KEY CHARACTERISTICS OF DELPHX'S PRIVATE PLACEMENT SECURITIES – THE OPPORTUNITIES THEY PROVIDE FOR DIFFERENT INVESTOR CLASSES

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Overview

An owner of a corporate bond who seeks downside protection against a possible decision by a bond rating agency to downgrade its rating on the bond has (until now) been unable to purchase a security which provides an effective hedge against such a downgrade. To date, the only option available to the bond holder has been to buy a financial derivative, such as a credit default swap (CDS), which provides only limited protection.

Of course, generally the most impactful ratings change is a downgrade from investment grade to non-investment grade status. According to their charters, many investors cannot hold so-called junk bonds and are forced to sell a bond which has lost its investment grade status. In turn, the price of such a downgraded bond typically plummets, as its required yield may move on average over 300 basis points (bp), as measured from the time frame beginning before an agency puts the bond "on review for possible downgrade." (Note that while we emphasize the significant effect on a bond's price if it were to be downgraded from investment grade to junk status in this paragraph and throughout this paper, a ratings downgrade from any level generally causes a decline in the price of a bond.)

By the same token, an investor who wanted to speculate that a certain corporate bond may be trading too richly, despite the (unappreciated) risk of a ratings downgrade, had little flexibility to act on such conviction aside from attempting to short sell the potentially illiquid security. Since the short sale of a bond generally entails a high carrying cost and potentially significant downside exposure, it is often not an attractive strategy.

Noting the unavailability of such targeted protection/speculation options, DelphX has created a class of securities called collateralized put options

(CPOs) and collateralized reference notes (CRNs) to fill this void. This novel solution can create active, buoyant markets in the securities, as investors seeking protection will have the ability to execute such strategies. Insurance companies may emerge as aggressive hedge buyers since any protection payments received when a bond in their portfolio is downgraded could offset both higher capital charges and the capital loss associated with a forced sale of such a bond.

By the same token, risk-seeking issuers will be able to write such protection contracts that could potentially yield strong annual returns if the bonds which underly such contracts are not downgraded over agreed-upon periods. Given these potentially significant returns, hedge funds and investment banks may become major underwriters of these protection agreements. Indeed, it is quite plausible that many hedge funds could in time choose to build large portfolios of CRNs based on reference bonds in a variety of industries with relatively short remaining maturities. Even if a handful of those bonds were to be downgraded, the returns from the balance of the CRNs in the portfolio could still enhance overall performance.

The CPO and CRN securities will: 1) contain no counterparty risks; 2) require full levels of collateral to be posted by the seller of protection; and 3) carry terms regarding such details as whether a downgrade by one, two or all three of the major ratings agencies will meet the necessary condition for a "downgrade." All parties involved will negotiate the number of rating agency actions which will trigger the fulfillment of all contingencies in any transaction.

Although it is not a requirement, these new securities are expected to be linked to bonds with fairly short remaining maturities, perhaps three years or less. (The reference bond could be a ten-year bond which matures in, say, 2 ¼ years.) Furthermore, the securities may be created for virtually any corporate bond. (In time, securities may be created that are linked to underlying sovereign, municipal or private debt.)

In this paper, we describe how the material increase in interest rates over the last year has increased the number of corporate bond downgrades and

the impact of such cuts on bond yields and pricing. We then detail the features of DelphX's new structured products.

1. Rising Interest Rates are Beginning to Impact Company Fundamentals and Rating Agencies' Views of Those Fundamentals

As Treasury yields have increased markedly over the last 18 months due primarily to the Federal Reserve's decision to raise overnight borrowing rates in a grinding pattern over this period, corporate interest payments have started to increase. In turn, ratings agencies are adjusting their outlooks based on the expected increase in debt payments due to potentially softer consumer demand, cost increases stemming from uncomfortably high inflation rates, and other factors. (Of course, many other issues could prompt ratings agencies to adjust their views, including war, the possibility of recession, technological change, corporate performance, global trade patterns, and shifting demographics, among other reasons.). The initial effects of slowing demand and rising costs may be starting to show up in pretax corporate profits. That figure peaked at $3.3 trillion in 3Q 2022 and fell to $3.17 trillion in 2Q 2023, per the Bureau of Economic Analysis. Admittedly, profits are only about 4% off their peak 3Q 2022 levels, so monitoring future quarterly readings will be imperative. See Figure 1.

Figure 1: <u>Corporate Profits are Off Their Recent Highs</u>

***Source:* Bloomberg, using quarterly data as of 2Q 2023.**

Many companies have not faced the full brunt of higher debt servicing costs because they have not *yet* had to refinance a significant chunk of their obligations. Indeed, approximately $697 billion of U.S. corporate debt (about 85% investment grade and 15% non-investment grade) have matured or will mature in 2023, and a further $983 billion (about 75% investment grade and 25% non-investment grade) comes due in 2024, per S&P Global Ratings. A further $752 billion and $750 billion of corporate bonds mature in 2025 and 2026, respectively.

1.1 Hierarchy of Bond Ratings

The three ratings agencies – S&P, Moody's and Fitch – have similar methodologies and ratings hierarchies to help investors understand a bond's credit quality versus other bonds. Bonds with a rating of BBB- or better (according to Standard & Poor's and Fitch) and Baa3 (per Moody's) are considered investment grade. Bonds rated below those levels are considered speculative or high yield. See Figure 2.

Figure 2: Bond Rating Levels of the Major Rating Agencies

Investment grade	Moody's	Standard & Poor's	Fitch
Strongest	Aaa	AAA	AAA
	Aa1	AA+	AA+
	Aa2	AA	AA
	Aa3	AA-	AA-
	A1	A+	A+
	A2	A	A
	A3	A-	A-
	Baa1	BBB+	BBB+
	Baa2	BBB	BBB
	Baa3	BBB-	BBB-

Non-investment-grade	Moody's	Standard & Poor's	Fitch
	Ba1	BB+	BB+
	Ba2	BB	BB
	Ba3	BB-	BB-
	B1	B+	B+
	B2	B	B
	B3	B-	B-
	Caa1	CCC+	CCC+
	Caa2	CCC	CCC
	Caa3	CCC-	CCC-
	Ca	CC	CC

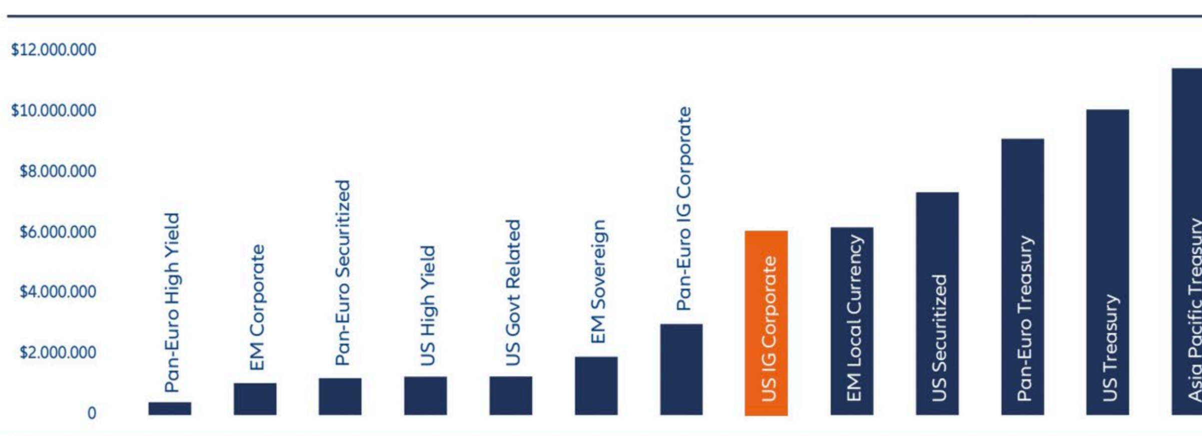
Weakest	Moody's	Standard & Poor's	Fitch
	C	C	C
		D	D

Source: ***SIFMA, Moody's, Standard & Poor's, Fitch.***

1.2 Size of the Corporate Bond Market

The quantity of corporate bonds maturing in 2023 and 2024 represent a significant portion of all corporate bonds outstanding. According to Bloomberg, U.S. investment grade and U.S. speculative bonds outstanding totaled approximately $5.9 trillion and $1.35 trillion, respectively, as of December 31, 2022. See Figure 3. Consequently, around 10%, 13%, 10%, and 10% of all U.S. corporate bonds mature and must presumably be refinanced in 2023, 2024, 2025, and 2026, respectively.

Figure 3: <u>Size of Various Markets, Including U.S. Corporate Investment Grade and High-Yield Bond Markets</u>



<u>Source:</u> Bloomberg, data as of year-end 2022.

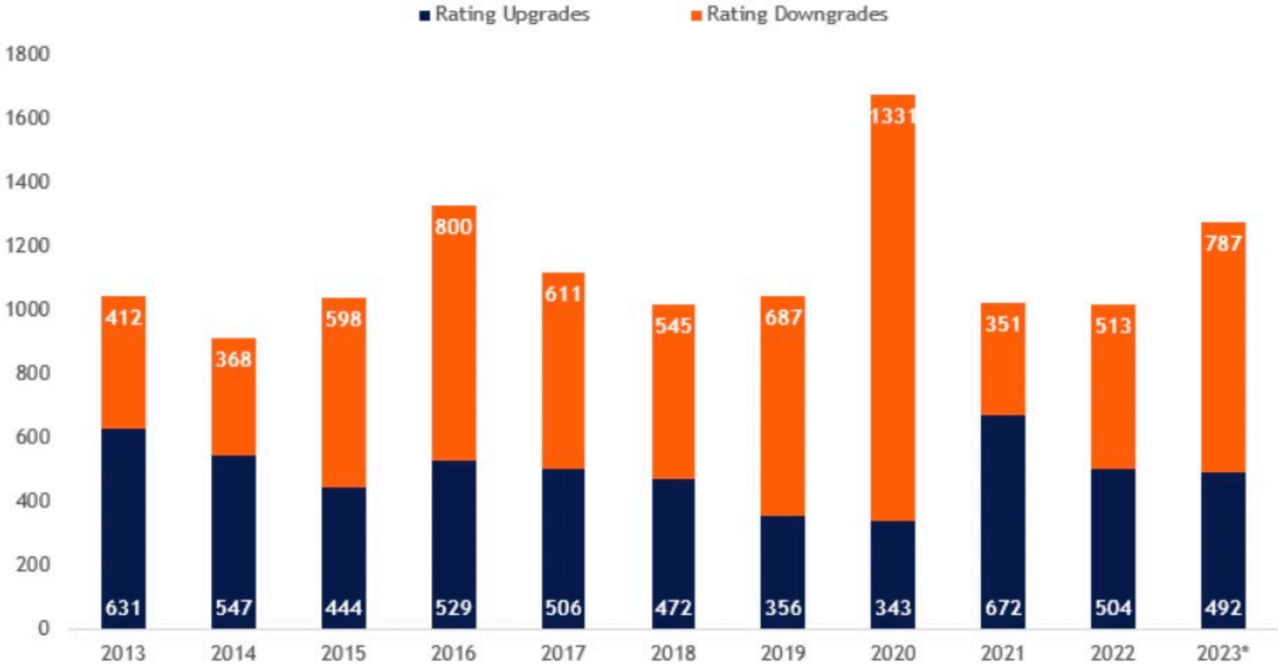
1.3 Quantity of Corporate Bond Downgrades and the Impact of a Downgrade on a Bond's Yield and Price

September 2023 marked the 15th consecutive month that S&P and Moody's downgraded more corporate debt issues than they upgraded. Over the period January 1, 2023 through October 5, 2023, S&P reduced its outlook or downgraded its rating on 787 companies, about 60% more than the 492 companies on which it boosted its outlook or ratings. The comparable figures for Moody's over this period are 568 outlook or ratings cuts versus 427 upgrades. See Figure 4.

In eight of the past eleven years, S&P cut its outlook or ratings on more companies more frequently than it raised them. This trend alone underscores the need for and utility of DelphX's structured securities.

Worryingly, the first 9+ months of 2023 essentially matches the greatest number of company outlook or outright ratings reductions implemented in any *full year* over the last ten (excluding the COVID outbreak year of 2020). In 2016, S&P put in place 800 cuts.

Figure 4: <u>S&P Corporate Outlook and Ratings Changes Over the Period 2013 Through 2023</u>



* Through 10/05/2023

<u>Source:</u> LPL Research, Bloomberg.

As noted on page 1, the price of a bond typically corrects markedly if it is downgraded to below investment grade, as its yield rises to reflect a higher level of risk. The degree to which the required yield increases depends on many factors, including the perceived quality of the issuer and the bond's coupon rate and remaining maturity.

However, a rough estimate of the magnitude that a bond's required yield rises if its rating is downgraded from investment grade to junk status may be estimated by comparing the required yield premium to a corresponding Treasury security at which a typical non-investment grade bond trades versus that of an investment grade bond. As of October 27, 2023, that differential was 320 bp (difference between the 450 bp and 130 bp spreads *versus* Treasuries for a typical high-yield corporate bond and an investment grade corporate bond, respectively). See Figure 5 and 6.

Figure 5: <u>Investment Grade Corporate Bond Spreads Over the Last 5 Years</u>

***<u>Source:</u>* Ice Data Indices, LLC; www.fredstlouisfed.org**

Figure 6: High Yield Corporate Bond Spreads Over the Last 5 Years

Source: ***Ice Data Indices, LLC; www.fredstlouisfed.org***

Probably more important than the current data point, an examination of the graphs suggests that the yield differential over the last five years between the average non-investment grade and investment grade corporate bond has generally ranged from 300 bp to 350 bp. In turn, this range represents a reasonable estimate of the additional yield investors will demand from a bond that is downgraded to junk status from investment grade.

To translate that incremental yield difference range estimate into the potential price decline a downgraded bond may suffer, consider the below simple formula to price a non-convertible, non-callable bond. See Figure 7.

Figure 7: Simple Bond Price Calculation

$$\text{Bond Price Formula} = C \times \frac{1 - (1 + r)^{-n}}{r} + \frac{F}{(1 + r)^{n}}$$

… where F is the face value of a bond, C is its annual coupon, r is its required YTM, and n is the number of years to maturity.

For example, a bond with a 6% coupon and seven years left to maturity which trades at a yield to maturity of 7% theoretically trades at 94.6% of par value. If that bond were to trade at a 10% yield because of a downgrade, its trading price would likely change to 80.2% of par. In other words, its price would decline more than 15%.

2. DelphX's Solution

DelphX has created a linked set of proprietary private placement securities, called CPOs and CRNs, which have positive characteristics for both the protection buyer (an effective hedge against the risk of a rating downgrade on the bond) and the protection seller (a potentially large speculative return if the bond were not to be downgraded). Importantly, investors need not be invested in the reference entity to take a position in DelphX's private placement securities, which will be offered to Qualified Institutional Buyers (QIBs).

Furthermore, the new securities have no counterparty risk and can be issued referencing any CUSIP corporate bond. Equally important, an investor interested in acquiring protection against a ratings agency bond downgrade can accomplish this objective merely by purchasing a security instead of executing a more complex, and likely more expensive and less targeted, derivative transaction like a CDS. If a downgrade occurs, the owner of a CPO (see pages 12-13) will receive full payment within five business days, a much speedier time frame than a process that can last a few months in the event of a default for a CDS transaction.

Finally, these newly created securities are designed to allow investors/speculators to profit from or to hedge the effects of a ratings downgrade, most importantly a reduction from the lowest investment grade level to sub-investment grade. Such changes occur quite frequently. See pages 6-7.

These securities are created as follows: a speculative-oriented investor, likely a hedge fund, agrees with an option buyer or group of buyers to write an option which is triggered by a ratings downgrade by one or more rating agencies. DelphX has specified that the minimum notional coverage in any transaction is $5 million notional of the referenced bond, and the CPO can be split or tranched into as many as five separate pieces (to accommodate as many as five distinct buyers). The magnitude of the option premium (pricing); the maximum liability the writer of the put option bears regardless of how much the bond's yield adjusts in the event of a ratings cut; and whether cuts by one, two or all three ratings agencies allow the option to be exercised are aspects of the specific securities which must be negotiated by all parties.

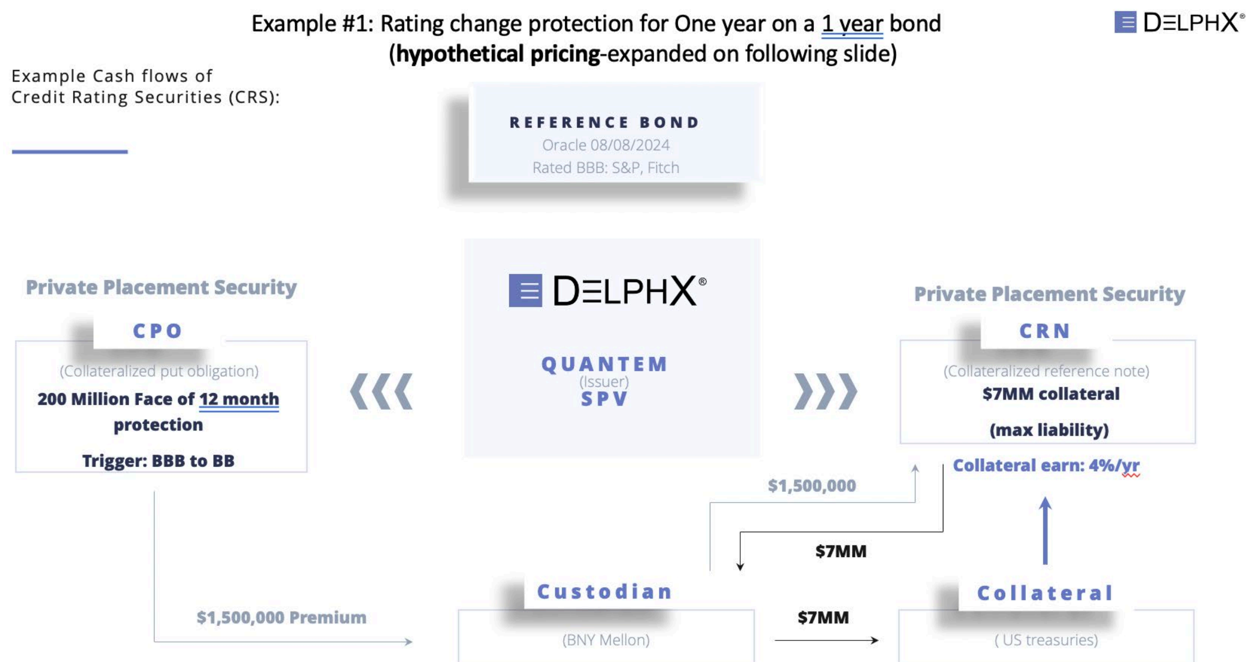
The most common type of solution against adversity is a CDS, which only provides protection in the event of default by a "reference entity," such as a corporation or governmental body. A CDS is simply a contract where a buyer of credit protection agrees to make periodic payments over a predetermined number of years to a seller of credit protection. Most importantly, the seller agrees to make a specified payment to the buyer in the event of default by the reference entity. Since many more companies suffer ratings cuts than default, buying a CDS provides a bond investor only a partial hedge, at best, against the price consequences of a downgrade. Similarly, a bearish investor who buys a CDS could realize only slight compensation in the event of a one-notch downgrade from the lowest rung of the investment grade spectrum to below investment grade. CDS also has long settlement periods which sometimes can take several weeks or more.

2.1 Sample Transaction Involving DelphX's Products

The DelphX private placement securities are best understood and depicted by a sample trade involving one qualified institutional investor who wants

to buy protection against the potential downgrade of a specific bond issued by a reference company and another qualified investor interested in underwriting that protection in exchange for a commensurate return. See Figure 8. The investors need not own the underlying bond to engage in this transaction. In other words, both a speculator and an investor who seeks an effective hedge may invest in DelphX's structured securities.

Figure 8: <u>Sample Trade Involving DelphX's Proprietary Structured Products</u>



<u>Source:</u> DelphX

In this hypothetical example, a protection buyer seeks 200 million of notional coverage for approximately nine months in the event of a ratings downgrade on a bond issued by Oracle which matures August 8, 2024. DelphX, through its special purpose vehicle and wholly owned subsidiary, Quantem LLC, would create for this buyer a CPO, which is exercisable in the event of a rating agency's decision to downgrade this bond.

If the bond were to be downgraded at any point between security creation and August 8, 2024, and if this downgrade were to cause the bond's interest rate spread (the bond's YTM *less* the yield on a U.S. Treasury of similar

maturity) to increase to 375 bp from 75 bp, the custodian in this transaction (BNY; see below) would pay the investor the amount that the interest rate spread rises (300 bp) *times* the $200 million of notional coverage, or $6 million. In this way, a CPO buyer receives true secured credit downgrade protection.

In this illustrative trade, the buyer pays approximately $1.5 million for the customized CPO to a third-party, financially strong custodian, BNY Mellon. (This $1.5 million payment, or $0.0075 on the dollar of notional coverage, is a rough guess of the market value of the CPO. The actual cost will depend on such elements as the level of volatility in the credit markets, the downgrade risk of the reference entity, and the configuration of the U.S. Treasury yield curve.)

In turn, Quantem captures a fee for its services and pays the remainder to the other party in this transaction. In return for this premium, this second party holds a linked CRN whereby it pledges to pay the CPO holder the amount that the interest rate spread increases *times* the amount of notional coverage in the event of a downgrade. A CRN is a collateralized note that provides investors returns from both the option premium and the interest earned on the collateral.

To ensure such a downgrade payment is made (if necessary), and to remove any counterparty risk, the holder of the CRN liability transfers $7 million of cash collateral to BNY Mellon, which the custodian in turn invests in U.S. Treasury securities with a term matching the maturity of the reference bond – in this case, early August 2024. All parties would agree to the amount of collateral to be posted and therefore the maximum liability of a CRN holder. In this example, the maximum liability is agreed to be $7 million.

Any payment due to the CPO holder would be made by liquidating the requisite amount of these Treasuries held by the custodian, thereby completing the trade. Any portion of the collateral not required to be paid to the CPO holder is retained by the owner of the CRN. In this example, $1 million ($7 million *minus* $6 million) would be retained by the CRN owner. By the same token, if no downgrade occurs on the bond through the maturity date, the full $7 million of Treasury securities collateral is returned to the holder of the CRN.

During the period that the CPO and CRN remain outstanding, the holder of the CRN receives the coupon interest on the $7 million collateral invested in U.S. Treasuries, or about $280,000 per year ($7 million *times* 4%) in this example. If no downgrade occurs over the hypothetical remaining nine-month period of the Oracle bond, the investor which agreed to take on the CRN liability would receive $1.5 million less a fee paid to Quantem for its services over the nine-month period. (Note that since the CRN holder owned the $7 million in collateral which it posted as collateral to BNY, the interest it earns on that collateral should not be considered incremental earnings related to the transaction.). Based on the figures in this notional example, the CRN holder could realize an annual return of nearly 30% on the $7 million of collateral posted.

2.2 Pricing of the CPO and CRN Securities

Once a transaction occurs, both the CPO and CRN securities are held book entry at BNY and will be assigned an identifying number, and mark to market will be available on Bloomberg terminals. Pricing will be dictated by several factors, including the probability of downgrade of the referenced bond and duration of the structure.

Another factor which will affect CPO and CRN pricing is interest rate risk. Once the CRN holder posts the negotiated amount of collateral in Treasuries with maturities matching the maturity date of the underlying corporate bond, the stated value of those Treasuries will satisfy any obligations to CPO holders, and any unutilized amount will be returned to the CRN holder at the end of the transaction. As interest rates vary between the time of the creation of the securities and the underlying bond maturity date, the value of the U.S. Treasury securities-denominated collateral will change as well.

2.3 DelphX's Products are Considered Securities, Not Swaps or Derivatives

DelphX can offer unlimited amounts of CPO and CRN structured product securities to QIBs under Section 4a(2) of the Securities Act of 1933, as amended. Accordingly, these securities will be exempt from the SEC's S-1

Registration Statement requirements for new offerings. DelphX's private placement securities may be sold under the 4(a)2 exemption.

References

Lawrence Gillum. "Rating Downgrades are Picking Up: What That Means for Corporate Bonds," LPL Research, October 11, 2023.

Mark Maurer. "More Junk-Rated Companies are Facing Credit Downgrades and Defaults," The Wall Street Journal, April 13, 2023.

Georgios Georgiou and **Hans Sapra**. "US Investment Grade Credit – Does Quality Now Come with Yield?" Allianz Global Investors, May 15, 2023.