Part of NERA's Series on Structured Products | At A Glance

Range Accrual Notes

Overview

A Range Accrual Note (RAN) is a structured product typically issued by a financial institution such as a bank. The payoffs from such a note are more complex than those for a plain-vanilla fixed income product, all else equal. A RAN accrues interest at an above-market coupon rate (as compared with the conventional debt of the same issuer, maturity, and seniority) for each day on which a reference index is fixed within a predetermined range. However, interest accrues at a reduced or zero rate for each day on which the reference index falls outside of the predetermined range. In fact, some RANs have a digital or "all-or-nothing" structure in which the coupon for each interest accrual period is either paid in full or is not paid at all, depending upon whether the reference index falls within the predetermined range on a specific observation date (digital discrete) or throughout the entire coupon period (digital continuous).

The reference indices for range accrual products can vary. An interbank interest rate RAN references an interbank interest rate such as LIBOR or Euribor. Other types of RANs reference swap rates, spreads between interest rates or swap rates, individual stocks or baskets of stocks, or a stock index (e.g., the S&P 500 index). In fact, RANs can reference more than one index. For example, a dual RAN accrues interest at the coupon rate for each day where two reference indices (e.g., LIBOR and the S&P 500) both fall within their respective predetermined ranges. If either reference index falls outside of its predetermined range, interest accrues at a reduced or zero rate.

While the coupon rate is often fixed, some RANs have provisions in which the coupon rate changes over time or is itself tied to a variable reference index. The range of the reference index can also change throughout the life of the product. As with a conventional debt instrument, the principal of the RAN is typically paid at maturity. However, many RANs are structured to be callable by the issuer at par prior to maturity.

A Closer Look

An investor in a daily RAN is effectively selling a series of options on the reference index, expiring daily, with the strike prices set at the bounds of the range. If the reference index remains within the range, the investor receives an above-market coupon rate, encompassing the premium that the issuer is willing to pay for its options. However, if the reference index falls outside the range, the option payoffs reduce the coupon interest to be paid to the investor. This can lead to the investor receiving a below-market rate for periods of time (in general, the minimum rate the investor can receive is floored at zero).

The sale of options on the reference index essentially means that the investor in a RAN is "short" volatility, which means that she is betting that the volatility of the reference index will not be more pronounced than what is implicitly priced into the product. In cases where there are multiple reference indices (e.g., a dual RAN referencing LIBOR and the S&P 500) the investor is not only "short" volatility but is also in most instances "long" correlation, meaning that she is betting that the reference indices are positively correlated (i.e., tend to move in the same direction).

It is the embedded sale of these options that makes RANs more complex than the typical debt instrument and that allows the notes to offer a higher coupon rate than would otherwise be the case.

All else equal, the value of the issuer's options, and hence the premium that the issuer is willing to pay for those options at the launch of the product, is a function of:

- *The current level of the reference index and the market's expectations of future levels* (the issuer's options are more valuable the closer the reference index is to the boundaries of the range at the launch of the product);
- *The width of the range* (a narrower range makes the issuer's options more valuable, as it is more likely that the reference index will fall outside of the range);
- *The volatility of the reference index* (a more volatile reference index is more likely to fall outside of the range, rendering the issuer's options more valuable);
- *The time to maturity* (the longer the time to maturity on the RAN, the more likely it is that the reference index will fall outside of the range at some point in time, thereby increasing the value of the issuer's options); and
- *The number of reference indices* (for example, all else equal, the value of the issuer's options in a dual accrual note will be equal to or higher than the value of options referencing only one of the indices; this is because, unless the indices are perfectly correlated, the probability of at least one of the two indices falling outside its respective range is higher than the probability that either one alone will fall outside its range).

Additionally, some range accrual structures are callable by the issuer. In those cases, the investor is effectively selling a call option (or series of call options, depending upon the terms of the structure) to the issuer. This early redemption option will only be exercised when it is in the issuer's interest to do so (i.e., when the current value of the RAN exceeds the call price, typically par.) This call risk also introduces reinvestment risk—the risk that the rate at which the investor will be able to reinvest the call proceeds will be lower than the rate expected at purchase of the RAN.

While the issuer of a RAN typically agrees to repay the investor's principal at call or maturity (whichever comes first), there is no assurance that the investor will be able to sell their RAN in the secondary market at par prior to that time. The value of the RAN to an investor prior to call or maturity will be a function of various factors, including the evolution of the underlying reference rate and its volatility. Also, as with a conventional debt instrument, the investor is subject to the credit risk of the issuer, as it is possible that the issuer may not be able to pay its obligations to the investor in part or in full.

Recent Developments

RANs have remained popular in recent years, as both institutional and retail investors seek higher yielding investments in a low interest rate environment. The optionality features of RANs, which can vary in complexity, can make these products difficult for some investors to evaluate. In a January 2012 Regulatory Notice, Financial Industry Regulatory Authority (FINRA) listed RANs referencing two or more reference indices as an example of a product that may warrant enhanced oversight by brokerage firms.[1] In a September 2012 speech, Richard G. Ketchum, the Chairman and CEO of FINRA, announced that FINRA would be looking closely at brokerage firms' sales incentives for structured products, including RANs.[2]

Investor Complaints

In September 2007, the New York Stock Exchange (NYSE) fined broker-dealer HSBC $500,000 for selling LIBOR certificate of deposits (CDs), a callable range accrual product, to customers for whom the securities were

deemed to be inappropriate.[3] In addition to the fine, HSBC was ordered to offer to repurchase its customers' LIBOR CDs at full principal value, allowing customers to retain any earned interest. The issue arose after certain of the LIBOR CDs, pursuant to their terms, did not pay interest for a period of time. Some of HSBC's customers claimed they did not understand that the LIBOR CDs they purchased might not pay interest for certain periods or believed, based on statements allegedly made by HSBC's financial advisors, that HSBC would call the product if it stopped paying interest for some period of time.

It is possible that further broker-customer disputes will follow, with the investors claiming that the risks inherent in RANs were inadequately disclosed.

How NERA Helps: Key Areas of Expertise

NERA assists clients in disputes relating to a wide range of structured products including RANs. NERA's securities experts have been involved in numerous disputes where we have analyzed issuers related to suitability, risk, and valuation of such products. Our experts have extensive experience valuing and analyzing complex structured products and other derivatives. Our relevant expertise includes:

Broker-Customer Disputes

- Evaluating suitability and risk of specific investments
- Assessing portfolio performance
- Examining portfolio-level risk characteristics
- Evaluating liability
- Evaluating opposing expert reports and analyses
- Analyzing and calculating damages (if any)

Valuation and Risk Management

- Valuing structured products, including various range accrual products
- Analyzing hedging strategies for the sale and purchase of range accrual products
- Analyzing trading data to examine liquidity and efficiency of trading in secondary markets

About NERA

NERA Economic Consulting (**www.nera.com**) is a global firm of experts dedicated to applying economic, finance, and quantitative principles to complex business and legal challenges. For over half a century, NERA's economists have been creating strategies, studies, reports, expert testimony, and policy recommendations for government authorities and the world's leading law firms and corporations. We bring academic rigor, objectivity, and real-world industry experience to bear on issues arising from competition, regulation, public policy, strategy, finance, and litigation.

NERA's clients value our ability to apply and communicate state-of-the-art approaches clearly and convincingly, our commitment to deliver unbiased findings, and our reputation for quality and independence. Our clients rely on the integrity and skills of our unparalleled team of economists and other experts backed by the resources and reliability of one of the world's largest economic consultancies. With its main office in New York City, NERA serves clients from more than 25 offices across North America, Europe, and Asia Pacific.

Contact

For more information or to contact our experts, please visit **www.nera.com/sec-rangeaccrual**.

Notes

1 FINRA Regulatory Notice, 12-03, January 2012, available at: http://www.finra.org/web/groups/industry/@ip/@reg/@notice/documents/notices/p125397.pdf (accessed 3 May 2013).

2 Remarks by FINRA Chairman and Chief Executive Officer from the SIFMA Complex Products Forum, 27 September 2012, New York, NY, available at: http://www.finra.org/Newsroom/Speeches/Ketchum/P180112 (accessed 3 May 2013).

3 NYSE Hearing Board Decision 07-150, 13 September 2007, available at: http://www.nyse.com/pdfs/07-150.pdf (accessed 3 May 2013).