		
BLACK & SCHOLES, MERTON: SUMMARY CALCULATIONS			

S =	\$19.80
e^(-dt) =	74.37%
S(e^(-dt)) =	\$14.73
N(d1) =	64.64%
S(e^(-dt))N(d1) =	\$9.52
X =	\$19.80
e^(-rt) =	69.45%
X(e^(-rt)) =	\$13.75
N(d2) =	47.40%
X(e^(-rt))N(d2) =	\$6.52
SN(d1) =	\$9.52
X(e^(-rt))N(d2) =	6.52
SN(d1)(e^(-dt)) - X(e^(-rt))N(d2) =	\$3.00
C =	\$3.00