SECURITIES LITIGATION & CONSULTING GROUP

# Structured Products Research Report

Report Prepared On: 02/01/13

## Structured Product Details

| | |
|---|---|
| **Name** | Principal Protected Notes linked to S&P 500 Index |
| **Issue Size** | $1.80 million |
| **Issue Price** | $10 |
| **Term** | 48 Months |
| **Annualized Coupon** | 0.00% |
| **Pricing Date** | February 11, 2010 |
| **Issue Date** | February 17, 2010 |
| **Valuation Date** | February 11, 2014 |
| **Maturity Date** | February 14, 2014 |
| **Issuer** | Citigroup |
| **CDS Rate** | 230.66 bps |
| **Swap Rate** | 2.27% |
| **Reference Asset** | the S&P 500 Index |
| **Initial Level** | 1,078.47 |
| **Dividend Rate** | 2.12% |
| **Implied Volatility** | 22.79% |
| **Delta**[1] | 0.16 |
| **Fair Price at Issue** | $8.97 |
| **CUSIP** | 17314V585 |
| **SEC Link** | www.sec.gov/Archives/edgar/data/831001/000119312510032216/d424b2.htm |

# Principal Protected Notes linked to S&P 500 Index

## Description

Citigroup issued $1.80 million of Principal Protected Notes linked to S&P 500 Index on February 17, 2010 at $10 per note.

This Principal Protected Note (PPN) does not pay periodic coupons, but instead pays a single amount at maturity depending on the final level of the S&P 500 Index. It is called 'principal protected' because the minimum payout of the note at maturity is the initial issue price, so long as Citigroup does not default.

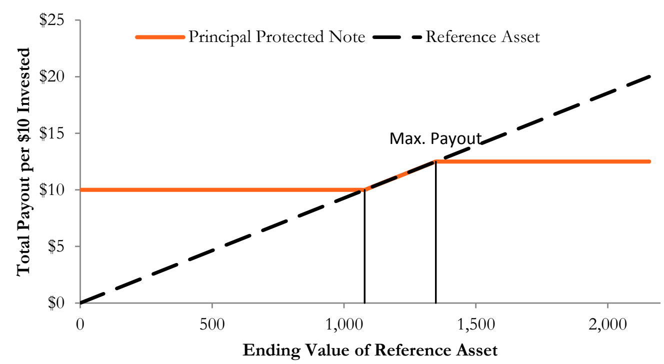
If the S&P 500 Index on February 11, 2014 is lower than or equal to 1,078.47, investors receive the principal of the notes, $10. If the S&P 500 Index on February 11, 2014 is higher than 1,078.47, in additional to the $10 principal, investors will receive a return equal to the percentage increase, above 1,078.47, in the S&P 500 Index, up to a maximum of 25.00%.

## Valuation

This PPN linked to the S&P 500 Index can be valued as a combination of a zero-coupon note from Citigroup, one long at-the-money call option on the the S&P 500 Index, and one short out-of-the-money call option on the the S&P 500 Index. For reasonable valuation inputs this note was worth $8.97 when it was issued on February 17, 2010, because the value of the options investors gave Citigroup plus the interest investors would have received on Citigroup's par debt was worth $1.03 more than the options investors received from Citigroup.

There is no active secondary market for most structured products. Structured products, including this note, therefore are much less liquid than simple stocks, bonds, notes and mutual funds. Investors are likely to receive less than the structured product's estimated market value if they try to sell the structured product prior to maturity. Our valuations do not incorporate this relative lack of liquidity and therefore should be considered an upper bound on the value of the structured product.

### Payoff Curve at Maturity




*The payoff diagram shows the final payoff of this note given the S&P 500 Index level (horizontal axis). For comparison, the dashed line shows the payoff if you invested in the S&P 500 Index directly.*

### Related Research

**Research Papers:**

www.slcg.com/research.php

- *"Are Structured Products Suitable for Retail Investors?"* December 2006.
- *"Structured Products in the Aftermath of Lehman Brothers,"* November 2009.
- *"What TiVo and JP Morgan Teach Us about Reverse Convertibles,"* June 2010.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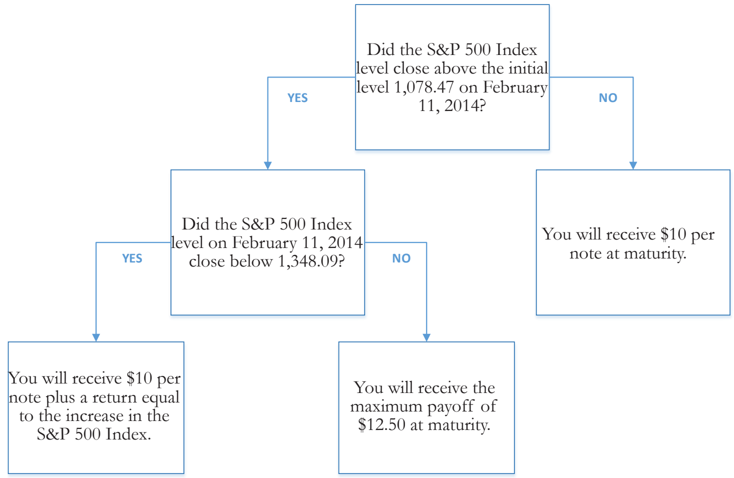
### Principal Payback Table

| The S&P 500 Index | Note Payoff |
|---|---|
| 0.00 | $10.00 |
| 107.85 | $10.00 |
| 215.69 | $10.00 |
| 323.54 | $10.00 |
| 431.39 | $10.00 |
| 539.24 | $10.00 |
| 647.08 | $10.00 |
| 754.93 | $10.00 |
| 862.78 | $10.00 |
| 970.62 | $10.00 |
| **1,078.47** | **$10.00** |
| 1,186.32 | $11.00 |
| 1,294.16 | $12.00 |
| 1,402.01 | $12.50 |
| 1,509.86 | $12.50 |
| 1,617.71 | $12.50 |

### Maturity Payoff Diagram

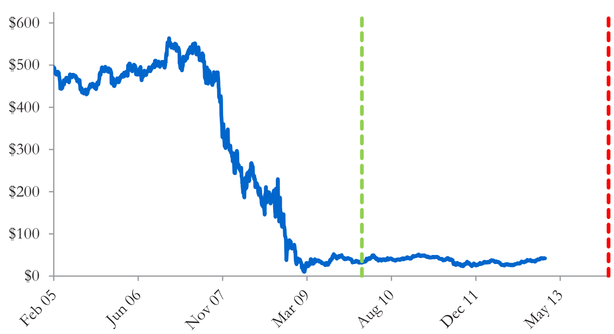



*The contingent payoffs of this Principal Protected Note.*

# Analysis

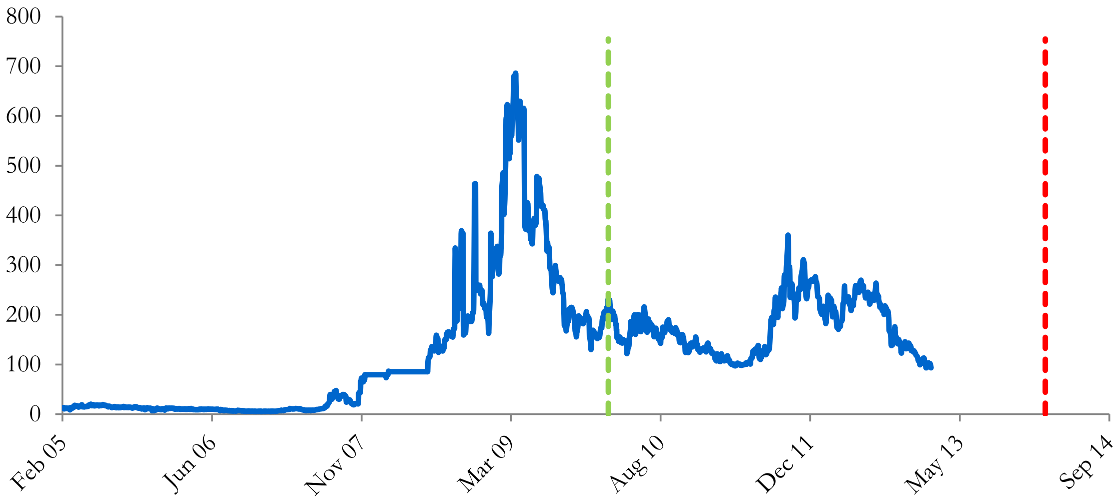
"Principal protected" is a misleading label previously used to refer to structured products that pay at least the note's face value at maturity if the issuer does not default. Investors purchasing these PPN notes effectively purchase zero-coupon notes and at-the-money call options, and sell out-of-the-money call options, posting the note's issue price as collateral. That is, investors in these notes receive the payoffs to call options in lieu of interest coupon payments. This PPN note is fairly priced if and only if the net value of the options investors exchanged with Citigroup equals the value of interest Citigroup pays on its straight debt.

### Citigroup's Stock Price



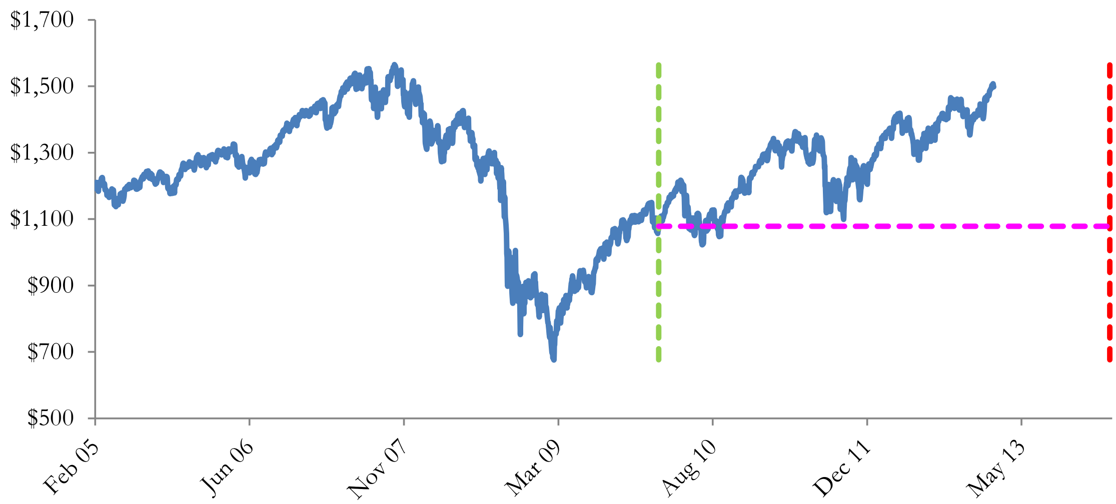

*The graph above shows the adjusted closing price of the issuer Citigroup for the past several years. The stock price of the issuer is an indication of the financial strength of Citigroup. The adjusted price shown above incorporates any stock split, reverse stock split, etc.*

**Citigroup's CDS Rate**




*Credit default swap (CDS) rates are the market price that investors require to bear credit risk of an issuer such as Citigroup. CDS rates are usually given in basis points (bps). One basis point equals 0.01%. Higher CDS rates reflect higher perceived credit risk, higher required yields, and therefore lower market value of Citigroup's debt, including outstanding Principal Protected Note. Fluctuations in Citigroup's CDS rate impact the market value of the notes in the secondary market.*

**The S&P 500 Index Level**

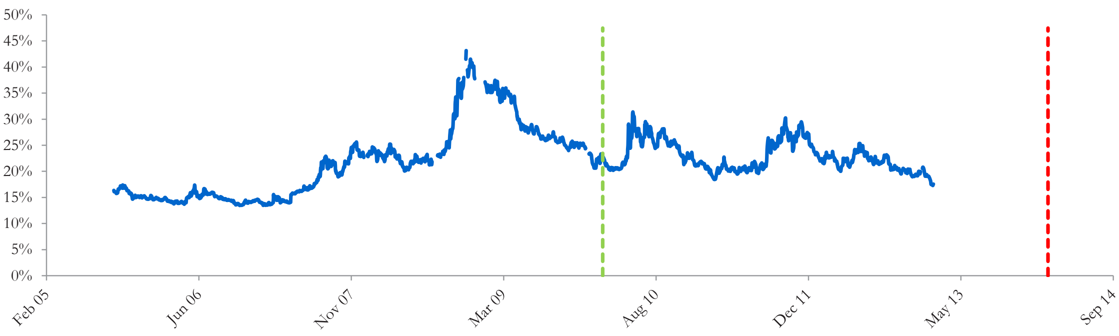



*The graph above shows the historical levels of the S&P 500 Index for the past several years. The final payoff of this note is determined by the S&P 500 Index level at maturity. Higher fluctuations in the S&P 500 Index level correspond to a greater uncertainty in the final payout of this Principal Protected Note.*

**Realized Payoff**

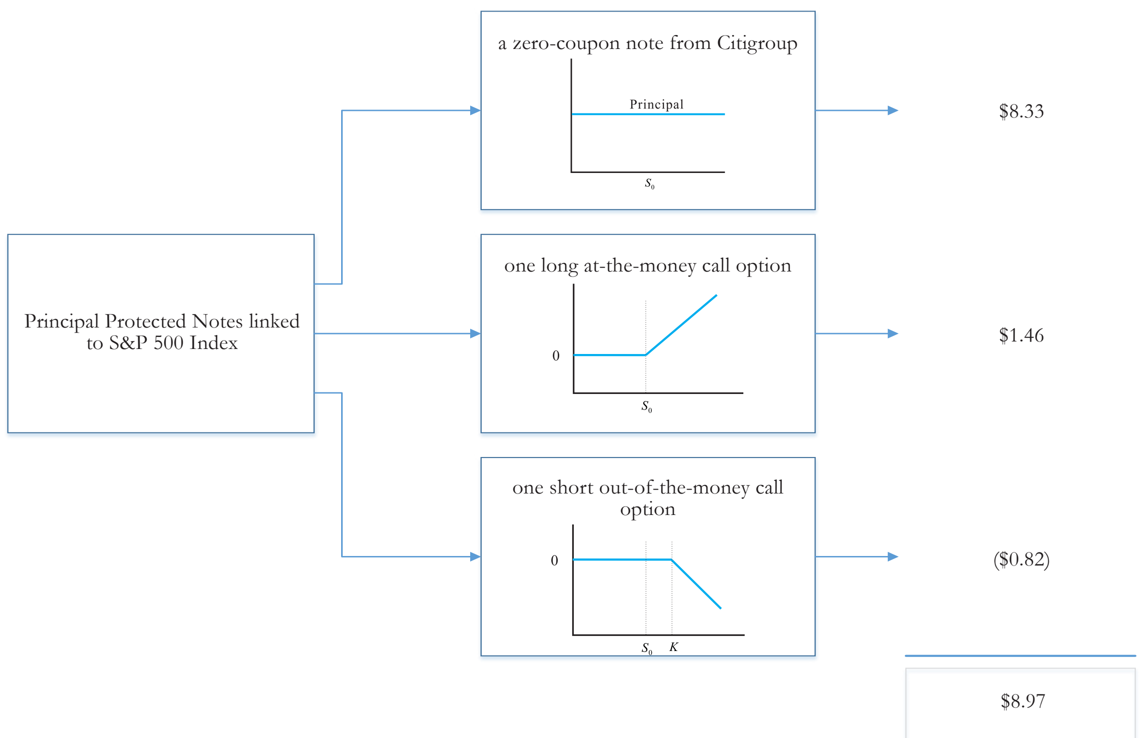
This product will mature on February 14, 2014.

## Reference Asset The S&P 500 Index's Implied Volatility




*The annualized implied volatility of the S&P 500 Index on February 11, 2010 was 22.79%, meaning that options contracts on the S&P 500 Index were trading at prices that reflect an expected annual volatility of 22.79%. The higher the implied volatility, the larger the expected fluctuations of the S&P 500 Index level and of the Note's market value during the life of the Notes.*

## Decomposition of this Principal Protected Note




*This note can be decomposed into different components, and each component can be valued separately. The chart above shows the value of each component of this Principal Protected Note.*

1. Delta measures the sensitivity of the price of the note to the the S&P 500 Index level on February 11, 2010.
2. CDS rates can be considered a measure of the probability that an issuer will default over a certain period of time and the likely loss given a default. The lower the CDS rate, the lower the default probability. CDS rate is given in basis points (1 basis point equals 0.01%), and is considered as a market premium, on top of the risk-free rate, that investors require to insure against a potential default.
3. Fair price evaluation is based on the Black-Scholes model of the the S&P 500 Index on February 11, 2010.
4. Calculated payout at maturity is only an approximation, and may differ from actual payouts at maturity.
5. Our evaluation does not include any transaction fees, broker commissions, or liquidity discounts on the notes.