

Report Prepared On: 02/02/13

## Structured Product Details

**Name** Trigger Yield Optimization Notes  
linked to Citigroup Inc

**Issue Size** \$99,976  
**Issue Price** \$33.81  
**Term** 24 Months  
**Annualized Coupon** 7.37%

**Pricing Date** September 20, 2012  
**Issue Date** September 25, 2012  
**Valuation Date** September 22, 2014  
**Maturity Date** September 25, 2014

**Issuer** UBS  
**CDS Rate** 83.49 bps  
**Swap Rate** 0.39%

**Reference Asset** Citigroup, Inc.'s stock

**Initial Level** \$33.81  
**Trigger Price** \$25.36  
**Conversion Price** TBD  
**Dividend Rate** 0.12%  
**Implied Volatility** 37.19%  
**Delta<sup>1</sup>** 0.38

**Fair Price at Issue** \$32.02

**CUSIP** 90270A820  
**SEC Link** [www.sec.gov/Archives/edgar/  
data/1114446/000111444612011681/  
stp601147f\\_1fwp.htm](http://www.sec.gov/Archives/edgar/data/1114446/000111444612011681/stp601147f_1fwp.htm)

## Related Research

### Research Papers:

[www.slcg.com/research.php](http://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.

**Mike Yan, Ph.D.,**  
Senior Financial Economist, SLCG  
(+1) 703.539.6780  
[MikeYan@slcg.com](mailto:MikeYan@slcg.com)

## Trigger Yield Optimization Notes linked to Citigroup Inc

### Description

UBS issued \$99,976 of Trigger Yield Optimization Notes linked to Citigroup Inc on September 25, 2012 at \$33.81 per note.

These notes are UBS-branded single observation reverse convertibles. Single observation reverse convertibles pay periodic interest coupons and at maturity convert into shares of the reference security if the price of the reference security at the notes' maturity is below the trigger price determined when the notes were issued.

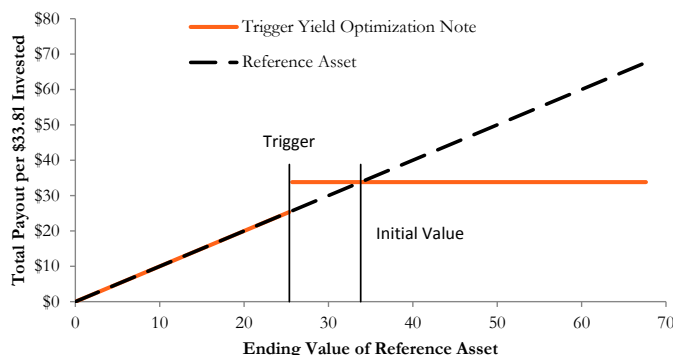
These 24-month notes pay monthly coupons at an annualized rate of 7.37%. In addition to the quarterly coupons, on September 25, 2014 investors will receive the market value of one share of Citigroup, Inc.'s stock if on September 22, 2014 Citigroup, Inc.'s stock closes below \$25.36 (75% of Citigroup, Inc.'s stock price on September 20, 2012). Otherwise, investors will receive the \$33.81 face value per note.

### Valuation

This UBS single observation reverse convertible linked to Citigroup, Inc.'s stock can be valued as a combination of a note from UBS and a short European out-of-the-money cash-or-nothing binary put option, and a short European out-of-the-money put option on Citigroup, Inc.'s stock. For reasonable valuation inputs this note was worth \$32.02 per \$33.81 when it was issued on September 25, 2012 because investors were effectively being paid only \$4.09 for giving UBS options which were worth \$5.88.

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

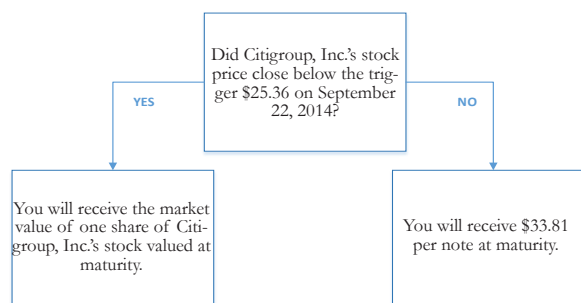


The payoff diagram shows the final payoff of this note given Citigroup, Inc.'s stock price (horizontal axis). For comparison, the dashed line shows the payoff if you invested in Citigroup, Inc.'s stock directly.

## Principal Payback Table

Citigroup, Inc.'s Stock	Note Payoff
\$0.00	\$0.00
\$3.38	\$3.38
\$6.76	\$6.76
\$10.14	\$10.14
\$13.52	\$13.52
\$16.91	\$16.91
\$20.29	\$20.29
\$23.67	\$23.67
\$27.05	\$33.81
\$30.43	\$33.81
<b>\$33.81</b>	<b>\$33.81</b>
\$37.19	\$33.81
\$40.57	\$33.81
\$43.95	\$33.81
\$47.33	\$33.81
\$50.72	\$33.81

## Maturity Payoff Diagram



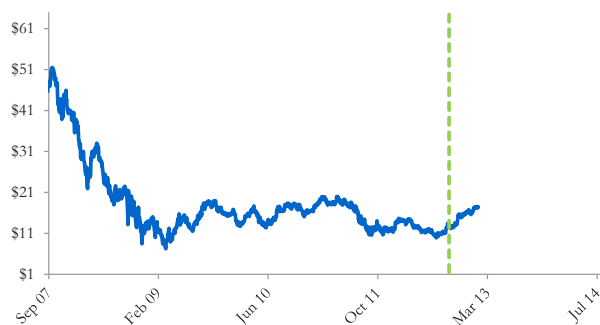
*The contingent payoffs of this Trigger Yield Optimization Note.*

## Analysis

This single observation reverse convertible's 7.37% coupon rate is higher than the yield UBS paid on its straight debt but, in addition to UBS's credit risk, investors bear the risk that they will receive shares of Citigroup, Inc.'s stock when those shares are worth substantially less than the face value of the note at maturity.

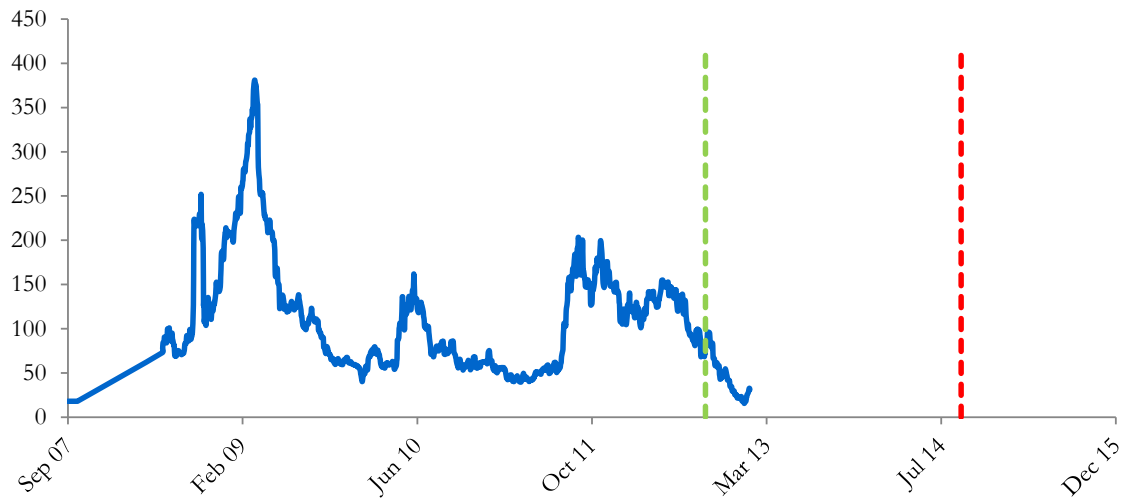
Investors purchasing these reverse convertibles effectively sell put options to UBS and post the note's issue price as collateral to secure satisfaction of the investors' obligations under the option contracts. UBS pays investors a "coupon" that is part payment for the put options and part interest on the investors' posted collateral. This reverse convertible is fairly priced if and only if the difference between the reverse convertible's "coupon rate" and interest paid on UBS's straight debt equals the value of the put option investors are giving to UBS. Whether this reverse convertible is suitable or not is identically equivalent to whether selling put options on the reference stock at the option premium being paid by UBS was suitable for the investor.

## UBS's Stock Price



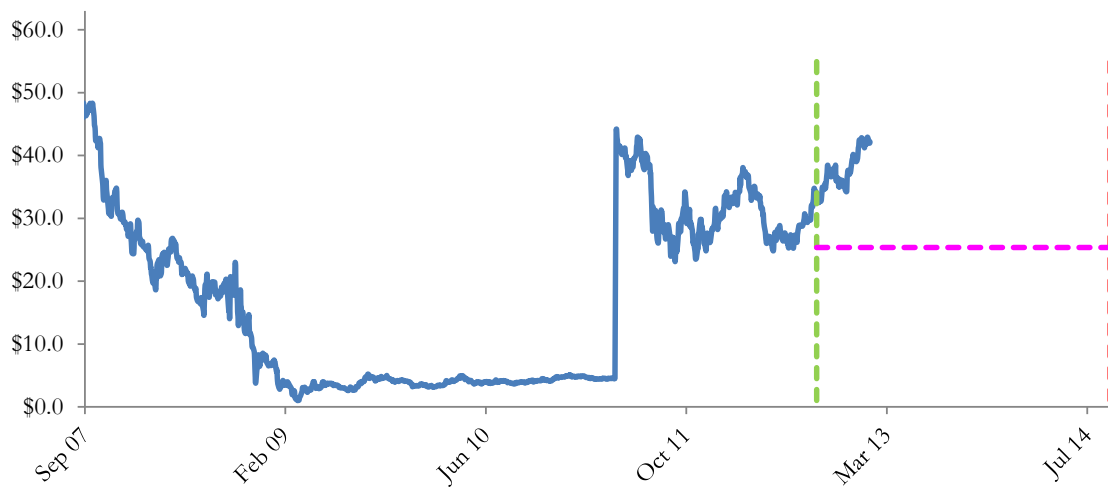
*The graph above shows the adjusted closing price of the issuer UBS for the past several years. The stock price of the issuer is an indication of the financial strength of UBS. The adjusted price shown above incorporates any stock split, reverse stock split, etc.*

## UBS's CDS Rate



Credit default swap (CDS) rates are the market price that investors require to bear credit risk of an issuer such as UBS. 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 UBS's debt, including outstanding Trigger Yield Optimization Note. Fluctuations in UBS's CDS rate impact the market value of the notes in the secondary market.

## Citigroup, Inc.'s Stock Price

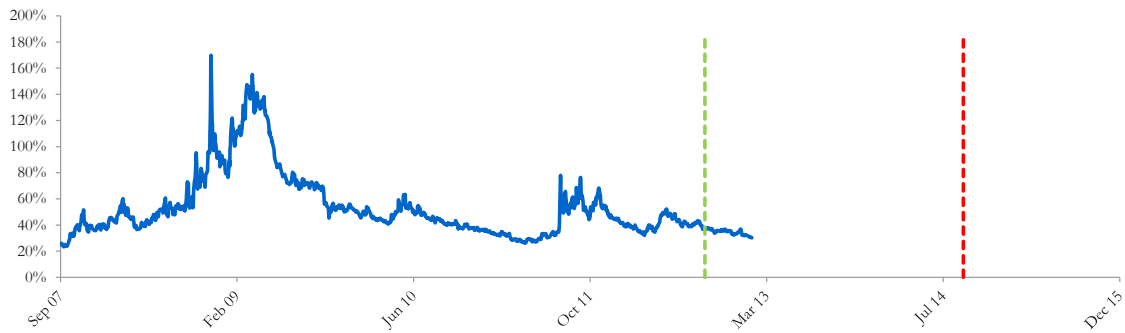


The graph above shows the historical levels of Citigroup, Inc.'s stock for the past several years. The final payoff of this note is determined by Citigroup, Inc.'s stock price at maturity. Higher fluctuations in Citigroup, Inc.'s stock price correspond to a greater uncertainty in the final payout of this Trigger Yield Optimization Note.

## Realized Payoff

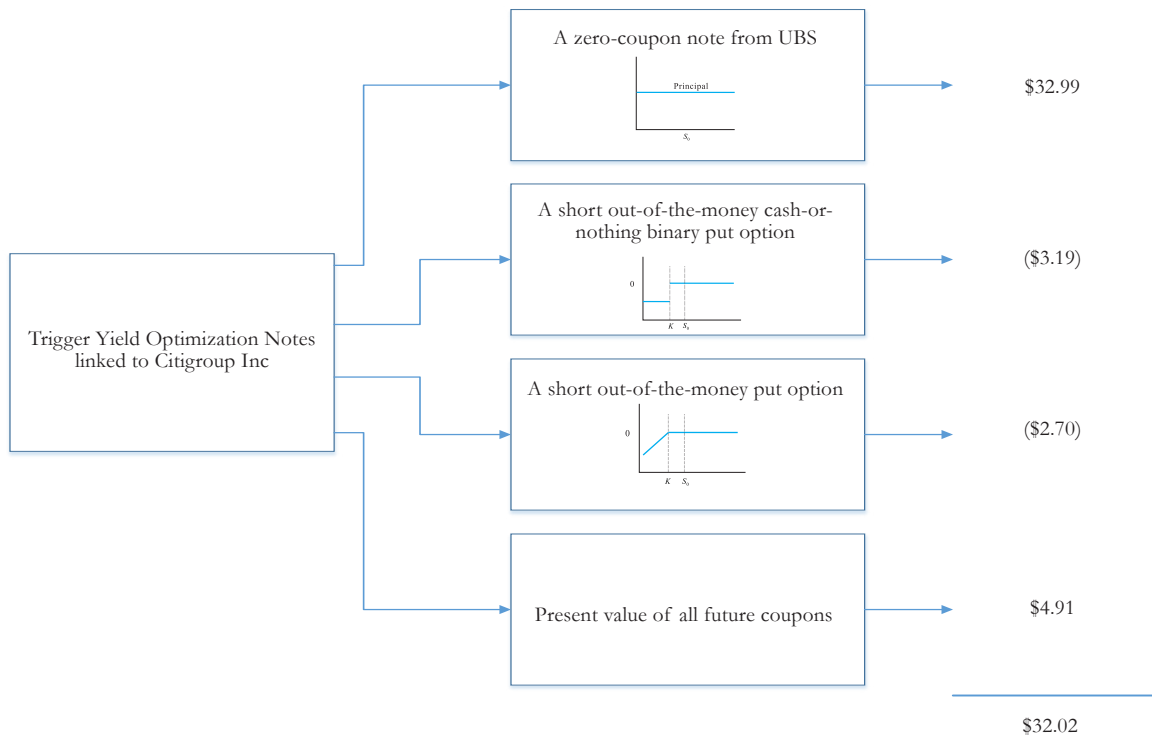
This product will mature on September 25, 2014.

## Reference Asset Citigroup, Inc.'s Stock's Implied Volatility



The annualized implied volatility of Citigroup, Inc.'s stock on September 20, 2012 was 37.19%, meaning that options contracts on Citigroup, Inc.'s stock were trading at prices that reflect an expected annual volatility of 37.19%. The higher the implied volatility, the larger the expected fluctuations of Citigroup, Inc.'s stock price and of the Note's market value during the life of the Notes.

## Decomposition of this Trigger Yield Optimization 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 Trigger Yield Optimization Note.

1. Delta measures the sensitivity of the price of the note to the Citigroup, Inc.'s stock price on September 20, 2012.
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 Citigroup, Inc.'s stock on September 20, 2012.
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.