

# Structured Products Research Report

Report Prepared On: 10/25/12

### **Structured Product Details**

Issue Size

Name ELKS linked to Yahoo! Inc.

\$3.58 million

0.00%

issue size	\$3.36 HIIIIIOII
Issue Price	\$14.49
Term	6 Months
	0.00%
Annualized Coupon	0.0076
Pricing Date	October 8, 2010
Issue Date	October 14, 2010
Valuation Date	April 11, 2011
Maturity Date	April 14, 2011
Maturity Date	April 14, 2011
	3.6
Issuer	Morgan Stanley
CDS Rate	109.5 bps
Swap Rate	0.46%
1	
Reference Asset	Yahoo! Inc.'s stock
Reference Asset	ranoo: me.s stock
Initial Level	\$14.49
Conversion Price	"
	\$14.49
Trigger Price	\$11.59
Dividend Rate	0.00%
Implied Volatility	35.53%
Delta <sup>1</sup>	0.43
2000	0.13
Esia Daise et Issue	¢12.17
Fair Price at Issue	\$13.17

CUSIP 61759G430
SEC Link www.sec.gov/Archives/edgar/
data/895421/000095010310002982/
dp19574\_424b2-ps552.htm

## Related Research

Realized Return

#### 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.

# ELKS linked to Yahoo! Inc.

# Description

Morgan Stanley issued \$3.58 million of ELKS linked to Yahoo! Inc. on October 14, 2010 at \$14.49 per note.

These notes are Morgan Stanley-branded reverse convertibles. These notes pay periodic interest coupons and at maturity convert into shares of Yahoo! Inc.'s stock, if the closing price of Yahoo! Inc.'s stock was ever below \$11.59 during the term of the notes. Similar securities are issued by other companies under different brand names.

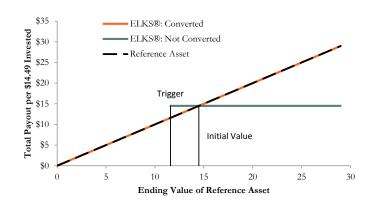
These 6-month notes pay monthly coupons at an annualized rate of 0.00%. In addition to the monthly coupons, at maturity on April 14, 2011 investors will receive the market value of one share of Yahoo! Inc.'s stock if during the term of the notes Yahoo! Inc.'s stock ever closed at or below \$11.59—80% of Yahoo! Inc.'s stock's \$14.49 closing price on October 8, 2010. Otherwise, investors will receive the \$14.49 face value per note. In either case, investors receive the final coupon payment at maturity.

## **Valuation**

This Morgan Stanley ELKS linked to Yahoo! Inc. can be valued as a combination of a note from Morgan Stanley, a short down-and-in at-the-money put option, and a long down-and-in at-the-money call option on Yahoo! Inc.'s stock. For reasonable valuation inputs this note was worth \$13.17 per \$14.49 when issued on October 14, 2010 because investors were effectively being paid only (\$0.11) for giving Citigroup options which were worth \$1.21.

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 Yaboo! Inc.'s stock price (borizontal axis). For comparison, the dashed line shows the payoff if you invested in Yaboo! Inc.'s stock directly.

Tim Dulaney, Ph.D., Senior Financial Economist, SLCG (+1) 703.539.6777 TimDulaney@slcg.com \$15.94

\$17.39

\$18.84

\$20.29

\$21.74

Yahoo! Inc.'s Stock	Converted Note Payoff	Non-Con- verted Note Payoff
\$0.00	\$0.00	
\$1.45	\$1.45	
\$2.90	\$2.90	
\$4.35	\$4.35	
\$5.80	\$5.80	
\$7.25	\$7.25	
\$8.69	\$8.69	
\$10.14	\$10.14	
\$11.59	\$11.59	\$14.49
\$13.04	\$13.04	\$14.49
\$14.49	\$14.49	\$14.49

\$15.94

\$17.39

\$18.84

\$20.29

\$21.74

\$14.49

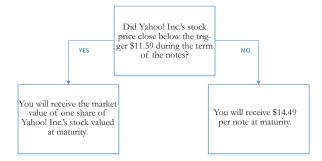
\$14.49

\$14.49

\$14.49

\$14.49

### Maturity Payoff Diagram



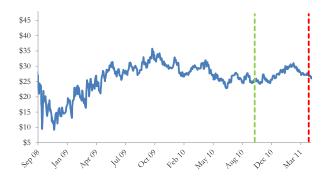
The contingent payoffs of this ELKS.

# **Analysis**

The 0.00% annualized coupon rate is higher than the yield Morgan Stanley paid on its straight debt but, in addition to Morgan Stanley's credit risk, investors bear the risk that, at maturity, they will receive shares of Yahoo! Inc.'s stock at precisely the time when these shares are worth substantially less than the face value of the note.

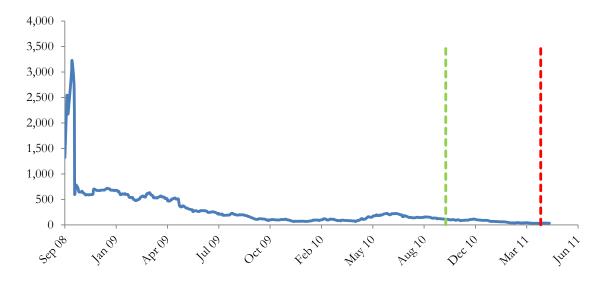
Investors purchasing ELKS effectively sell down-and-in put options to Morgan Stanley, buy down-and-in call option, and post the note's issue price as collateral to secure satisfaction of the investors' obligations under the option contracts. Investors are compensated by Morgan Stanley through "coupon" payments that represent partial payment for the premium difference of put and call options as well as interest on the investors' posted collateral. This ELKS is fairly priced if and only if the excess of the reverse convertible's "coupon rate" above the interest Morgan Stanley pays on its straight debt equals the net value of the put and call options investors are exchanging with Morgan Stanley. Whether the purchase of this ELKS is suitable or not is identically equivalent to whether selling put options on the reference asset at the option premium being paid by the brokerage firm was suitable for the investor in question.

## Morgan Stanley's Stock Price



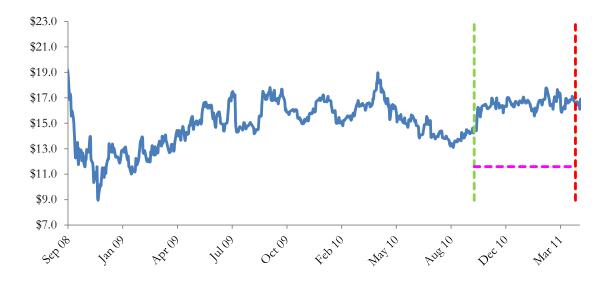
The graph above shows the adjusted closing price of the issuer Morgan Stanley for the past several years. The stock price of the issuer is an indication of the financial strength of Morgan Stanley. The adjusted price shown above incorporates any stock split, reverse stock split, etc.

## 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 ELKS. Fluctuations in Morgan Stanley's CDS rate impact the market value of the notes in the secondary market.

#### Yahoo! Inc.'s Stock Price

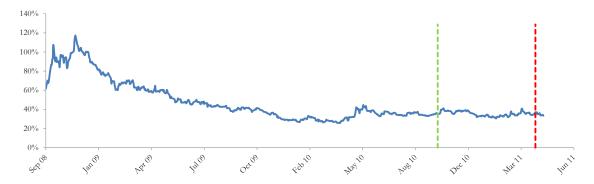


The graph above shows the historical levels of Yahoo! Inc.'s stock for the past several years. The final payoff of this note is determined by Yahoo! Inc.'s stock price at maturity. Higher fluctuations in Yahoo! Inc.'s stock price correspond to a greater uncertainty in the final payout of this ELKS.

### Realized Payoff

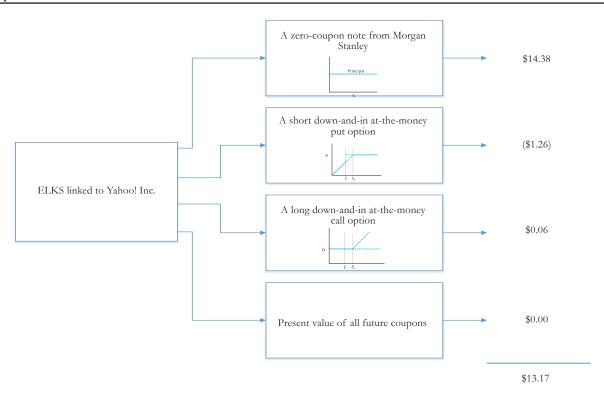
This note matured on April 14, 2011 and investors received \$14.49 per note.

### Reference Asset Yahoo! Inc.'s Stock's Implied Volatility



The annualized implied volatility of Yahoo! Inc.'s stock on October 8, 2010 was 35.53%, meaning that options contracts on Yahoo! Inc.'s stock were trading at prices that reflect an expected annual volatility of 35.53%. The higher the implied volatility, the larger the expected fluctuations of Yahoo! Inc.'s stock price and of the Note's market value during the life of the Notes.

#### Decomposition of this ELKS



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 ELKS.

- Delta measures the sensitivity of the price of the note to the Yahoo! Inc.'s stock price on October 8, 2010.
   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.
   Fair price evaluation is based on the Black-Scholes model of the Yahoo! Inc.'s stock on October 8, 2010.
   Calculated payout at maturity is only an approximation, and may differ from actual payouts at maturity.
   Our evaluation does not include any transaction fees, broker commissions, or liquidity discounts on the notes.