

Back-Door Equity Financing: Citigroup's \$7.5 Billion Mandatory Convertible Issue

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When Citigroup announced that it had raised \$7.5 billion of capital via the issuance of mandatory convertibles that paid 11% annual distribution, the financial press reported the opinion that the additional capital was been raised at a high price. For example, the *Wall Street Journal* observed that

“Citi is paying a higher interest rate than companies that borrow on the high-yield, or junk-bond, market; currently they pay roughly 9% for straight bonds. Typically, convertible bonds pay lower interest rates than straight bonds, although a particular bond's structure could affect the interest rate paid.”¹

This negative interpretation of Citi's convertible financing has not changed over the years. When Citicorp issued convertible securities in 1991, a *New York Times*' article concluded that

“People used to denounce banks for charging usurious interest rates. Now Citicorp, desperate for capital, is paying such rates. The capital infusion that Citicorp obtained last week from a Saudi prince came at a heavy cost. It may have proved that it can raise capital, but ... Citicorp may go on paying that rate [11 percent] long after the current crisis of confidence has passed. Not before 1996 can the company force Prince al-Waleed bin Talal to convert the preferred to common, at \$16 per share. Any profits on conversion will come on top of the assured 11 percent return.”²

Raising equity via convertible securities is a roundabout procedure that can lead to erroneous conclusion in the absence of careful evaluation. How can one determine if issuing convertibles is a better alternative to the straight issuance of common equity? In this paper, we attempt to answer this question in the case of Citigroup by estimating the implied common equity price from its \$7.5 billion convertible issue and comparing it to a common equity offering. In doing so, we provide a simple procedure for calculating the implied common equity proceeds of convertible issues.

¹ The *Wall Street Journal*, December 27, 2007.

² Norris, F., “A Prince of a Deal for Citicorp,” *The New York Times*, February 24, 1991.

Convertibles securities are a recognized mean for raising equity ‘through the backdoor.’ The call feature in a regular convertible³ and the mandatory conversion feature of mandatory convertibles⁴ enable issuers to obtain equity financing on a deferred basis with less negative price effect than common stock offerings. Information asymmetry can make equity offerings especially expensive for small, high-growth companies or, more generally, for any firm with little additional debt capacity. Since the introduction of Percs in the late eighties, mandatory convertibles have permitted large, highly leveraged or financially troubled, companies to raise equity capital.

In the past, mandatory convertibles have been issued by companies such as Texas Instruments, General Motors, Sears, Kaiser Aluminum, Reynolds Metals, American Express, First Chicago, Bowater, K-Mart, James River, and Allstate. In late 2007, Citigroup, UBS, and Morgan Stanley issued mandatory convertibles to replenish their regulatory (Tier 1) capital:

- On November 26, 2008 Citigroup announced that it had reached an agreement to raise \$7.5 billion via the sale of equity units in a private placement to the Abu Dhabi Investment Authority.
- On December 10, UBS announced that CHF 13 billion of new capital in the form of mandatory convertible notes had been placed with the Government of Singapore Investment Corporation and an undisclosed strategic investor in the Middle East.
- On December 19, Morgan Stanley said that it has entered into an agreement with China Investment Corporation to issue new capital of approximately \$5 billion through equity units convertible into common stock.

These issues also enjoy tax deductibility of coupon interest. The issues of Citigroup and Morgan Stanley are done within a trust-preferred structure that permits the separation of the trust interests sold by a trust to investors from the debt securities purchased by the trust from the corporate issuer.⁵ A trust structure with forward contracts to acquire

³ Stein, J., “Convertible bonds as back-door equity finance,” *Journal of Financial Economics*, 32, 1992, 3-21.

⁴ Arzac, E. R., “Percs, Decs, and Other Mandatory Convertibles,” *Journal of Applied Corporate Finance*, 10, 1997, 54-63.

⁵ In December 1998 the Internal Revenue Services told the Tax Court that a trust is a valid entity that is separate and distinct for the corporation for federal income tax purposes, and that the debt of the corporation to the trust constitutes indebtedness for federal income tax purposes. Trust-preferred structures permit issuers to attain material reductions of their cost of capital. See Ryan, K., Ross, J. and Yen, J., “The New Wave of Hybrids – Rethinking the Optimal Capital Structure,” *Journal of Applied Corporate Finance*, 19, 2007, 56-64.

common stock permits issuing mandatory convertibles and attaining tax deductibility of the coupon interest paid to the trust: The trust sells ownership interest in its assets to investors and uses the proceeds to acquire debt securities from the issuer. The issuer pays coupon interest to the trust and the trust passes it along to investors as trust distributions. In addition, investors enter into purchase contracts with the corporation that obligates them to buy common stock on specified terms at certain dates, and the corporation pays quarterly payments on the stock purchase contracts, which supplement the trust distributions. Furthermore, the exchange ratio applicable to the mandatory convertibles floats within the collar to yield a fixed value and it is fixed at each extreme. Figure 1 shows the payoff at expiration of Citigroup's equity units as a function of its common stock price. Appendix A presents a summary description of these securities.

The implied common stock price of a mandatory issue

The implied price of a mandatory issue results from adjusting the pre-announcement common stock price of the issuer by (1) the value of the difference between the distributions received by the holders of the equity units and the common stock dividend, taking into account the tax shield of the debt securities issued by the company to the trust, and (2) the value of the options embedded in the collared exchange rate of the purchase contract.

Valuing the cash distributions. Appendix B shows the valuation of the distributions made by Citigroup to the holders of the equity units. Distributions are made through four trust conduits each invested in a different junior subordinated note issued by Citigroup. The coupon interest paid by these notes is tax deductible and generates tax shields at the marginal tax rate of Citigroup. In addition, Citigroup makes non-deductible contract payments. Pre-tax interest plus contract payments add to an 11% distribution to the investors on each of the four conduits. The excess of the after-tax distributions over the common dividends are discounted at the corresponding after-tax cost of debt.⁶

⁶ See Ruback, R.S., "Calculating the Market Value of Risk-free Cash Flows," *Journal of Financial Economics*, 15, 1986, 323-339, on discounting after-tax cash flows without systematic (beta) risk.

Valuing the call spreads. The collar structure of the equity units negates appreciation between a reference price X_1 and a stock appreciation threshold X_2 , and provides a fraction X_1/X_2 of the appreciation above the threshold (see Figure 1). Therefore, the net reduction in the value of Citigroup common stock to be received by virtue of the purchase contract is the following call spread:

$$\text{Call Spread Value} = \text{Call}(X_1 = \$31.83) - X_1/X_2 \text{Call}(X_2 = \$37.24)$$

Since the payoffs of these calls depends on if the 20 trading day average of stock prices is below the reference price, between the reference price and the threshold, or above the threshold, the value of call spread is the difference between two Asian (average) options.⁷ These options can be value by simulation or with an analytic approximation.⁸ The option values so attained need to be adjusted for the dilution created by the additional shares issued upon expiration of the contracts.⁹

Implied common equity price

The implied common equity price of the equity units depends in part on the dividend they pay in excess to the common stock dividend. At the time of the transaction, Citigroup's common stock dividend was \$0.54 per quarter. Assuming that Citigroup stock price reflected the expectation that this dividend rate would continue over the life of the equity units results in the following valuations, depending on if the contracts to purchase shares take effect on the first or the last of the possible dates:

	First Purchase Dates	Last Purchase Dates
Stock price on 11/26/2007	\$29.7500	\$29.7500
Minus value of additional dividends	1.1520	1.5330
Plus value of Asian call spreads	<u>1.8394</u>	<u>1.8043</u>
Equity units proceeds per share	30.4374	30.0213
Issue <i>premium</i> over stock price	<u>2.31%</u>	<u>0.91%</u>

⁷ The fixed exchange ratios become effective when the average price during the 20-day averaging period is higher (lower) than X_2 (X_1). Moreover, a fixed exchange ratio becomes effective if one of the average period conditions is satisfied independently of the price at expiration, and so the end-point adjustment to the fixed price is not an option in a strict sense. This means, for example, that if the average price is higher than X_2 , the payoff of the offer is $X_1 + (X_1/X_2)(P_T - X_2) = (X_1/X_2)P_T$ even if the price at expiration P_T is less than X_2 .

⁸ See Arzac, E.R., *Valuation for Mergers, Buyouts and Restructuring*, 2nd ed., Wiley, 2008 for simulation and analytic approximation procedures for valuing Asian options.

⁹ The adjustment is similar to that done in the valuation of warrants. The option values need to be multiplied by: pre-issue outstanding shares/(pre-issue outstanding shares + new shares). See, Hull, J., *Options, Futures and Other Derivatives*, Prentice-Hall, 2006, for example.

This suggests that Citigroup sold common stock through the back-door at a premium. However, at the time of the transactions it was reasonable to assume that a dividend reduction was already impounded into Citigroup stock price. In fact, at that time, the possibility of a dividend cut of 25% to 50%, which would save between \$2.7 and \$5.4 billions per year, was already being discussed.¹⁰ On January 15, Citigroup announced the reduction of its common dividend by 41% to 32 cents per quarter. Taking this value as the expected dividends at the time of the transaction yields the following valuations:

	<u>First Purchase Dates</u>	<u>Last Purchase Dates</u>
Stock price on 11/26/2007	\$29.7500	\$29.7500
Minus value of additional dividends	3.7452	4.9735
Plus value of Asian call spreads*	<u>2.1454</u>	<u>2.1677</u>
Equity units proceeds per share	28.1502	26.9442
Issue <i>discount</i> to stock price	<u>5.38%</u>	<u>9.43%</u>

Hence, accounting for the common dividend reduction, Citigroup's back-door equity financing was equivalent to issuing common stock at a 5% to 10% discount over its common price. Figure 1 shows the lower and upper bounds of the value of the equity units as a function of the initial common stock price.

In arriving to the implied proceeds from the convertible issue it was assumed that Citigroup would maintain its dividend yield on common stock and compared the convertible issue to an issue of common stock at par

The implied discount of the convertible issue was calculated assuming that Citigroup would be able to issue common stock at par. If, as it was most likely, Citigroup's price on 11/26/2007 already reflected the need to issue common stock at a discount, the cost of raising \$7.5 billion via common stock would be higher because of the larger number of shares to be issued. This means that the discount to common stock price implied by the convertible issue would lower the higher the discount of an alternative common stock issued. Exhibit 1 shows the discount to stock price of as a function of the expected dividend embedded in the stock price and the discount suffered by an alternative common stock issue. For example, it shows that if the alternative common stock issue could have

¹⁰ Whitney, M. and Krawiec, C., *Is Citigroup's Dividend Safe?*, Equity Research, CIBC World Markets, October 31, 2007.

been made at a 10% discount, the mandatory convertible issue suffered a discount of 6.6%, assuming that the market expected annual dividends on common of \$1.28 per share.

Exhibit 1. Citigroup's Mandatory Convertible Issue Maximum Discount (Premium) to Common Stock Price					
		Discount on Alternative Common Stock Issue			
		0%	10%	15.0%	20%
Common Dividend	\$2.16	-0.91%	-4.27%	-5.94%	-7.36%
	\$1.28	9.43%	6.08%	4.40%	2.72%

What price a common stock issue would have fetched is difficult to determine but Citigroup's equity units issue compares favorably with the private placement of common stock that Merrill Lynch made on December 23, 2007 under rather similar circumstances. Merrill Lynch issued common for \$48 a share plus options to buy shares at \$48 or at a 10% discount over its then current market price on or before March 28, 2008. Prior to the announcement of the transaction, on December 21, Merrill Lynch's common stock closed at \$55.54. That is, the private placement of common equity was done at 13.6% discount plus the value of the three-month in-the-money calls given to the buyer.

Conclusion

This paper has presented a simple way of decomposing and valuing mandatory convertibles issued within a trust preferred structure and applied it to calculating the implied common stock price of Citigroup equity units.

By issuing convertibles, Citigroup choose to minimize the negative information consequences that are associated with an equity issue under asymmetric information. In exchange, it committed itself to distribute cash flows to the convertibles holders in excess to the expected common dividend.

Our valuation suggests that Citigroup has likely attained a higher implied price for the common stock that it would ultimately issue.

Appendix A – Summary Description of Citigroup Equity Units

The equity units are made up of trust preferred securities and forward contracts to purchase Citigroup common stock.

- Four series of trust preferred capital securities. The investors buys trust interests from each of the four trusts and the trust uses the proceeds to buy junior subordinated securities from Citigroup. Citigroup pays quarterly interest to the trusts and the trusts pays quarterly distribution to the capital securities. Each series of capital securities and the corresponding purchase of junior subordinated securities will be for an aggregate principal amount of \$1,875 million, for a total of \$7.5 billion.

Each trust will collect quarterly interest and make quarterly distributions on March 15, June 15, September 15 and December 15 of each year, commencing March 15, 2008. The interest/distribution rates and the due dates of the corresponding junior subordinated securities are as follows:

	Series A	Series B	Series C	Series D
Interest received/distribution paid	6.320%	6.455%	6.700%	6.935%
Due dates	3/15/2041	9/15/2041	3/15/2042	9/15/2042

- Purchase contracts to buy a variable number of Citigroup common shares at various dates, for which Citicorp pays the investor contract payments on the same dates as the trust distributions:

	Series A	Series B	Series C	Series D
First purchase date	3/15/2010	9/15/2010	3/15/2011	9/15/2011
Last purchase date	3/15/2011	9/15/2011	3/15/2012	9/15/2012
Quarterly contract payments	4.680%	4.545%	4.300%	4.065%

The number of shares purchased at each contract date will be based upon the volume-weighted average closing price (VWAP) of Citigroup common stock during the 20 trading days prior to the third business day immediately prior to the stock purchase date and determined as follows:

- If $VWAP \leq \$31.83$, 58,906,875 shares will be issued for the aggregate price of \$1,875 million for each series, or a total of 235,627,500 shares for the aggregate price of \$7.5 billion.
- If $31.83 < VWAP < \$37.24$, $\$31.83/VWAP$ times 58,906,875 shares will be issued for the aggregate price of \$1,875 million for each series.
- If $VWAP \geq \$37.24$, 50,347,500 shares will be issued for the aggregate price of \$1,875, or a total of 201,390,348 shares for the aggregate price of \$7.5 billion.

The investors guarantee their fulfillment of the purchase contracts pledging as collateral the trust preferred capital securities.

- Additional features: Tax deductibility of the interest paid on the junior subordinated securities depends on its separation from the purchase contract. IRS

- Ruling requires that the equity units contain a number of additional features, including:¹¹
- Remarketing: Prior to the settlement of the purchase contracts, there will be remarketing of the trust preferred securities to new investors on market terms. The proceeds of which to be applied to the settlement of the stock purchase contract obligations. This permits Citigroup to continue trust preferred financing on market terms beyond the settlement of the purchase contracts. Remarketing and the contract dates can be postponed five times. If remarketing fails, Citigroup will retain the capital securities pledged as collateral and the investor obligation under the stock purchase contract will be satisfied on the final purchase dates listed above.¹²
 - Transferability: The investors can sell the capital securities and substitute, as pledged securities, Treasury securities.
- Interest payments and capital securities distributions can be deferred and accumulated as the option of Citigroup. This is a common feature of trust preferred securities.¹³

¹¹ IRS Revenue Ruling 2003-97.

¹² If remarketing can only be done at a high rate, a condition likely to be associated with a low stock price, IRS Letter 200450016 permits the issuer to avoid remarketing without being subject to taxation.

¹³ See Ryan, Ross and Yen, *op cit.*, for details.

Appendix B – Data for Valuation of Citigroup Equity Units

Citigroup common:

- Common stock closed at \$29.75 on 11/26/2006 prior to the announcement of the Abu-Dhabi deal.
- Citigroup paid \$0.54 quarterly dividend, a 7.26% annual yield.
- The implied volatility of Citigroup January 2010 Leaps options at \$30 strike price was 53.65%.

Equity units:

- Equity units distributions:

	<u>Series A</u>	<u>Series B</u>	<u>Series C</u>	<u>Series D</u>
Tax-deductible distributions	6.320%	6.455%	6.700%	6.935%
Tax shield @ 36.5% rate	2.307	2.356	2.446	2.531
	4.013	4.099	4.255	4.404
Contract payments	4.680	4.545	4.300	4.065
Annual after-tax distributions	8.693%	8.644%	8.555%	8.469%
Quarterly after-tax distributions*	\$0.6466	\$0.6429	\$0.6362	\$0.6299
Citigroup common dividend	0.540	0.540	0.540	0.540
After-tax additional dividend	\$0.1066	\$0.1029	\$0.0962	\$0.0899
After-tax trust preferred rate**	0.9885%	1.0093%	1.0471%	1.0832%

* $\$29.75 \times \text{Annual after-tax distribution rate} \div 4$.

** $[1 + \text{Junior Subordinated Rate} \times (1 - 36.5\%)]^{1/4}$

Inputs for valuation of Asian call spreads:

Stock price:	P = \$29.75
Common dividend:	\$0.54/quarter or \$0.32/quarter
Strike prices:	$X_1 = \$31.83$, $X_2 = \$37.24$
Expiration dates:	Purchase dates
Averaging period:	20 days
Volatility	53.65%
Interest rates:	Treasury yields to first and last purchase dates

<u>Purchase Date</u>	<u>Treasury Yield</u> ¹⁴
03/15/10	2.92%
09/15/10	2.92%
03/15/11	2.92%
09/15/11	2.96%
03/15/12	3.04%
09/15/12	3.19%

Citigroup pre-issue shares	4,971 million
Shares issued if VWAP \leq \$31.83	235.628 million
Shares issued if VWAP \geq \$37.24	201.390 million ¹⁵

¹⁴ Source: Federal Reserve Board, <http://www.federalreserve.gov/releases/h15/update/>.

¹⁵ It is assumed that either VWAP \leq \$31.83 or VWAP \geq \$37.24 holds for all contracts. This simplification has a small effect on the value of the options.

Figure 1. Mandatory Convertible with Collar - Citigroup Equity Units as a function of stock price
 --- Upper and lower bounds at issue time ___ Value at expiration

