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Structured Products Research Report

Report Prepared On: 09/13/13

Structured Product Details

Name	Trigger Phoenix Autocallable Optimization Securities linked to Starbucks Corp.
Issue Size	$804,600
Issue Price	$10
Term	60 Months
Annualized Coupon	10.81%
Pricing Date	April 13, 2012
Issue Date	April 20, 2012
Valuation Date	April 13, 2017
Maturity Date	April 20, 2017
Issuer	Morgan Stanley
CDS Rate	380.76 bps
Swap Rate	1.14%
Reference Asset	Starbucks Corp.'s stock
Initial Level	$61.67
Dividend Rate	0.97%
Implied Volatility	30.09%
Fair Price at Issue	$9.34
CUSIP	61760T769
SEC Link	www.sec.gov/Archives/edgar/data/895421/000095010312001994/dp29998_424b2-ps163.htm

Trigger Phoenix Autocallable Optimization Securities linked to Starbucks Corp.

Description

Morgan Stanley issued $804,600 of Trigger Phoenix Autocallable Optimization Securities linked to Starbucks Corp. on April 20, 2012 at $10 per note.

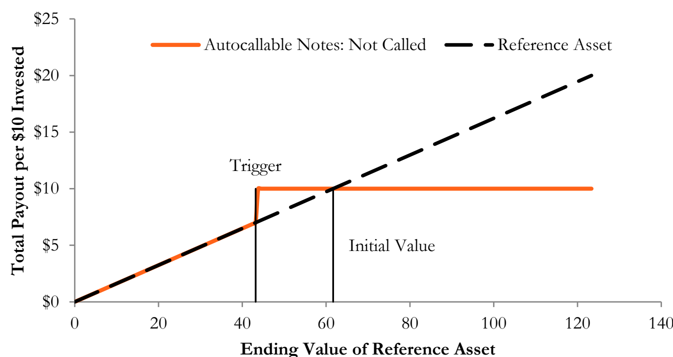
These 60-month notes are UBS-branded reverse convertible notes. On the monthly coupon observation date, if the notes are not called back, they pay either monthly coupon at an annualized rate of 10.81% if Starbucks Corp.'s stock price closes above the coupon barrier $43.17, or no coupon if the stock price closes below the barrier. The first coupon observation date is May 14, 2012. This autocallable notes will be called back if the reference stock price on any monthly call observation date after April 15, 2013 exceeds the initial stock price $61.67. In this case, investors receive the principal plus any unpaid coupons. At maturity, the notes convert into shares of the reference security—0.16 share of Starbucks Corp.'s stock in this case—if the market value of the reference stock at the note's maturity is below the trigger price $43.17 (70% of the reference asset on April 13, 2012). Otherwise, investors will receive the $10 face value.

Valuation

This note can be viewed as a combination of a zero-coupon note from Morgan Stanley, a series of contingent coupon payments, and a short put option on the reference asset. For reasonable valuation inputs this note was worth $9.34 per $10 face value when it was issued on April 20, 2012, including $8.95 for the present value of the zero-coupon note, ($1.01) for the short put options, and $1.40 for the present value of all future contingent coupon payments.

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 Starbucks Corp.'s stock price (horizontal axis). For comparison, the dashed line shows the payoff if you invested in Starbucks Corp.'s stock 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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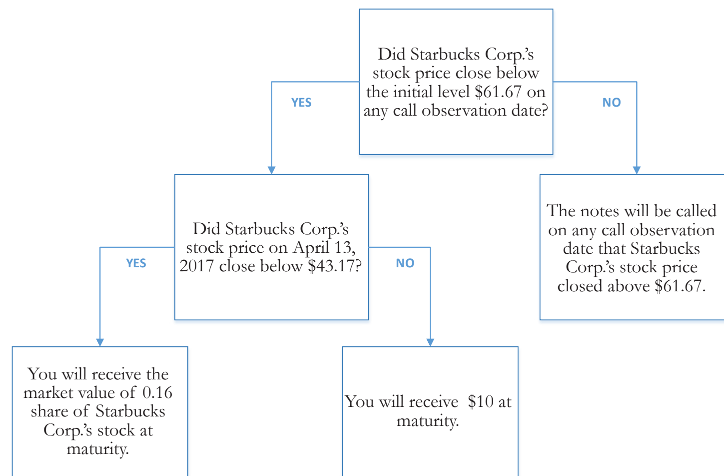
Principal Payback Table

Starbucks Corp.'s Stock	Note Payoff
$0.00	$0.00
$6.17	$1.00
$12.33	$2.00
$18.50	$3.00
$24.67	$4.00
$30.84	$5.00
$37.00	$6.00
$43.17	$7.00
$49.34	$10.00
$55.50	$10.00
$61.67	**$10.00**
$67.84	$10.00
$74.00	$10.00
$80.17	$10.00
$86.34	$10.00
$92.51	$10.00

Maturity Payoff Diagram



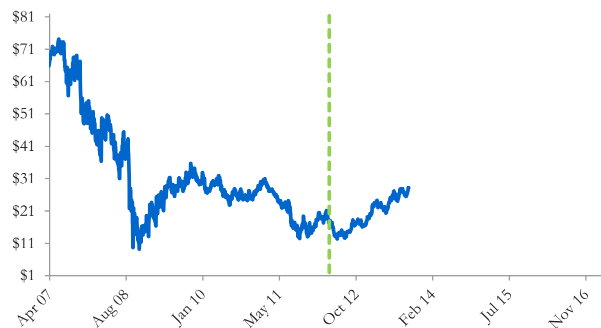
The contingent payoffs of this Trigger Phoenix Autocallable Optimization Security.

Analysis

The 10.81% coupon rate on this Trigger Phoenix Autocallable Optimization Security is higher than those paid by Morgan Stanley on its straight debts but, in addition to Morgan Stanley's credit risk, investors bear the risk that, 1) the note may be called; 2) the note may pay zero coupon because of the coupon contingency; 3) and the note will be converted into shares of Starbucks Corp.'s stock when Starbucks Corp.'s stock is worth substantially less than the face value of the note.

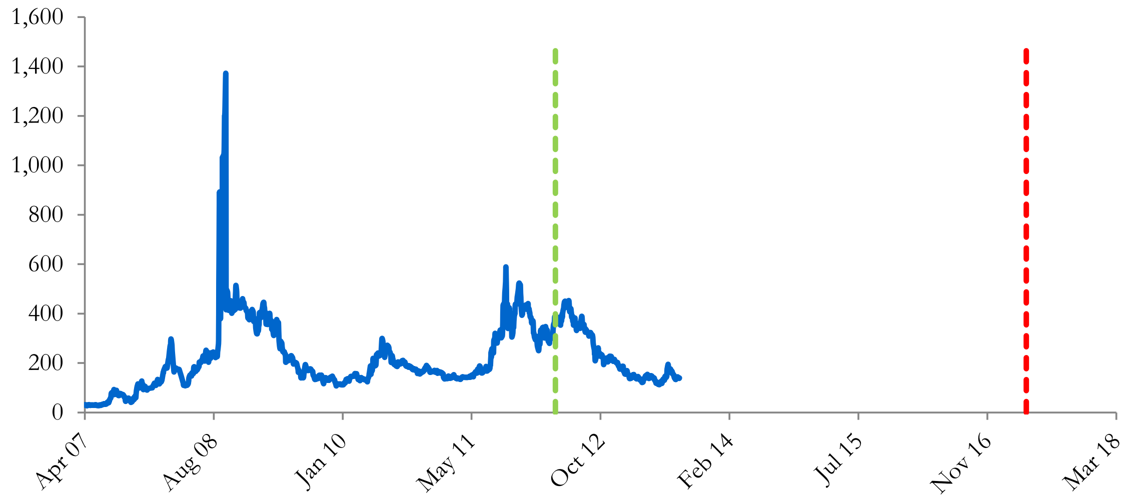
Investors purchasing these autocallable phoenix notes effectively sell contingent put options to Morgan Stanley and post the note's issue price as collateral to secure satisfaction of the investors' obligations under the option contracts. Morgan Stanley pays investors a contingent coupon that is part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

Morgan Stanley's Stock Price



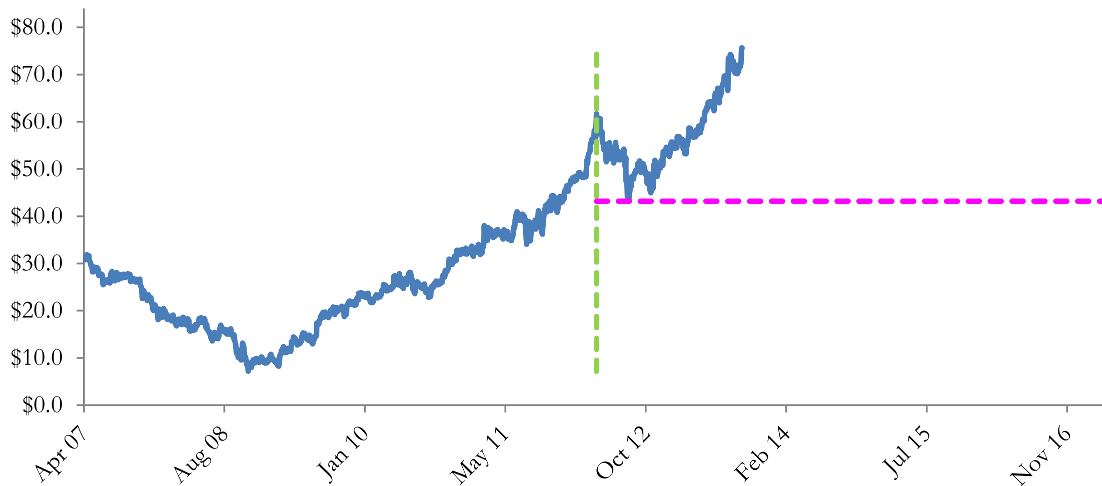
The graph above shows the adjusted closing price of the issuer Morgan Stanley for the past several years. The stock price of the issuer is an indication of the financial strength of Morgan Stanley. The adjusted price shown above incorporates any stock split, reverse stock split, etc.

Morgan Stanley's CDS Rate



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

Starbucks Corp.'s Stock Price

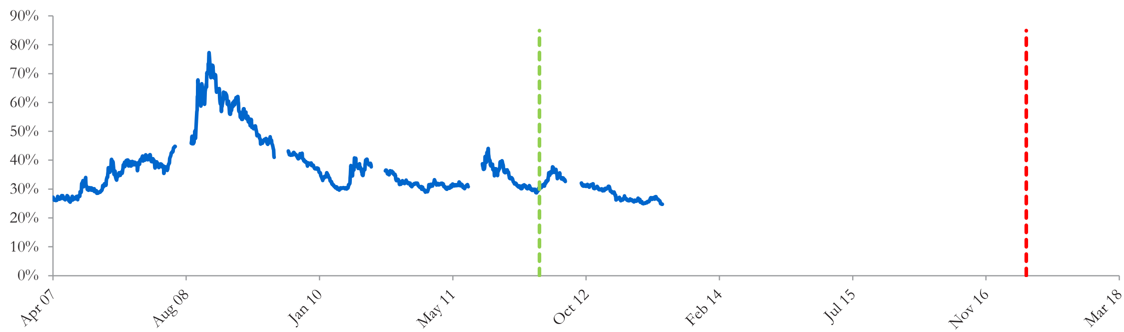


The graph above shows the historical levels of Starbucks Corp.'s stock for the past several years. The final payoff of this note is determined by Starbucks Corp.'s stock price at maturity. Higher fluctuations in Starbucks Corp.'s stock price correspond to a greater uncertainty in the final payout of this Trigger Phoenix Autocallable Optimization Security.

Realized Payoff

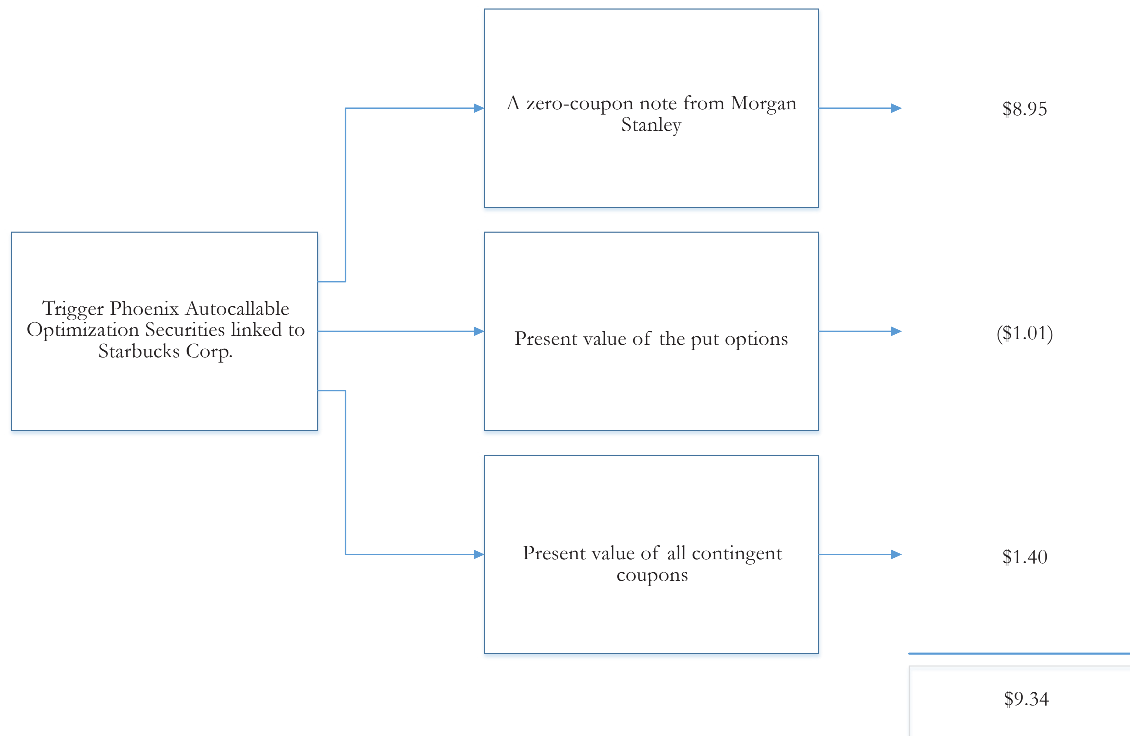
This note was early terminated on May 15, 2013 due to its automatic call feature. The Starbucks Corp.'s stock price on May 15, 2013 was $64.07, higher than the initial level $61.67. Investors received $10 per note plus any unpaid coupons.

Reference Asset Starbucks Corp.'s Stock's Implied Volatility



The annualized implied volatility of Starbucks Corp.'s stock on April 13, 2012 was 30.09%, meaning that options contracts on Starbucks Corp.'s stock were trading at prices that reflect an expected annual volatility of 30.09%. The higher the implied volatility, the larger the expected fluctuations of Starbucks Corp.'s stock price and of the Note's market value during the life of the Notes.

Decomposition of this Trigger Phoenix Autocallable Optimization Security



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 Phoenix Autocallable Optimization Security.

1. Delta measures the sensitivity of the price of the note to the Starbucks Corp.'s stock price on April 13, 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 Starbucks Corp.'s stock on April 13, 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.

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