Reverse Convertible Notes linked to Patterson-UTI Energy, Inc.

Description
Royal Bank of Canada issued $2.32 million of Reverse Convertible Notes linked to Patterson-UTI Energy, Inc. on January 18, 2007 at $1,000 per note.

These notes are Royal Bank of Canada-branded reverse convertibles. Reverse convertibles pay periodic interest coupons and at maturity convert into shares of the reference security if the price of the reference stock at the notes' maturity is below its price when the notes were issued and had closed below a specified “trigger” during the term of the notes.

These 6-month notes pay monthly coupons at an annualized rate of 15.50%. In addition to the quarterly coupons, at maturity on July 18, 2007 investors will receive the market value of 42.97 shares of Patterson-UTI Energy, Inc.’s stock if on July 13, 2007 Patterson-UTI Energy, Inc.’s stock price closes below $23.27 (Patterson-UTI Energy, Inc.’s stock price on January 12, 2007) and had ever closed at or below $16.29 during the term of the notes. Otherwise, investors will receive the $1,000 face value per note.

Valuation
This Royal Bank of Canada reverse convertible linked to Patterson-UTI Energy, Inc.’s stock can be valued as a combination of a note from Royal Bank of Canada and a short down-and-in, at-the-money put option on Patterson-UTI Energy, Inc.’s stock. For reasonable valuation inputs this note was worth $986.48 per $1,000 when it was issued on January 18, 2007 because investors were effectively being paid only $48.94 for giving Royal Bank of Canada an option which was worth $62.46.

There is no active secondary market for most structured products. Structured products, including this note, are therefore 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 Patterson-UTI Energy, Inc.’s stock price (horizontal axis). For comparison, the dashed line shows the payoff if you invested in Patterson-UTI Energy, Inc.’s stock directly.

---

Structured Product Details

Name: Reverse Convertible Notes linked to Patterson-UTI Energy, Inc.

<table>
<thead>
<tr>
<th>Issue Size</th>
<th>$2.32 million</th>
</tr>
</thead>
<tbody>
<tr>
<td>Issue Price</td>
<td>$1,000</td>
</tr>
<tr>
<td>Term</td>
<td>6 Months</td>
</tr>
<tr>
<td>Annualized Coupon</td>
<td>15.50%</td>
</tr>
</tbody>
</table>

Pricing Date: January 12, 2007
Issue Date: January 18, 2007
Valuation Date: July 13, 2007
Maturity Date: July 18, 2007

Issuer: Royal Bank of Canada
CDS Rate: 13.27 bps
Swap Rate: 5.31%

Reference Asset: Patterson-UTI Energy, Inc.’s stock

Initial Level: $23.27
Trigger Price: $16.29
Conversion Price: $23.27
Dividend Rate: 1.20%
Implied Volatility: 39.12%

Delta¹: 0.38

Fair Price at Issue: $986.48
Realized Return: 16.57%

CUSIP: 78008ECX3
SEC Link: www.sec.gov/Archives/edgar/data/1000275/000121465907000277/f11670sup-01a

Related Research

Research Papers:
www.slcg.com/research.php

- “Are Structured Products Suitable for Retail Investors?” December 2006.

Geng Deng, Ph.D., FRM
Director, SLCG
(+1) 703.890.0741
GengDeng@slcg.com

© 2012 SECURITIES LITIGATION & CONSULTING GROUP. ALL RIGHTS RESERVED.
3998 FAIR RIDGE DRIVE, SUITE 250, FAIRFAX, VA 22033 | MAIN (703) 246-9380 | INFO@SLCG.COM
100 WILSHIRE BLVD, SUITE 950, SANTA MONICA, CA 90401 | MAIN (310) 917-1875
Maturity Payoff Diagram

Did Patterson-UTI Energy, Inc.'s stock price close below the trigger level $16.29 during the term of the notes?

YES

Did Patterson-UTI Energy, Inc.'s stock price on July 13, 2007 close below $23.27?

YES

You will receive the market value of 42.97 shares of Patterson-UTI Energy, Inc.'s stock at maturity.

$23.27 $1,000.00 $1,000.00

$25.60 $1,000.00 $1,000.00

$27.92 $1,000.00 $1,000.00

$30.25 $1,000.00 $1,000.00

$32.58 $1,000.00 $1,000.00

$34.91 $1,000.00 $1,000.00

NO

You will receive $1,000 per note at maturity.

Analysis

This reverse convertible's 15.50% coupon rate is higher than the yield Royal Bank of Canada paid on its straight debt but, in addition to Royal Bank of Canada's credit risk, investors bear the risk that they will receive shares of Patterson-UTI Energy, Inc.'s stock when they are worth substantially less than the face value of the note at maturity.

Investors purchasing reverse convertibles effectively sell put options to Royal Bank of Canada and post the note's issue price as collateral to secure satisfaction of the investors' obligations under the option contracts. Royal Bank of Canada 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 excess of the reverse convertible’s “coupon rate” above the interest Royal Bank of Canada pays on its straight debt equals the value of the put option investors are giving to Royal Bank of Canada. Whether the reverse convertible is suitable or not is equivalent to whether selling put options on the reference stock at the option premium being paid by Royal Bank of Canada was suitable for the investor.

Royal Bank of Canada's Stock Price

The graph above shows the adjusted closing price of the issuer Royal Bank of Canada for the past several years. The stock price of the issuer is an indication of the financial strength of Royal Bank of Canada. The adjusted price shown above incorporates any stock splits, reverse stock splits, etc.
Royal Bank of Canada’s CDS Rate

Credit default swap (CDS) rates are the market price that investors require to bear credit risk of an issuer such as Royal Bank of Canada. 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 thereby lower market value of Royal Bank of Canada’s debt, including outstanding Reverse Convertible Note. Fluctuations in Royal Bank of Canada’s CDS rate impact the market value of the notes in the secondary market.

Patterson-UTI Energy, Inc.’s Stock Price

The graph above shows the historical levels of Patterson-UTI Energy, Inc.’s stock for the past several years. The final payoff of this note is determined by Patterson-UTI Energy, Inc.’s stock price at maturity. Higher fluctuations in Patterson-UTI Energy, Inc.’s stock price correspond to a greater uncertainty in the final payout of this Reverse Convertible Note.

Realized Payoff

This note matured on July 18, 2007 and investors received $1,000.00 per note.
Reference Asset Patterson-UTI Energy, Inc.’s Stock’s Implied Volatility

The annualized implied volatility of Patterson-UTI Energy, Inc.’s stock on January 12, 2007 was 39.12%, meaning that options contracts on Patterson-UTI Energy, Inc.’s stock were trading at prices that reflect an expected annual volatility of 39.12%. The higher the implied volatility, the larger the expected fluctuations of Patterson-UTI Energy, Inc.’s stock price and of the Note’s market value during the life of the Note.

Decomposition of this Reverse Convertible Note

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.
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.