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DECONSTRUCTING OVER-THE-COUNTER DERIVATIVES

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DECONSTRUCTING

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I. INTRODUCTION

Derivatives transactions drive companies today to efficiencies and sophistication unimaginable only two or three decades ago. Not only that, they appeal; derivatives nowadays trade globally and massively. The popularity of derivatives is especially noticeable in the over-the-counter, or off-exchange, markets.

The over-the-counter -- better known as OTC -- derivatives markets are non-centralized markets that comprise myriad privately negotiated transactions.[1] These markets function in and across many jurisdictions and currencies, engender trillions of notional transaction dollars a year[2] and, in many measures, dwarf exchange-traded

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[1] OTC markets are "simply dealers who stand willing to trade on either side of the market." DON M. CHANCE, *The Structure of Derivative Markets, in* ESSAYS IN DERIVATIVES 3 (1998). Dealers are market intermediaries who trade as principals, not agents. Financial institutions regularly act as derivatives dealers. For a broader discussion of dealers, see *infra* Part II(D).

[2] *See* Bank for Int'l Settlements, *Triennial Central Bank Survey*: Foreign Exchange and Derivatives Market Activity 24 (Mar. 2002) (at end of June 2001, $99.7 trillion total outstanding notional amounts (adjusted for inter-dealer double-counting) for OTC contracts tracked by the Bank

derivatives markets.[3] There is also good reason to expect that the OTC derivatives markets will expand further, not least because new participants appear regularly. Typically, an awakening to the various opportunities offered by OTC derivatives or an easing of regulatory barriers induces the new arrivals.[4]

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for Int'l Settlements ("BIS")), *available at* http://www.bis-org/publ/ypfx02t .pdf. *Accord* Int'l Swaps and Derivatives Assn., Inc., *2001 Year-End Market Survey* (at year-end 2001, $69.2 trillion total outstanding notional principal amounts for interest rate swaps, interest rate options and currency swaps among eighty International Swaps and Derivatives Association, Inc. ("ISDA") members reporting), *available at* http://www.isda.org/statistics/2001end.html (last visited Oct. 10, 2002). For a discussion of notional amounts, see *infra* Part II(A)(2).

[3] *See* Bank for Int'l Settlements, *supra* note 2, at 24 (at end of June 2001, $99.7 trillion in notional amounts outstanding for OTC derivatives contracts vs. $19.5 trillion in notional amounts outstanding (both numbers adjusted for inter-dealer double-counting) for exchange-traded derivatives contracts in transactions BIS tracks). *See also* Fed. Reserve Chairman Alan Greenspan, Address before Futures Indus. Ass'n (Mar. 19, 1999), *in* 32 BIS REV. 1 (1999) (at year-end 1998, of notional $33 trillion for derivatives contracts outstanding in United States, only $4 trillion exchange-traded). *Accord* Comptroller of the Currency, *OCC Bank Derivatives Report, Second Quarter 2002*, *available at* http://www.occ.treas.gov/ftp/deriv/ dq202.pdf (last visited Oct. 20, 2002) (as of second quarter 2002, OTC and exchange-traded contracts comprised 90.9% and 9.1%, respectively, of national derivatives holdings of U.S. commercial banks).

[4] *See generally* Letter from ISDA Chairman Mark D. Harding and ISDA Executive Dir. & CEO Richard E. Grove to CFTC Sec'y Jean A. Webb (Oct. 13, 1998) (growth in end-users of swaps attributable to newly obtained permissions and discovery of effectiveness of swaps), *available at* http://www.isda.org/press/pdf/cftc 1098.pdf at 7.

Israel is an example of a country whose financial institutions and commercial entities embraced OTC derivatives widely because of both discovery and regulatory relief. In the 1990s, Israel contributed significantly to, and materially benefited from, a worldwide technology boom. This led to a countrywide expansion of financial capacity and a seemingly inexorable discovery of OTC derivatives. Additionally, the country liberalized its currency controls in 1998. That greatly eased the way for Israeli participation in international derivatives transactions and opened the domestic structured finance markets to competition from international banks. The competition not only introduced Israeli

Despite the seeming ubiquity of OTC derivatives, practitioners often find that the products suffer from an unfortunate aspect: complexity. It is this author's observation, for example, that the structure and documentation of OTC derivatives initially mystify many managers who desire the opportunities offered by OTC derivatives, but are new to the seemingly esoteric methods of these transactions. That others whom this author has not observed are similarly stymied can only be presumed. All this is understandable and casts no aspersions on the capabilities of frustrated managers because, at first and even second glance, the architecture of OTC derivatives transactions is dense. The perceived opacity of OTC derivatives transactions is regrettable because it at best slows and at worst preempts full scale and intelligent adoption of OTC derivatives. With some guidance, however, the efficacy and elegance of today's OTC derivatives and their market-standard documents can be revealed to all.

In the Discussion that follows, this article seeks to provide that guidance. Part A describes the basic reasons for, and important features of, all OTC derivatives transactions. Part B profiles the various forms of derivatives transactions, using relatively common market risk derivatives as examples. Part C explores a prominent and comparatively new form of OTC derivatives products called credit derivatives. Part D addresses whom exactly engages in derivatives transactions and why. Part E discusses certain risks that OTC derivatives themselves generate. Part F explains the differences between on-exchange and OTC derivatives transactions. Part G reviews the campaign to standardize the documentation of OTC derivatives transactions. Part H examines the makeup of the standard documentation that currently prevails in the OTC market.

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consumers to financial products theretofore obscure, it also forced local banks to learn new financial techniques. This, in turn, spread derivatives even more widely among Israeli end-users and dealers. For a description of the various types of financial institutions active in Israel's capital markets, see Norman M. Feder, *The Evolution of Israel's Capital Markets*, 2 J. INT'L FIN. MKTS. 80 (2000).

II. DISCUSSION

A. Defining Derivatives

1. Basic Explanation

Derivatives, whether traded on-exchange or over-the-counter, are hard to define because they vary widely in content and application.[5] Nevertheless, they possess enough common features to be described at least as financial products whose structures and values refer to financially meaningful external items. In this sense, the products *derive* from the external items, which often are called *underlyings*. For instance, an option entitles its holder to buy or sell something. The option, therefore, derives from the something and so it is a derivative and the something is the underlying. Other derivatives are forwards (over-the-counter only), futures (exchange-traded only), and swaps.[6]

Underlyings can be anything that interests markets: cash instruments, like stocks and bonds; tangibles, like commodities; or intangibles, like interest rates, currency rates, stock market indices, and credit quality. Thus, derivatives can broadly be said to contrast with underlyings (assuming that the underlyings themselves do not refer to other underlyings) because the value of derivatives depends

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[5] *Cf.* Saul S. Cohen, *The Challenge of Derivatives*, 63 FORDHAM L. REV. 1993, 1997 (1995) (derivatives difficult to define because they constantly evolve); Henry T.C. Hu, *Hedging Expectations: "Derivative Reality" and the Law and Finance of the Corporate Objective*, 73 TEX. L. REV. 985 (1995) *reprinted in* 21 IOWA J. CORP. L. 3, 14 (1995) (derivatives "metastasizing to refer to any complex financial product that causes a loss").

[6] Derivatives have sometimes been called *contingent claims*. *See* JOHN HULL, OPTIONS, FUTURES, AND OTHER DERIVATIVE SECURITIES 1 (3d ed. 1997). For a brief explanation of the differences between forwards and futures, see infra note 34 and accompanying text.

significantly on the state of their underlyings, whereas the value of underlyings depends significantly on market forces.[7]

A derivatives product is formed by a contract. The contract can call for one of the parties to actually buy or sell the underlying; this would be a *physical settlement* arrangement. Alternatively, the derivatives contract can call for one of the parties to buy or sell only the economic equivalent of ownership of the underlying, without transferring the underlying itself; this would be a *cash-settlement* arrangement. When derivatives are cash-settled, they are sometimes called *contracts for differences*, although the exact limits to the meaning of that phrase are not clear.[8] Cash-settled derivatives are considered *synthetic* products because they only simulate a physical exchange. Regardless of whether the contract is physically-settled or cash-settled, parties will conclude its details on the *trade date*, but will make deliveries or payments under the contract terms on *settlement dates,* which can follow.

Derivatives reallocate risk. What this means is that derivatives contracts isolate certain risks and move them from one party to another. By engineering a contract whose value reflects in some way the value or change in value of an underlying, parties can shift the risk inherent in exposure to that underlying. Via judicious selection of underlyings and thoughtful arrangement of relevant obligations, parties to derivatives arrangements *unbundle* specific risks and place each of these risks where they are most welcome.

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[7] *See* Proctor & Gamble Co. v. Bankers Trust Co., 925 F. Supp. 1270, 1275 (S.D. Ohio 1996). The full picture is more complex. The market value of a derivatives product can depend not only on the value of the underlying, but also on the strike price, interest rates, and underlying volatility. Additionally, not all underlyings have independent market value. *Cf. infra* note 16 (describing weather derivatives, environmental derivatives, and economic derivatives).

[8] *See generally* SIMON JAMES, THE LAW OF DERIVATIVES 28-29, 126-27 (1999) (summarizing various English Court of Appeal understandings of phrase, as espoused in *City Index v. Leslie*, [1992] 1 Q.B. 98, and concluding that phrase can encompass more than cash-settled derivatives).

Importantly, derivatives do not eliminate underlying risk; they only reposition it. Often, people will use the phrase *risk management* to explain why parties employ derivatives. This can be misleading because many understand risk management to mean reduction of risk and risk reduction is only one reason to use derivatives. When people use the phrase *risk management* in its more technical sense, namely, control of risk, they explain better why entities employ derivatives. By transferring risk via one or more trades, parties to derivatives contracts magnify or shrink, i.e., control, their individual and selected risk exposures as their needs and wants dictate.

To illustrate: Upon payment of a premium of $200, an investor buys the right to sell 100 shares of a certain publicly traded company at $50 per share in three months. If, in three months, the market price is only $40 per share, the investor will exercise its put option and sell for $5000 (because the investor could only obtain $4000 in the open market). Notably, the advantage will have cost the investor $200. If, instead, the market price is $60 per share, the investor will let its option lapse (preferring to sell in the open market for $6000). In this event, however, the investor will irretrievably have expended $200 as premium. The option -- in this case, a physically-settled equity put option[9] -- shifts the risk of share price decline within the relevant three months from the investor to the counterparty. The counterparty gets paid the premium for accepting the risk.

2. Notional Amount

An important feature of derivatives contracts is the *notional amount,* sometimes called the *notional principal amount* when the underlying is a rate. When a derivatives contract is physically-settled, the notional amount is the number of units of underlying to which the contract applies. The *outstanding notional amount* is the gross par value of the contract, i.e., the notional amount multiplied by the

[9] For a discussion of options, including descriptions of physically-settled, equity, and put options, see *infra* Part II(B)(1).

contract price per unit of underlying. For example, if a physically-settled forward contract obligates a party to deliver 100 shares of a given company at $2 per share in the future, the notional amount is 100 and the outstanding notional amount of the contract is $200.

When a derivatives contract is cash-settled, however, the notional amount is only an amount of the underlying upon which calculations are based. The amount is hypothetical because it is not exchanged between the parties. Thus, if the forward described in the previous paragraph were modified to be cash-settled, one party would have to pay the other an amount equal to 100 times the difference between the forward price of $2 and the market price at maturity of the contract and no transfer of shares will take place. The notional amount again would be 100 and the outstanding notional amount of the contract again would be $200. The notional amount in this type of contract is meaningful for calculation purposes only.

Sometimes, a derivatives commodity contract requires parties to exchange principal a number of times. In such a case, the outstanding notional amount would be equal to the contract quantity of underlying units multiplied by the contract price multiplied by the number of remaining payments. At other times, a derivatives contract is leveraged or its formulation contains a multiplier component, in which case the *effective notional amount* is the notional amount adjusted to reflect a true notional product. For example, an interest rate swap that requires a party to make periodic interest payments on a notional principal amount of $1 million at a rate equal to three times the difference between the U.S. dollar prime rate and 3% has an effective notional principal amount of $3 million.[10]

Many measure the size of a derivatives contract, and ultimately the extent of derivatives markets, by notional

[10] For various precepts in calculating outstanding notional amount calculations, see generally Bank for Int'l Settlements, *Framework for Supervisory Information about Derivatives and Trading Activities*, Annex 6, at 43-44 (Sept. 1998), *available at* www.bis-org/publ/bcbs212.pdf.

amount outstanding. Indeed, some financial institutions in certain markets measure *credit lines* -- defined amounts of unsecured credit to specific borrowers for specific periods of time -- they extend by percentages (typically small) of notional amounts.[11] Notional amounts, however, can be deceiving. The expected or maximum loss or gain to a derivatives contract party is usually far less than the notional amount because the notional amount may be only a calculation factor and is frequently multiplied by less than one hundred percent. Thus, the ratio of gross market values to notional amounts can be very low.[12] Additionally, gross market values themselves overstate true credit exposure because they do not account for risk reduction measures between parties, such as netting of obligations or credit support.[13] Accordingly, the ratio of credit exposures to notional amounts is lower still.[14] For these reasons, parties often will measure their credit exposure, and sometimes financial institutions will measure the credit lines they extend, by the *credit equivalent value* of each open derivatives contract. This value is the expected market cost of replacing the remainder of the derivatives contract if the

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[11] These credit lines can include global counterparty limits, daily counterparty settlement limits and maturity limits. *See* FED. RESERVE SYS., *Forwards*, *in* TRADING AND CAPITAL-MARKETS ACTIVITIES MANUAL § 4310.1, at 3 (Apr. 2001), *available at* http://www.federalreserve.gov/boarddocs/supmanual/trading/trad_p4.pdf.

[12] *See generally* Bank for Int'l Settlements, *supra* note 2, at 26 (at end of June 2001, 3.1% across the market, but varying from less than 1% to almost 16% among discrete market segments, all for transactions BIS tracks). The ratio of gross market value to notional amount in the foreign exchange derivatives market segment is usually higher than in the interest rate derivatives market segment because, in part, foreign change products often involve an exchange of principal, whereas interest rate products generally do not. *See id.* at 29.

[13] For a discussion of netting and credit support, see *infra* Part II(E)(2).

[14] *See generally* Bank for Int'l Settlements, *supra* note 2, at 24 (at end of June 2001, outstanding credit exposure accounted for about 1% of outstanding nominal amounts (adjusted for inter-dealer double counting) across the market and for transactions BIS tracks).

contract were to terminate immediately due to counterparty default.

Importantly, parties do not use notional amounts when accounting for derivatives on financial statements. Because notional amounts exaggerate exposure, treating such amounts as principal in cash instruments would overstate assets or liabilities. While accounting for derivatives contracts can be tricky, nobody credibly insists on using notional amount as an accounting measure for derivatives risk.[15]

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[15] Accounting for speculative transactions is relatively straightforward in most jurisdictions. The transactions are recorded at fair market value on the balance sheet and gains or losses, whether or not realized, are reported as current income. Accounting for hedge transactions is more complex. Under traditional *hedge accounting*, gains or losses on derivatives that hedge exposures are recognized only when the corresponding losses or gains on the hedged exposures are recognized. Because the derivatives gains or losses are deferred until some time after the trade date, they are *off-balance sheet* until recognized. The justification for traditional hedge accounting is avoidance of misleading fluctuation in earnings, but its opacity is controversial and, as a result, its availability is dwindling.

As a general matter in the United States today, all derivatives are recorded on the balance sheet at fair value, although certain "hedge" positions can be offset by something other than current income. Specifically, (i) increases or decreases in the fair value of a derivatives position that hedges a recognized asset or liability or firm commitment (*fair value hedge*) are reported as current income (just like in a speculative derivatives position), but the corresponding decreases or increases in the fair value of underlying exposure are similarly reported; (ii) increases or decreases in the fair value of a derivatives position that hedges cash flows from a forecasted transaction (*cash flow hedge*) are reported as other comprehensive income (i.e., not current income) and reclassified as current income only when the projected cash flows affect earnings; and (iii) increases or decreases in the fair value of a derivatives position that hedges certain foreign currency exposures (*foreign currency hedge*) are reported in other comprehensive income, as part of the cumulative translation adjustment. *See* ACCOUNTING FOR DERIVATIVE INSTRUMENTS AND HEDGING ACTIVITIES, Statement of Financial Accounting Standards Nos. 133 & 138 (Financial Accounting Standards Bd. 1998). *See also* FED. RESERVE SYS., *Accounting, in* TRADING AND CAPITAL-MARKETS ACTIVITIES MANUAL § 2120.1, at 7 (Apr. 2002) , *available at* http://www.federalreserve.

3. The Main Risks Addressed

Derivatives focus mostly on two types of risk: market risk and credit risk.[16] Market risk and credit risk coexist with the passage of time. Anytime somebody expects to receive or deliver money or goods over time, the risk that events external to that core obligation will decrease the value or likelihood of the future transfer is inevitable. The risk and its underside -- the possibility that such value or likelihood will not decrease over the relevant time -- are what drive derivatives transactions that speak to market and credit risk. Notably, derivatives do not address operational risks, such as the possibility that a company will not sell its products or that its manufacturing line will fail to

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gov/boarddocs/supmanual/trading/trad_p2.pdf. For a discussion of hedging and speculation, see *infra* Part II(D)(1) & (2).

[16] Derivatives can address other risks as well. For example, weather derivatives can address the risk of unfavorable weather conditions. The values of these contracts depend on weather variables, such as temperature, precipitation, or wind. Actors in the finance, insurance, utility, transportation, recreation, heating fuel, and agricultural sectors employ these derivatives. Another example, albeit in relatively nascent form, is environmental derivatives, which trade emission capacities. Yet another developing example is economic derivatives, which some banks recently have begun to offer and which allow consumers to trade risk expressed by U.S. macro-economic indicators (non-farm payroll levels, to start, with a manufacturing index and retail sales figures expected to follow). *Doomsday Derivatives*, THE ECONOMIST, Oct. 19, 2002, at 85; Oliver Frankel & Jim O'Neill, *Economic Derivatives -- What is Their Benefit?*, DERIVATIVES WEEK, Sept. 23, 2002 at 10 (copy on file with author). In the past, economic derivatives focusing on property prices and inflation did not succeed. THE ECONOMIST, *supra* at 85. However, the new products employ a revised method of pricing and allocation that is thought will improve viability. *Id.*; Frankel & O'Neill, *supra* at 10.

A further example might be tax derivatives, which exploit the differences between tax rules for different forms of transaction or in different jurisdictions. Arguably, however, tax derivatives are just a technique for tax planning and efficiency, not a distinct derivatives class. *See* ALASTAIR HUDSON, THE LAW ON FINANCIAL DERIVATIVES 85, 327 (2d ed. 1996). Similarly, so-called energy derivatives, which reference prices of energy commodities or instruments, are essentially market risk derivatives.

run. Rather, derivatives addressing market risk and credit risk concentrate only on the possibilities that external changes over time will affect the value or likelihood of expected deliveries or performances.

(i) Market Risk

Market risk is exposure to the possibility of market movements. Market movements are changes in price or rate of a given item (or in value when related to a number of items) that will be delivered in the future. An England-based service provider that anticipates payment of its invoice in thirty days in U.S. dollars runs the risk that the U.S. dollar will devalue against the English pound during those thirty days. Similarly, a bank that makes a loan at a fixed rate of interest but sources its funds at a floating rate runs the risk that interest rates will increase during the life of the loan. For now at least, market risk inspires the creation of most OTC derivatives and it is fair to call these derivatives market risk derivatives.

A market risk derivatives contract allows one party to obtain and another party to divest itself of the risk of the price of the underlying moving during a specific term. This is accomplished by means of a side deal. Whenever a payment for an underlying is contemplated in a market risk derivatives transaction, the possibility exists that the transaction amount will differ from the price of the underlying on the open market. How much the market moves the price of the underlying during the pendency of the derivatives contract directly and oppositely affects the prospects of each of the parties.

Thus, the English service provider described above could fix the pound sterling-U.S. dollar exchange rate when it sends its invoice with a market risk derivatives product such as a forward. Similarly, the bank described above could swap its fixed rate income from the borrower for a floating rate income from a third party to ensure for itself a profitable spread over its funding, no matter what happens to interest rates. In each of these transactions, someone will

take on the risk off-loaded by the entity seeking certainty (assuming such someone will perform its obligations).

The universe of those exposed to market risk is wide. A firm that consumes raw material incurs price risk. A firm that engages in international commerce incurs foreign exchange risk. A firm that borrows money incurs interest rate risk. A firm that invests in other traded firms incurs securities pricing risk. Each of these is a potential risk seller, or possibly even a risk buyer, via market risk derivatives.

(ii) Credit Risk

Credit risk is exposure to the possibility that a counterparty will default on its obligations when due because of insolvency. While counterparties can default for a number of reasons, credit risk does not address the possibilities of breaches of obligations for relatively prosaic reasons, such as operational mismanagement.[17] This is because a court can enforce counterparty obligations in such a context and make the innocent party relatively whole. Nor does credit risk in its pure sense include the risk that a change in law would prevent the counterparty from performing its obligations because that risk -- and indeed it is a risk[18] -- is unrelated to the credit of the counterparty. Thus, credit risk is the risk of deterioration of the creditworthiness of the counterparty to a point where the counterparty will not be able to perform in full -- in a word, insolvency.[19]

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[17] *But see* FED. RESERVE SYS., *Counterparty Credit Risk and Presettlement Risk, in* TRADING AND CAPITAL-MARKETS ACTIVITIES MANUAL § 2020.1, at 1 (Sept. 1999) (Settlement type of credit risk can "arise from counterparty default, operational problems, market liquidity constraints and other factors."), *available at* http://www.federalreserve.gov/boarddocs/supmanual/trading/trad_p2.pdf. For a discussion of settlement type of credit risk, see *infra* Part II(E)(2)(ii).

[18] This risk could be described better as country or legal risk. SIMON FIRTH, CREDIT DERIVATIVES: THE LEGAL AND REGULATORY ISSUES 23 (Linklaters & Alliance, Feb. 2001) (copy on file with author).

[19] *See id.*

Credit risk is an increasingly popular subject of OTC derivatives. The English service provider described in Part II(A)(3)(1), above, runs the risk that its client will fail before the client's account is settled. Similarly, the bank described in that Part runs the risk that the borrower will become insolvent before the loan matures. As these examples demonstrate, credit risk centers on a specific entity, although market-wide credit deterioration may affect the credit quality of discrete counterparties because of the interlinking of credit exposures. While credit risk is distinct from market risk, in some cases, credit risk can correlate with market risk.[20]

A credit derivative allows one party to transfer credit risk to another party, the latter being paid for its willingness to take on the prospective default by, or credit deterioration of, a given entity. Thus, if the service provider described in Part II(B)(3)(i) above obtains a commitment from a reliable third party to pay the service provider an amount equal to the outstanding invoice amount in the event the client becomes insolvent, the service provider will consider the credit risk neutralized. Similarly, the bank described in that Part can diffuse its risk of principal loss by obtaining a reliable third party's agreement to pay the bank, in the event the borrower fails, the outstanding principal amount minus the value, if any, of the loan after default.

Commercial firms face credit risks every day. Counterparties, customers, borrowers and any other entities that are expected to make payments or deliveries in the future all engender to the expectant firm a risk of failure. Traditionally, an expectant firm minimizes its credit risk by monitoring the credit health of its debtors and tailoring the amount of unsecured credit it would extend to such debtors. This, however, can be a difficult process to implement and maintain and, ultimately, limits opportunities. Credit derivatives now offer an alternative. Much in the way that

[20] For example, many U.S. Savings & Loans institutions failed in the 1990s largely because they had borrowed short-term at floating rates and lent long-term at fixed rates and, eventually, interest rates rose.

market derivatives transfer exposures to price or rate movements of various items, credit derivatives shift exposures to the decline in creditworthiness of certain entities.[21]

B. The Basic OTC Transactions

Structurally, derivatives are not necessarily complex.[22] The simplicity that can be attributed to them lies in the limited number of basic building blocks[23] that constitute most OTC derivatives products. At root, nearly all OTC derivatives comprise one or more of only three types of financial transactions: options, forwards, and swaps.[24] As more fully described below, an option is the right to buy or sell something in the future, a forward is the obligation to buy or sell something in the future, and a swap is an exchange of periodic payment obligations in the future.

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[21] For a more extensive discussion of credit risk, see *infra* Part II(E)(2).

[22] *Cf.* PETER L. BERNSTEIN, AGAINST THE GODS: THE REMARKABLE STORY OF RISK 304 (1996) ("Derivatives are the most sophisticated of financial instruments, the most intricate, the most arcane, even the most risky. . . . Despite the mystery that has grown-up about these instruments in recent years there is nothing particularly modern about them.").

[23] The origins of the building block metaphor might lie in Charles W. Smithson, *A LEGO® Approach to Financial Engineering: An Introduction to Forwards, Futures, Swaps and Options*, *in* THE HANDBOOK OF CURRENCY AND INTEREST RATE RISK MANAGEMENT 3-1 (N.Y. Inst. of Fin. ed., 1990) (analogizing derivatives components to LEGO® pieces).

[24] Some see only two blocks: options and forwards. *E.g.*, ROBERT M. MCLAUGHLIN, OVER-THE-COUNTER DERIVATIVES PRODUCTS: A GUIDE TO BUSINESS AND LEGAL RISK MANAGEMENT AND DOCUMENTATION xxiii (1999). This perspective is based on the conception of swaps as combinations of forward transactions. *See infra* Part II(B)(2). *But see* Roberta Romano, *A Thumbnail Sketch of Derivative Securities and Their Regulation*, 55 MD. L. REV. 1, 49 (1996) (swaps different than forwards because swaps market is more liquid and, therefore, greater focus of regulatory concerns). The idea can be taken even further, to one block, because forwards can be seen as combinations of put and call options. *See infra* Part II(B)(2). While conceding that swaps may look like complex forwards and forwards like option combinations, this author prefers to see three blocks -- options, forwards and swaps -- at least for ease of analysis.

Human creativity, however, can make derivatives complex. From the three basic blocks of options, forwards, and swaps, financial institutions can and do build a wide array of financial products to address the specific needs and wants of derivatives consumers. Some derivatives will even combine two or more relatively simple derivatives to achieve the desired allocation of targeted risks.[25]

1. Options

An option is the right, but not the obligation, to buy or sell an item in the future at a set price. If the option is to buy, it is a *call* option; if the option is to sell, it is a *put* option. The seller of the option is called the *option writer* or *option seller* and the buyer is called the *option holder* or *option buyer*. A typical option will recite: (i) an *underlying*, such as a security, commodity or rate; (ii) a *strike price*, which is the pre-determined price for transfer (actual or presumed) of the underlying (the strike price can also be a *strike rate,* when referring to interest or foreign exchange rates); (iii) a *strike date,* which is the date on which the option right expires; and (iv) a *premium*, which is the fee paid to the option writer.

In an option, the option holder will exercise its right if: (i) the option is a call and the strike price is less than the *spot* (i.e., prevailing market) price, or (ii) the option is a put and the strike price exceeds the spot price. In each of these scenarios, the option is *in the money*. The option is *at the money* when the strike price and the spot price match and *out of the money* when neither in nor at the money. In a cash-settled option that is profitable to the option holder, the

[25] Examples include: a *collar,* which is a combination of a cap and a floor; a *fraption*, which is an option on a forward interest rate agreement; a *quanto*, which is an option on a foreign equity (or equity index) that incorporates a pre-determined foreign exchange rate; a *straddle*, which is a combination of a put option and a call option with equivalent strike prices and maturity dates; a *strangle*, which is a straddle except that the strike prices differ; and a *swaption*, which is an option on a swap. For a description of the various constituent derivatives described in the foregoing, see *infra* Parts II(B)(1), (2), & (3).

option writer is required only to pay to the option holder the difference between the strike price and the spot price of the underlying.

An option centers on the grant of a right. Only if the option holder exercises its right must the option writer perform, and the option writer cannot force the option holder to exercise this right. This asymmetry between the option holder and the option writer means unequal payoff potentials for the option holder and the option writer. On the one hand, the potential profit of the option holder and potential loss of the option writer are, in the case of a call option, unlimited and, in the case of a put option, only somewhat limited -- the value of the underlying cannot drop below zero. On the other hand, the potential loss to the option holder and potential gain to the option writer are always restricted to the premium.

It comes as no surprise that non-lawyers regularly liken options to insurance. If the option fails to deliver a gain to the option holder, the option holder simply declines to exercise its right and neither party loses -- other than option holder losing the premium. Thus, an option holder, in exchange for payment of a premium, is "insured" against detrimental market changes. Lawyers shy away from relating to options as insurance because finance and insurance are often regulated separately.

Option variations are many, some referring to geography for no fundamental reason. At the most basic, an *American* option sets the strike date as the last date by which the option holder may exercise its right and a *European* option sets the strike date as the only date for exercise. In more exotic variations: An *Asian* option sets the market price as the average trading price over the term of the option. A *Bermudan* option gives the option holder the right to exercise on a number of set dates during the term of the option. A *Japanese* option, which allowed for early exercise -

- but on Thursdays only -- no longer trades;[26] if used today, the phrase might mean an option with periodic exercise rights. A *Russian* option is a lookback option[27] that can be exercised early.

Other option variations abound. For example: A *barrier option* takes effect or terminates upon a stipulated price of the underlying.[28] A *chooser option* permits that option holder to choose on a specified date prior to maturity whether the option will be a put or call. A *compound option* is an option to buy or sell a call or put option on a certain underlying. A *contingent premium option* requires payment of the premium (usually significantly more expensive than in a standard option) only at maturity and only if the option is in the money. A *digital option* sets a pre-determined amount as payout to the option holder if the option expires in the money, regardless of the strike-price/market-price delta.[29] An *exchange option* allows the option holder to exchange one specified asset for another. A *forward start option* requires payment of the premium some time before the start of the option's effective life. An *installment option* allows the option holder to pay the gross premium (usually significantly more expensive than in a standard option) periodically over the life of the option and to stop making the payments, thus terminating the option, prior to maturity. A *lookback option* allows the option holder to purchase (in the case of a call) or sell (in the case of a put) the underlying at the lowest (in the case of a call) or highest (in the case of a put) market price

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[26] Japanese style stock index options once traded on the Tokyo and Osaka stock exchanges. In early 1992, all of these options expiring after June 1992 were converted to European options.

[27] For a description of a lookback option, see *infra* note 30 and accompanying text.

[28] A barrier option can be either *knock-in* (effective only when the underlying reaches a barrier price) or *knock-out* (no longer effective when the underlying reaches a barrier price).

[29] A digital option can be either *cash-or-nothing* (the option holder receives cash at maturity if the option is in the money) or *asset-or-nothing* (the option holder receives the reference asset at maturity if the option is in the money).

achieved during the life of the option.[30] A *lookforward option* pays the option holder the difference between the price of the underlying at the start of the option period and the highest (in the case of a call) or lowest (in the case of a put) market price achieved during the life of the option. A *rainbow option* allows the option holder to select as underlying the more advantageous of two assets at expiration of the option. A *shout option* allows the option holder to fix the strike price at or near the spot price of the underlying at the time the option holder "shouts." A *warrant* is a call option written by a company that issues the securities serving as the underlying.[31]

Certain options are categorized as *path-dependent.* A path-dependent option is an option whose value depends on the price pattern, i.e., the path, of the underlying during the life of the option. This contrasts with a standard option, whose value depends only on the price of the relevant underlying upon exercise or maturity. Asian, barrier, lookback, and lookforward options are all examples of path-dependent options.

Options trade both over-the-counter and on exchanges. Most OTC options are European, while most exchange-traded options (even in Europe) are American.[32] The following, categorized by underlying, are descriptions of

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[30] A lookback option can be *extremum:* The strike price is fixed but the option holder can also buy (in the case of a lookback put) or sell (in the case of a lookback call) the underlying for the price during the life of the option that the option holder found most attractive.

[31] Options with securities as underlyings are commonly confused with *warrants;* the difference between the two lies in the option writer. Whereas in an option the option writer is someone other than the entity issuing the underlying, in a warrant the warrant writer is the entity issuing the underlying. Sometimes, however, warrants are also thought of as long-term (i.e., more than one year) options on stocks or indices. *See* FED. RESERVE SYS., *Equity Derivatives, in* TRADING AND CAPITAL-MARKETS ACTIVITIES MANUAL § 4345.1, at 1 (Feb. 1998), *available at* http://www.federal reserve.gov/board docs/supmanual/trading/trad_p4.pdf.

[32] For a description of the differences between exchange-traded and OTC derivatives, see *infra* Part II(F). For a description of some European-style options that trade on-exchange, see *infra* note 74.

some types of market risk options that, in their typical forms, commonly trade over-the-counter and on exchanges (but not necessarily both).

(i) Currency Option

In a physically-settled currency option, an option holder pays a premium to an option writer and the option holder obtains a right to enter into a foreign exchange transaction with the option writer on the strike date at the strike rate for a given amount of a specified currency. In a cash-settled currency option, an option holder pays a premium to an option writer and the option holder obtains a right to receive a payment from the option writer equal to the difference between the strike rate and the spot rate on the strike date for a given amount of a specific currency, multiplied by a notional amount.

(ii) Equity Option

In a physically-settled equity option, an option holder pays a premium to an option writer and the option holder obtains the right to either buy from (call) or sell to (put) the option writer on the strike date a pre-determined quantity of a given equity share or basket of equity shares at the strike price. In a cash-settled equity option, an option holder pays a premium to an option writer and the option holder obtains the right, if advantageous to the option holder, to receive from the option writer a cash payment. The cash payment is formulated from the difference on the strike date between the strike price and the market value of a given equity index, equity share, or basket of equity shares, multiplied by a notional amount.

(iii) Bond Option

In a physically-settled bond option, an option holder pays a premium to an option writer and the option holder obtains the right to either buy from (call) or sell to (put) the option writer on the strike date a pre-determined quantity of a given bond or basket of bonds at the strike price. In a cash-

settled bond option, an option holder pays a premium to an option writer and the option holder obtains the right, if advantageous to the option holder, to receive from the option writer a cash payment that is formulated from the difference on the strike date between the strike price and the market value of a given bond index, bond, or basket of bonds, multiplied by a notional amount.

(iv) Bullion Option

In a physically-settled bullion option, an option holder pays a premium to an option writer and the option holder obtains the right to either buy from (call) or sell to (put) the option writer on the strike date a pre-determined number of ounces of bullion[33] at the strike price. In a cash-settled bullion option, an option holder pays a premium to an option writer and the option holder obtains the right, if advantageous to the option holder, to receive from the option writer a cash payment. The cash payment is formulated from the difference on the strike date between the strike price and the market value of an ounce of bullion, multiplied by a notional amount.

(v) Cap

In a cap transaction, the *cap buyer* pays a single or periodic fixed amount as premium to the *cap seller* and obtains the right to receive from the cap seller periodic payments if the spot rate or commodity price exceeds a pre-determined *cap rate* or *cap price* on each pre-determined payment date. The payments are formulated from the excess, if any, multiplied by a notional amount. If there is no excess, the cap seller has no obligation to pay the cap buyer.

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[33] In derivatives speak, *bullion* typically means gold, silver, platinum or palladium.

(vi) Floor

In a floor transaction, the *floor buyer* pays a single or periodic fixed amount as premium to the *floor seller* and obtains the right to receive from the floor seller periodic payments if a pre-determined *floor rate* or *floor price* exceeds the spot rate or commodity price on each pre-determined payment date. The payments are formulated from the excess, if any. If there is no excess, the floor seller has no obligation to pay the floor buyer.

2. Forwards

A forward is the obligation, as opposed to just the right, to exchange an underlying at a set price on a stipulated future date and, if physically-settled, at a specified location. In a forward, the party obligated to deliver the underlying in exchange for receiving payment at the agreed price has *sold* the forward and taken the *short* position and the party obligated to receive the underlying in exchange for making payment at the agreed price has *bought* the forward and taken the *long* position. In somewhat modified format, forwards trade on a number of stock or commodity exchanges, where they go by the name of *futures*.[34]

Foreign exchange and interest rate forwards make up the bulk of the forwards market. Regardless of the nature of the underlying, and whether it is physically-settled or cash-settled, a given forward contract will recite at least: (i) an underlying; (ii) a *value date* representing when the contract matures; (iii) a settlement date representing when delivery and receipt are to take place; and (iv) a *forward rate* or *forward value*, which is the rate or value pre-determined by the parties.

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[34] *See generally* JOHN HULL, OPTIONS, FUTURES, AND OTHER DERIVATIVE SECURITIES § 1.2, at 5 (4th ed. 2000) (forwards specify exact delivery dates, whereas futures do not). *Cf. id.* § 3.6, at 61 (when futures prices and interest rates positively correlate, futures priced higher than forwards; when they negatively correlate, forwards priced higher than futures). For a discussion of the differences between exchange-traded and OTC derivatives, *see infra* Part II(F).

At the time of entry into a forward contract, the contract is commonly *at the market,* meaning that the contract is neither in nor out of the money to either party, and neither party pays a premium to the other. This also means that the current value of a forward contract to one party or the other goes up or down as the market value of the underlying goes up or down. Long positions benefit from increases in forward value relative to market value and short positions from the opposite. Thus, if the market value is lower than the forward value on the value date, the buyer owes the seller; if higher, vice-versa. This will not always be boundless, however, because the parties can structure their transaction as a *range forward,* meaning that the amount that can be gained or lost will be limited.

Establishment in advance of the parties' obligations at a pre-determined price is what makes the transaction a forward. The obligatory nature of a forward means that a gain to one party will necessarily translate into a symmetrical loss to the other party and vice-versa, absent unusual features. Thus, a forward party, who has rights and obligations, differs from a fully-paid option holder, who has rights only, and a fully-paid option writer, who has obligations only once the premium has been fully paid.

It would not be a mistake to see a forward as a combination of a European call option to one party and a European put option to the other party, with identical underlyings, strike prices, and expiration dates. Because the reciprocal of the right of exercise by the option holder is the obligation of the option writer to perform once the option is exercised, the put and call combination would operate economically like a forward, assuming the option premiums are neutralized.[35] This combination is sometimes called a *synthetic forward.*

The following are descriptions of some types of physically-settled and cash-settled forward transactions, categorized by

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[35] *See* FED. RESERVE SYS., *Options, in* TRADING AND CAPITAL-MARKETS ACTIVITIES MANUAL § 4330.1, at 3, n.1 (Feb. 1998), *available at* http://www.federal reserve.gov/boarddocs/supmanual/trading/trad_p4.pdf.

underlying. These transactions address market risk and commonly take place over-the-counter.

(i) Forward Interest Rate Agreement

In a forward interest rate agreement, usually known as a *forward rate agreement* or *FRA*, Party *A* will pay a certain amount of money to Party *B* on the settlement date if the spot rate, which will be a floating rate, such as a U.S. Dollar LIBOR,[36] exceeds the forward rate. If the settlement rate is less than the forward rate on the value date, Party *B* will pay a certain amount of money to Party *A* on the settlement date. The contingent payment amount is usually formulated from the difference between the spot rate and the forward rate, multiplied by a notional principal amount.

(ii) Forward Foreign Exchange Contract

A forward foreign exchange, or *FX*, contract is an agreement under which each party agrees to exchange a pre-determined amount in one currency for a pre-determined amount in another currency on the settlement date at a settlement rate.

(iii) Forward Equity Contract

In a physically-settled forward equity contract, the parties agree to exchange on the settlement date a pre-determined amount of money and a pre-determined amount of a given equity share or a basket of equity shares. In a cash-settled forward equity contract, Party *A* will pay a certain amount to Party *B* on the settlement date if the market value of a given equity index, basket of equity shares, or share exceeds the forward value. If the market value is less than the forward value on the value date, Party

[36] LIBOR means the London Interbank Offered Rate and is sometimes called the *Eurocurrency Rate*. This rate is the interest rate offered on interbank deposits for major currencies. The actual rate at any given time varies with the currency and term deposit. LIBO rates are commonly published.

B will pay a certain amount to Party *A* on the settlement date. The contingent payment amount is usually formulated from the difference between the market value and the forward value, multiplied by a notional amount.

(iv) Forward Bond Contract

In a physically-settled forward bond contract, the parties agree to exchange on the settlement date a pre-determined amount of money for a pre-determined amount of a given bond or basket of bonds. In a cash-settled forward bond contract, Party *A* will pay to Party *B* on the settlement date a certain amount of money, if the market value of a given bond index, bond, or basket of bonds exceeds the forward value. If the market value is less than the forward value on the value date, Party *B* will pay a certain amount to Party *A* on the settlement date. The contingent payment amount is usually formulated from the difference between the market value and the forward value, multiplied by a notional amount.

(v) Forward Bullion Contract

In a physically-settled forward bullion contract, the parties agree to exchange on the settlement date a pre-determined amount of money for a pre-determined number of ounces of bullion. If the exchange were to be immediate and not in the future, the contract would be a bullion spot contract. In a cash-settled forward bullion contract, Party *A* will pay to Party *B* on the settlement date a certain amount of money, if the market value of a given number of ounces of bullion exceeds the forward value. If the market value is less than the forward value, Party *B* will pay a certain amount to Party *A* on the settlement date. The contingent payment amount is usually formulated from the difference between the market value and the forward value.

3. Swaps

A swap is an exchange of cash flows. A cash flow is a series of future cash payments. In a swap, a party agrees to

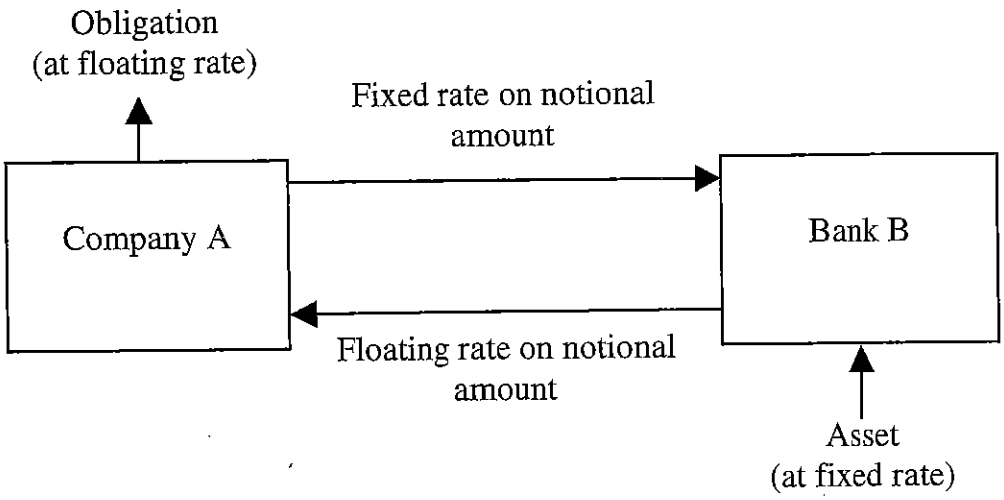
make future payments to the counterparty determined by reference to a certain fixed or floating rate on a notional amount, and the counterparty agrees to make reciprocal payments at a market floating rate on a notional amount. While most swaps do not, some types of swaps -- such as currency swaps -- might require an exchange of notional amounts. The swap notional amount is usually the same, or the equivalent in two currencies, for both parties, but the payments need not be in the same currency.

The main product in the OTC swap market is the interest rate swap. A swap party obligated to make fixed rate payments is *long* or *has bought* the swap, and the counterparty required to pay the floating rate is *short* or *has sold* the swap. Each party's series of payment obligations is called a *side* or *leg* to the swap. The parties enter into a swap on a trade date and calculations for each side's payment obligations begin on the first of the scheduled *settlement dates*. The swap concludes on its *maturity date*, and the time lapse between the first settlement date and the maturity date is the *tenor* of the swap. If notional amounts are not to be exchanged, the swap is on a *notional* basis; if they are to be exchanged, the swap is on a *physical exchange* basis.

An example of a standard interest rate swap follows: Company *A* owes $10 million at a floating rate of interest -- LIBOR plus 1% -- and would like to rearrange its obligation to a fixed rate to give it greater predictability. The company can swap its payment obligations with Bank *B*. Company *A* will periodically pay to Bank *B* a fixed rate of interest -- 11% -- on a notional amount of $10 million, and Bank *B* will pay to Company *A* on the same schedule the periodic payments of LIBOR plus 1% on the same notional amount. The upshot is that Company *A*'s net obligations are fixed rate and Bank *B*'s are floating rate, assuming each party performs its obligations. This neutralizes Company *A*'s market risk in LIBO rates. If Bank *B* lends money at floating interest

rates, the transaction ensures an interest rate spread between what the bank pays and what it obtains.[37]

Diagram 1
Interest Rate Swap



The foregoing swap example that has the parties exchanging a floating rate of interest for a fixed rate of interest in the same currency is called a *plain vanilla swap.* In some swaps, both parties' payment obligations refer to floating rates of interest, but the two rates are not precisely correlated with each other (e.g., LIBOR and U.S. prime). This type of swap is called a *basis swap* because the swap parties exchange the bases from which their payment obligations are formulated.

Other swap variations add complexity. For example: An *accreting swap* allows for the notional amount to increase at certain pre-determined times over the life of the swap. An *amortizing swap* allows for the notional amount to reduce at certain pre-determined times over the life of the swap. An

[37] Banks often lend at LIBOR-plus rates, so they are eager to source their funds at LIBOR-linked rates and lock in a profitable spread. LIBOR swap maturities tend to be one, three, six, or twelve month.

arrears swap sets the floating rate retroactively over a given reset period during the life of the swap. An *extendable swap* gives the right to one of the parties to extend the tenor of the transaction. A *forward swap* is a swap with a deferred start date. An *overnight average swap* uses the average overnight lending rate over a certain period of time to set the floating rate. A *reversible swap* allows one of the parties to reverse sides, e.g., receiving instead of paying fixed rate obligations. A *seasonal swap* has a unique payment schedule for each side, as opposed to a schedule of exchanges. A *zero-coupon swap* is a plain vanilla swap, except that the party on the fixed rate side makes no payments until transaction maturity.

Swaps trade over-the-counter and have no true counterparts on public exchanges.[38] Of course, a series of future transactions or exchange-traded options could be put together to mimic a swap, assuming the desired underlying is a subject of tradable derivatives. The cost of creation and management of such a series, however, would be relatively high. In addition, long-term exchange-traded products can

[38] Recently, exchange-traded futures and options that employ swap rates as underlyings have been made available on three different exchanges. On March 20, 2001, the London International Financial Futures Exchange ("LIFFE") launched a suite of "Swapnotes," comprising futures and options that reference euro-swap rates of two-, five-, and ten-year maturities. http://www.liffe.com (last visited Nov. 5, 2002). On October 26, 2001, the Chicago Board of Trade ("CBOT") launched a futures contract based on a ten-year interest rate swap denominated in U.S. dollars. http://www.cbot.com/ cot/docs/10swap.pdf (last visited Nov. 5, 2002). On April 2002, the Chicago Mercantile Exchange introduced two-, five-, and ten-year U.S. dollar interest rate swap futures. http://www.cme.com/products/interest_rate/products_interestrates_swap.cfm (last visited Nov. 5, 2002). On June 21, 2002, CBOT added a five-year U.S. dollar interest rate swap futures contract. http://www.cbot.com/cbot/docs/5swap.pdf (last visited Nov. 5, 2002). Finally, on July 31, 2002, LIFFE enlarged its Swapnotes suite to include contracts on two-, five-, and ten-year U.S. dollar interest rate swaps. http://www.liffe.com (last visited Nov. 5, 2002). The product designs vary somewhat from exchange to exchange.

be relatively rare and illiquid. In any event, and from a lawyer's perspective at least, swap classification can be complex: Are the payment exchanges one deal or distinct transactions? Classification can be critical for consequences of default by one of the parties.

The following are descriptions of some types of swaps, categorized by subject matter and in their typical forms, that commonly take place over-the-counter and that address market risk:

(i) Interest Rate Swap

In an interest rate swap, Party *A* makes periodic payments, formulated from a notional principal amount in a given currency and a fixed or floating rate of interest, to Party *B*. Party *B* makes periodic payments, formulated from the notional principal amount in the same currency, and with a floating rate of interest, to Party *A*.

(ii) Currency Swap

In a currency swap, Party *A* makes periodic payments, formulated from a notional principal amount in one currency and a fixed or floating rate of interest, to Party *B*. Party *B* makes periodic payments, formulated from a notional principal amount in another currency and a fixed or floating rate of interest, to Party *A*. Currency swaps usually provide for an exchange of principal either at maturity or at both commencement (in which case, the exchange will usually be notional, not physical) and maturity of the swap. A currency swap under which each party makes periodic payments at a stated rate combines features of both currency swap and interest rate swap and is called a *cross-currency interest rate swap*. Similarly, a currency swap under which each party pays by reference to a floating rate, combining features of both currency swap and basis swap, is called a *cross-currency basis swap*.

(iii) Foreign Exchange Swap

A foreign exchange swap is similar to a currency swap, but does not involve interest payments. In these types of swaps, the parties exchange principal at the start of the transaction and at the maturity date, at pre-determined exchange rates. This is like a spot transaction with a forward rate agreement.

(iv) Equity Swap

In an equity swap, Party *A* makes to Party *B* periodic payments that are formulated from the value of a given equity index, equity share, or basket of equity shares. In exchange, Party *B* makes periodic payments to Party *A* that are formulated from the value of: (1) a fixed or floating rate of interest on a notional principal amount, or (2) a given (a) equity index, (b) equity share, or (c) equity basket.

(v) Bullion Swap

In a bullion swap, Party *A* makes to Party *B* periodic payments that are formulated from a bullion reference price. In exchange, Party *B* makes periodic payments to Party *A* that are formulated from the value of a notional principal amount and a fixed or floating rate of interest.

C. Credit Derivatives

All the specific derivatives transactions described in Part II(B) above relate to market risk. Market risk, however, is not the only risk that arises from financial transactions; credit risk also is involved. Credit risk is the possibility that an *obligor* will fail, and, thus, be unable to meet its obligation to make a payment. For example, someone holding a bond runs the risk that the bond issuer will default due to insolvency. This risk is credit risk and inheres in the bond issue.

Credit derivatives are relatively recent OTC products that are intended to transfer credit exposure vis-à-vis specific obligors. Essentially, credit derivatives, like other

derivatives, isolate specific risk -- either credit risk only or credit risk together with market risk -- and transfer that risk to a willing party. Transfer of the isolated credit risk protects the risk transferor from, and exposes the risk transferee to, the risk that an obligor -- whom often is called a *reference credit* or *reference entity* -- may experience *a credit event*, such as a default under a specified debt instrument or a certain decline in creditworthiness. Notably, the transfer need not disturb the original credit relationship between reference credit and creditor. The reference asset can be anything whose value reflects the credit of a certain entity, but tradable bonds are the most logical because their price is most easily discovered.[39] Bank loans too may one day become important reference assets.[40]

Credit risk protection provided by third parties is hardly new. For ages, guarantees and letters of credit have protected creditors from obligor defaults.[41] What sets credit derivatives apart from predecessor techniques is separation of the protection from the reference asset. This allows the market to trade credit risk separately from the instrument that creates the risk. This also allows the market to price that risk and for various investors to mitigate or amplify for themselves the credit risk of specific entities with relative ease.

Credit derivatives usually comprise one of three forms: credit default swap, total return swap and credit spread option. Additionally, there is a fourth form, credit-linked

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[39] *Compare* John Kiff & Ron Morrow, *Credit Derivatives*, BANK OF CAN. R. 3, 7 (2000) ("[M]ost credit derivative transactions are written on non-sovereign reference entities."), *with* DON M. CHANCE, *Credit Derivatives, in* ESSAYS IN DERIVATIVES 281, 284 (1998) ("Credit derivatives based on sovereign debt are among the most popular. . . .").

[40] *See* Kiff & Morrow, *supra* note 39, at 4 (referring to credit-default swaps).

[41] *See generally* Michael C. Clarke, *Collateralisation in the OTC Derivatives Markets, in* CROSS-BORDER SECURITIES: REPO, LENDING AND COLLATERALISATION 175, 178 (Kathleen Tyson-Quah ed., 1997) (describing the spectrum of credit enhancement as: transaction exposure reduction, direct credit support, third party credit support, and credit risk transfer).

debt, which is not a pure credit derivative, but a hybrid of a debt instrument and credit derivative. As a general matter, the maturities of credit derivatives do not exceed, and usually do not even match, the maturities of the underlying obligations of the reference credit. The exact form of credit derivative will determine how much credit risk is being transferred, but every form involves the sale of credit protection from a *protection seller* to a *protection buyer* (although other correlative phrasing is used with certain types of credit derivatives).

1. Credit Default Swaps

A credit default swap transfers potential credit loss, usually, but not necessarily, in connection with a specific reference asset. Under a typical credit default swap, the protection buyer makes a single payment or periodic payments to the protection seller as premium, and the protection seller is obligated to pay a *credit event payment* to the protection buyer if a credit event occurs. Because the reference asset may retain residual value after default by the reference credit, the benefit to the protection buyer from receipt of the credit event payment is usually structured to equal something less than the gross value of the reference asset.

Credit event payments can take on various forms. In a cash-settled arrangement, the protection seller will pay cash, and usually only the difference between the principal amount and recovery value of the reference asset. Specifically, the credit event payment will equal the difference between the market value of the reference asset after default, as determined by dealer quotes or market price, and its par value. Alternatively, the cash-settlement arrangement can be binary. In that case, the protection seller will pay a stipulated amount. This amount would likely equal the par value of the reference asset minus some amount that represents the parties' expectation of the reference asset's residual value following default, based on market experience. Or, the amount will equal a pre-determined percentage of the par value of the reference

asset; this amount is meant to reflect the parties' expectation when entering into the swap of prospective credit loss.

In a physically-settled arrangement, the credit event payment amount will equal the par value of the reference asset and, in exchange for payment by the protection seller of that amount, the protection buyer will physically deliver the reference asset to the protection seller. The protection seller will then have a right to claim on the reference asset from the obligor. The advantage of physical settlement, particularly to the protection buyer, is that it results in a precise credit risk transfer and lets the parties avoid valuing prospectively the post-default reference asset to pre-determine the amount of the credit event payment.

The credit event commonly portends the insolvency of the issuer of the reference asset. The event can be instrument-specific, such as failure of the obligor to make a payment when due under the reference asset. Alternatively, it can be defined more generally to include a credit rating downgrade or a failure of the obligor to make any payment under any obligation.[42] In any event, the credit-dependant trigger is the basis for the transfer of credit risk from the protection buyer to the protection seller.

For example: Party *A* holds a bond issued by Company *C* and would like to manage the risk that Company *C* will fail. Party *A* can enter into a credit-default swap with Bank *B*, under which Party *A* will periodically pay Bank *B* a floating rate (e.g., LIBOR plus fifty basis points)[43] on a notional amount and Bank *B* will be obligated to pay Party *A* the principal amount minus any residual value of the bond if *B*

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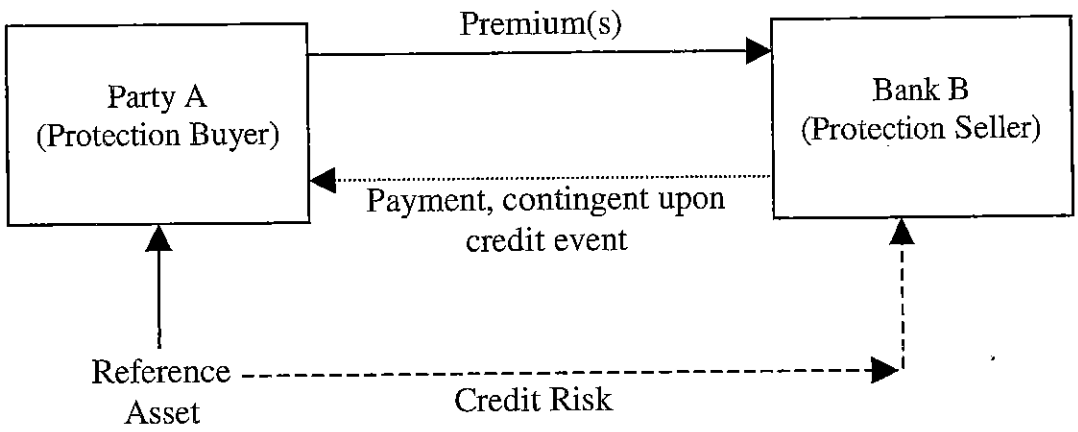
[42] Because the credit event can be defined between the parties to relate to pre-insolvency phenomena, the definition of credit event in credit derivatives documentation is critical. *See* JAMES, *supra* note 8, at 14. *See also* Felix Salmon, *Sovereign Market Awaits Court Verdicts,* EUROMONEY, May 2002, at 32 (in light of Argentine crisis of 2001, sovereign credit derivatives market requires clear definition of what constitutes credit event).

[43] A basis point equals one one-hundredth of a percentage point (i.e., 0.01%). If relating to an interest rate, basis points are commonly stated as an annualized number.

fails. In this example, Party *A* is the protection buyer and Bank *B* is the protection seller. Company *C* is unaffected by the transaction, at least until it defaults, whereupon its creditor may be Party *A* or Bank *B*, depending on whether the swap requires Party *A* to transfer the bond to Bank *B* after Bank *B* makes the credit-default payment to party *A*.

Diagram 2
Credit Default Swap



The reference asset in a credit default swap can be a single item or a basket of items. In the case of a basket, the contract will often include a *first-to-default* feature, whereby the protection seller's payment obligations are triggered upon the first default of any of the assets in the basket (and the derivatives contract thereafter may or may not automatically terminate). Sometimes, a contract referencing a basket of assets will include instead a *green bottle* feature, which allocates protection to all the assets in the basket according to proportions described in the contract. Additionally, some credit-default swaps will incorporate a materiality threshold, meaning that the protection seller's payment obligations will be triggered only if the protection buyer first experiences a pre-determined amount of loss.

Perhaps because the protection buyer's payment obligations can be periodic, or perhaps because credit default swaps sometimes refer to notional amounts for purpose of calculating the protection buyer's payment obligations or the protection seller's credit default payment amount, the transactions are considered swaps. Nevertheless, the protection seller's payment obligations are contingent; thus it may be more accurate to think of credit default swaps as options. Certainly, a credit default swap in which the protection buyer must deliver the reference asset to the protection seller to obtain the credit default payment resembles a physically-settled put option.

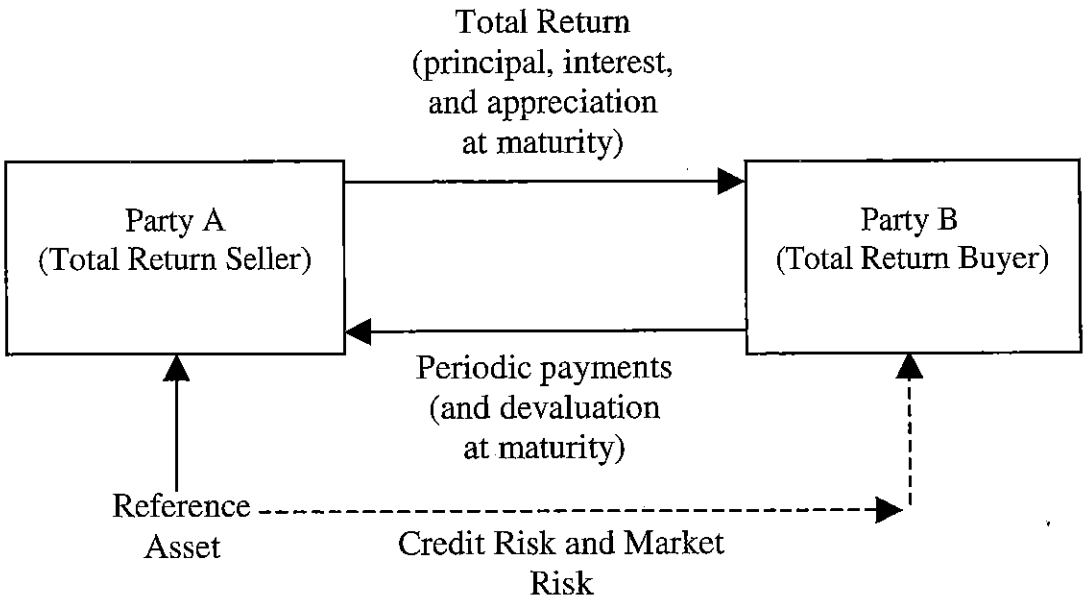
2. Total Return Swaps

With a *total return swap*, also known as a *total rate-of-return* swap, the protection buyer, or *total return seller,* artificially sells a reference asset to the protection seller, or *total return buyer*. Technically, the total return seller agrees to pay the total return associated with a reference asset to the total return buyer. Total return equals interest plus fees and appreciation in market value at maturity. In exchange, the total return buyer agrees to make payments to the total return seller. These payments are formulated from either fixed or floating rates on a notional amount and cover depreciation in value at maturity. To compensate the total return buyer for the risk it undertakes, the notional amount is usually less than the principal amount of the reference asset. The transaction may or may not provide for termination and a cash settlement between the parties if a credit event occurs.

For example: Party *A* holds a bond issued by Company *C*, and Bank *B* would like to obtain both the credit risk and the market risk under the bond. Party *A* can swap with Bank *B* all the returns on the bond, including any increase in value of the bond, measured at maturity, in exchange for (i) periodic payments by Bank *B* to Party *A* at a floating rate (e.g., LIBOR plus fifty basis points) on a notional amount, and (ii) a payment equal to any decrease in value of the bond measured at maturity (or early termination of the bond, if

applicable). In this example, Party *A* is the total return seller and the protection buyer, and Bank *B* is the total return buyer and the protection seller.

Diagram 3
Total Return Swap



The nature of the risks protected distinguishes a total return swap from a credit-default swap. A credit default swap transfers only credit risk. A total return swap, however, transfers both credit risk and market risk. Indeed, because a total return swap synthetically transfers ownership in an asset, some market professionals do not see the transaction as a true credit derivative, even though credit risk is shifted. This may also explain why total return swap terminology prefers the terms *total return buyer* and *total return seller* to the terms protection seller and protection buyer, respectively.

Interestingly, a total return swap can engender a basis swap. This would occur if both the reference asset and the total return buyer's payment obligations were set at a floating rate. Because both sides of the swap relate to

floating rates, the market risk that the total return swap transfers is basis risk.

3. Credit Spread Options

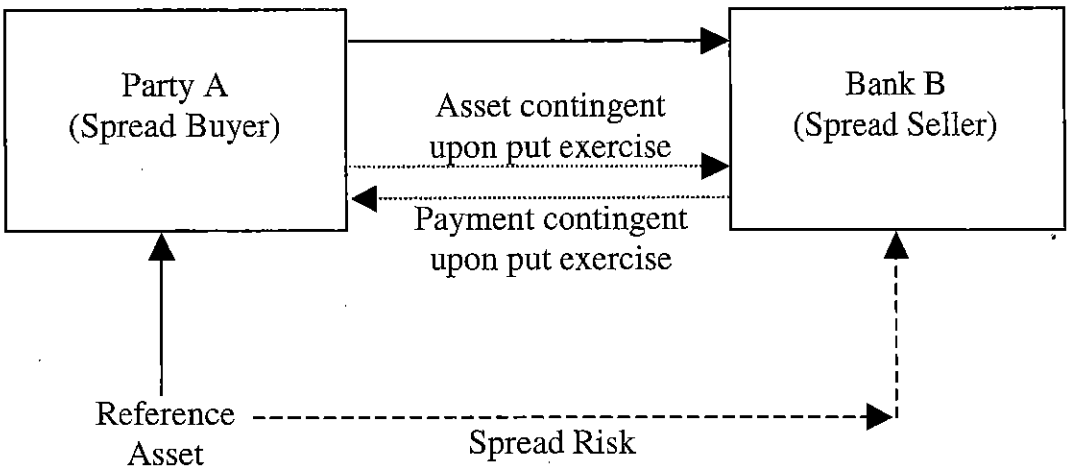
Credit spread options are designed to capture changes in yield between (i) a reference asset and a relatively risk-free baseline, such as a U.S. Treasury Bill or market rate swap, of similar maturity; (ii) similar securities of two different issuers; or (iii) two obligations of the same issuer but with differing maturities. The spread between the two items is the quantification by the market of the credit risk in holding a certain asset. What makes credit spread options unique among credit derivatives is the disregard of credit events and sole focus on the differences between two references. The protection offered by a credit spread option usually can be invoked long before a true credit event occurs because yield differences express the market's anticipation of credit or credit-like events. In this sense, it might not be appropriate to call a credit spread option a credit derivative; ultimately, however, the moniker is fair because the product does address credit risk, just not credit-default alone.

In a credit spread option, the party buying protection, as it were, pays a premium and obtains a right to buy from or sell to the other party the reference asset at a pre-determined price, should the spread reach a certain trigger point. When the option is a put, the option holder will sell the asset once the spread indicates unpalatable risk. When the option is a call, the option holder will buy the asset once the spread, hence return, appears sufficiently large to justify tolerating the risk. The protection provided by a credit spread option is wider than that provided by a credit swap or a total-return swap because a credit spread option protection trigger can occur long before a credit event arises and payment is due regardless of what causes the credit spread movement.

For example: Party *A* holding a rated bond issued by Company *C* with one-year maturity can buy a credit spread put option from Bank *B* for an upfront premium. The option gives Party *A* the right to sell the bond to Bank *B* at a pre-

determined strike value. The strike value is expressed in terms of credit spread over a one year U.S. Treasury bond. On the option's strike date, if the actual spread of the bond is less than the strike value, the option is worthless and simply will expire. If the spread is higher than the strike value on the strike date, Party *A* will deliver the underlying bond to Bank *B* and Bank *B* will pay an agreed-upon compensation. In this example, Party *A* is the spread buyer and Bank *B* is the spread seller.

Diagram 4
Credit Spread Put Option



Credit spread options are obviously intricate and, to date, have been difficult to model and price. Consequently, they are not yet considered efficient hedging tools, and their popularity is limited. Nonetheless, interest in these credit spread options will undoubtedly rise because their early warning capabilities are an obvious benefit to investors.[44]

[44] *See* Kiff & Morrow, *supra* note 39, at 5 (In troubled Asian, Latin American, and Eastern European financial markets of late 1990s, "spreads widened dramatically in absence of any 'event,' as defined in typical default-swap documentation.").

4. Credit-Linked Debt

Credit-linked debt is only a credit derivative in part. Most commonly, it takes the form of a credit-linked note, which is a combination of a structured note[45] and a *funded* credit-default swap. In a credit-linked note, the protection seller pays the protection buyer a principal amount, in exchange for a note issued by the protection buyer. Under the note, the protection buyer obligates itself to pay periodic interest. The principal is redeemed upon maturity or a credit event, whichever comes first. In the case of a first-occurring credit event, however, the note holder will suffer. If the arrangement is cash-settled, the note issuer will deduct a stipulated credit-default amount from the principal. If the arrangement is physically-settled, the note issuer will deliver the reference asset to the note holder, instead of redeeming with cash.

For example: Bank *B* issues a note to Party *A*, under which Party *A* lends a principal amount to Bank *B* at a pre-determined interest rate. Bank *B* will pay periodic interest payments to Party *A*. However, if a certain Company *C* defaults on a certain bond that it has issued before the note's maturity, Party *A* will forfeit its rights to return of some or all of the principal and any remaining interest payments. In this example, Party *A* is the protection seller and Bank *B* is the protection buyer.

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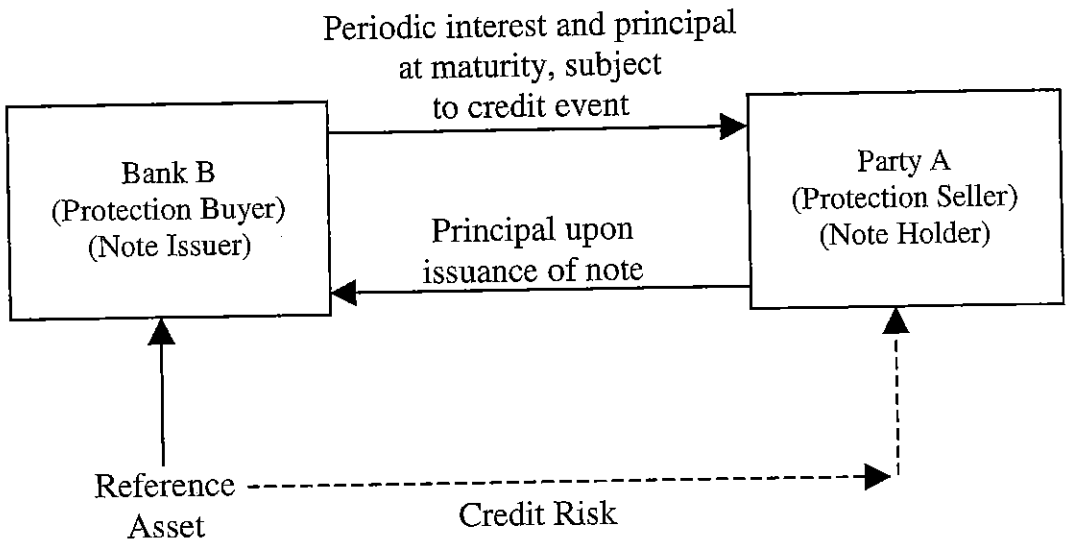
[45] Structured debt is itself derivatives-like because its yield is contingent on a variable external item. For example, a structured note is an intermediate-term debt instrument under which interest payments are calculated by a formula that refers to an external and variable item or rate. The reference can be something relatively simple, like LIBOR, or complex, like LIBOR plus something, if LIBOR is in a certain range (this range may change according to a schedule), and something less otherwise. Sometimes, a structured note will include a leverage factor that multiplies the rate (e.g., one and one-half times LIBOR). Not surprisingly, structured debt products are sometimes described as *hybrid* instruments.

Diagram 5
Credit-Linked Note



A credit-linked deposit is similar to a credit-linked note. In a credit-linked deposit, the protection seller deposits a principal amount into an account with the protection buyer. Additionally, the protection seller agrees to forfeit some or all of the contents of the account in the event of a credit-default of the reference obligor.

In contrast to the protection seller in a credit-default swap, the protection seller in credit-linked debt ensures its contingent payment obligation in advance by way of a forfeitable loan. In this manner, the protection seller funds or collateralizes the original credit risk with a principal amount. The protection buyer is thus also protected from the credit risk of the protection seller. It is this funding that most distinguishes credit-linked debt from a credit default swap. This funding is particularly attractive to regulated entities, as the credit risks of both the obligor and of the credit derivative counterparty are neutralized, reducing the need for regulatory capital. As in the case of a credit default swap, credit-linked debt transfers only credit risk.

D. Derivatives Consumption

Broadly speaking, derivatives consumers act as dealers or end-users. Dealers are intermediaries; they act as principals who take sides in transactions and earn (they hope) spreads if and when they find others to take the opposite sides of the transactions.[46] End-users are relatively final buyers and sellers of risk.

Not all consumers of derivatives have the same perspectives on and interests in certain risks. Ultimately, consumers reduce to three main groups: *hedgers, speculators,* and *arbitrageurs*,[47] each with its own motivation for consuming derivatives products. It is true that portfolio managers too are significant end-users -- they trade derivatives to manage their portfolio assets and liabilities -- but their strategies essentially comprise hedging, speculating and arbitrage. Dealing also motivates derivatives trading, but dealing depends on supply and demand. Supply and demand depend on end-users.

1. Hedging

Hedging is protecting. More specifically, it is the process by which an exposed entity enters into a transaction or transactions that will generate profit in the exact circumstances that would generate a loss under the exposure. Hedging an exposure reduces risk, but also costs a reduction in contingent reward from the exposure. Hedging can offset all or part of a certain risk, either *closing out* or only moderating the risk-causing position.

For entities reluctantly exposed to market or credit risks, it is commonly considered helpful, perhaps even prudent, to hedge against market movements or credit defaults. By buying instruments designed to generate gains that will

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[46] Dealers should not be confused with brokers, who act only as agents for some or all parties to transactions and earn commissions.

[47] *See generally* HUDSON, *supra* note 16, at 9-12 (emphasizing four forms of derivatives activity: speculation, hedging, asset liability management, and arbitrage).

offset prospective losses if these risks crystallize, these entities reduce their uncertainties and free themselves to pursue productive activities. On a more macro level, parties with equal and opposite risks that hedge, either with each other or via intermediaries, may lower total risk in, and stabilize, an economy.

Although the purpose of a hedge is to neutralize risk, using derivatives as a hedging tool is still risky by nature for a number of reasons: (i) the derivatives product may not cover the targeted risk precisely or operate exactly as anticipated; (ii) the derivatives contract counterparty itself may fail to perform; (iii) a party can enter into a derivatives transaction to hedge anticipated risk and then not incur the risk; and (iv) a party's hedge position might be marked-to-market, whereas the underlying may not be (such a situation might require the hedger to deliver significant amounts of collateral if the hedge position moves against the hedger and the underlying itself is not acceptable as collateral).[48] Hedgers will often manage risks from derivatives transactions with other derivatives, which can increase their exposure to counterparty credit risk. These dark scenarios do not mean that derivatives hedging is too risky to employ; rather, they mean that such hedging should be done expertly.

It is often thought that entities that do not hedge their market risks are more at risk than entities that do.[49] This certainly is true in many situations. However, hedging with derivatives may not be appropriate for all parties at all times and, from some perspectives, may actually be wasteful. For example, some multinational corporations with foreign currency revenues prefer to create *natural hedges* by generating foreign currency profits with same-currency costs, or self-insure their currency risks, rather than hedge

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[48] *See* Franklin R. Edwards & Michael S. Canter, *The Collapse of Metallgesellschaft: Unhedgeable Risks, Poor Hedging Strategy, or Just Bad Luck?*, 15 J. FUTURES MKTS. 211, 235-36 & 244 (1995). For a description of collateral in derivatives transactions, see *infra* Part II(F)(1).

[49] *See* Hu, *supra* note 5, at 30, *citing* Philip M. Johnson, *Is Failing to Hedge a Legal Virus*, FUTURES, Nov. 1993, at 18.

with expensive derivatives that can erode earnings.[50] Additionally, if certain markets are stable over the long-term, something admittedly difficult to presume, managers might nonetheless be incentivized to hedge short-term volatility because their mandates are typically short-tenured.[51] Finally, a given company's hedging may work against its shareholders' wealth maximization interests if the shareholders are adequately diversified at their portfolio level[52] or wish exposure to risk in the precise sectors of the company's activities.

2. Speculation

Speculators buy or sell derivatives without true exposure to or core interest in the underlying risk. There usually is no shortage of entities willing to place their money on their view of future price movements, regardless of underlying risks they actually face, if any. Those without underlying exposure who are convinced that the markets will move in a certain direction or that the market's judgment of the credit of a given entity is mistaken usually find derivatives a particularly useful way to economically test their conviction. While speculators are sometimes likened to wild-eyed gamblers, many consider speculators to play a key role in derivatives markets because they are presumed to provide liquidity.[53] Theoretically, a market can have a perfect balance of natural long and short hedgers; realistically, however, speculators fill a counterparty void.

While speculators increase their holistic exposure, hedgers reduce their holistic exposure. Yet, where hedging stops and speculation begins is not always clear. The identification and quantification of underlying risk and the

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[50] *Perils of the Hedge Highwire,* BUS. WK., Oct. 26, 1998, at 73.

[51] *See id.*

[52] *See* Hu, *supra* note 5, at 3.

[53] *Cf.* THOMAS A. MCCAFFERTY & RUSSEL B. WASENDORF, ALL ABOUT FUTURES: FROM THE INSIDE OUT 6 (1992) ("[T]he increased use of futures by speculators makes the market more efficient and actually reduces price fluctuations.").

measurement of the expected extent of a hedge can be challenging to even sophisticated planners. Furthermore, it can be argued that hedging is not much different than speculating because the hedger too takes a speculative view on the market. After all, the hedger anticipates a deleterious price movement or credit event; otherwise why hedge?[54] Alternatively, it can reasonably be argued that failure to hedge is itself speculation.[55] In any event, some consider speculators to have an inherent advantage over hedgers because hedgers protect against volatility of market prices to preserve their business viability, whereas speculators do not.[56]

3. Arbitrage

While hedgers and speculators alone would probably provide for fairly active OTC derivatives markets, arbitrageurs also provide significant activity, thereby enhancing liquidity and supporting these markets. Arbitrageurs are market players who take advantage of either price mismatches or artificially restricted opportunities or who stake positions before markets react to certain events.

At its most basic, arbitrage is buying an item in one market and concomitantly selling it in another market, thereby exploiting a difference in prices due to market

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[54] JAMES, *supra* note 8, at 2.

[55] DON M. CHANCE, *Losing Money with Derivatives, in* ESSAYS IN DERIVATIVES 289, 300 (1998).

[56] *E.g.*, BERNSTEIN, *supra* note 22, at 304. The makeup of hedgers in a market can also affect pricing. For example, a market is in *backwardation* when spot prices exceed futures prices. This is thought to occur when the dominant hedgers in a market are suppliers who, eager to fix a future sale price, drive futures prices down. The market is in *forwardation* or *contango* when futures prices exceed spot prices. This is considered to occur when the dominant hedgers are consumers who, eager to fix their future purchase costs, drive futures prices up. *See* FED. RESERVE SYS., *Commodity-Linked Transactions, in* TRADING AND CAPITAL-MARKETS ACTIVITIES MANUAL § 4355.1, at 3 (Feb. 1998), *available at* http://www.federalreserve.gov/board docs /supmanual/trading/trad_p4.pdf.

inefficiencies. At more sophisticated levels, it can involve a number of exploitations of other market mispricings. These include: (i) buying an item priced relatively low and selling a related item priced relatively high for profit if and when the spread closes to a presumably more appropriate quantum; (ii) staking positions in the securities of a given company in anticipation of an expected outcome in a corporate process relating to that company, e.g., in the case of a merger or acquisition that is announced but not yet completed; (iii) obtaining indirect exposure to items to which direct access is denied by law; and (iv) exploiting the respective comparative advantages parties have in different debt or currency markets.

Because arbitrage depends on market imperfections, and because arbitrage transactions themselves can operate to correct those imperfections relatively quickly, arbitrageurs depend on speed and opacity -- they seek to profit before they are copied, spreads narrow, or access is prevented. Additionally, leverage and large volumes can be key to arbitrage because arbitrageurs seek to profit from even minor market movements. Accordingly, derivatives make ideal tools for arbitrageurs and OTC derivatives even more so, especially when considering that trading on-exchange derivatives can easily affect the prices of the underlyings.

E. The Risks Arising from OTC Derivatives

OTC derivatives are dedicated to risk management, yet themselves generate risks. While there are many ways to parse these risks, many of the risks that are common to most OTC derivatives are common to other financial instruments as well. These familiar risks include market risk and credit risk.[57] Other risks, such as *liquidity risk* and *systemic risk* are commonly considered in other contexts, but often are particularly associated with OTC derivatives.

When considering the major and measurable risks that arise from derivatives trading, it is important to realize that

[57] *See supra* Part II(A)(3).

many consumers today manage their risks on a portfolio basis. This means that they manage the residual risk of all their derivatives positions combined, rather than managing each risk associated with each position they hold. Historically, for example, dealers would offset positions they took, position-by-position; today, however, they commonly warehouse positions and seek to offset residual exposures.

A dealer managing on a portfolio basis will aggregate risks by type and pursue an overall approach to risk and return. A loss or gain to such a dealer in a specific derivatives transaction does not necessarily translate into a matching holistic loss or gain to that dealer because that dealer is *naked* only to the extent it has accepted risk after adjudging and managing its portfolio. Such a loss or gain may loom large on a transactional basis, but small on a portfolio basis. Portfolio risk management not only makes for efficient risk control, it also reduces transaction costs.

1. Market Risk

Like the market risk that many OTC derivatives themselves address, market risk arises from derivatives transactions themselves. Any party to an OTC derivatives contract faces the possibility that the value of the contract will change as market conditions vary. For example, a party to a forward foreign exchange contract that is at the market on the trade date faces the risk of the rate changing to such party's detriment before maturity. A sophisticated party will measure the market risk to its overall portfolio. That is, it will measure its net exposure after accounting for all its positions.

2. Credit Risk

A party to an OTC derivatives contract faces the risk that the counterparty will fail. This is credit risk and can be divided into two relevant categories: *counterparty risk* and *settlement risk*. Counterparty risk is the risk that the counterparty will become insolvent sometime during the life of the derivatives transaction prior to settlement.

Settlement risk is the risk that a party will fulfill its part of a scheduled exchange and the counterparty will fail to reciprocate.[58] As a result of these risks, primary providers of credit derivatives protection tend to either collateralize their protection payment obligations or be well regarded or highly rated financial institutions.

(i) Counterparty Risk

The insolvency of a counterparty before a contract is settled does not necessarily cause the innocent party an out-of-pocket loss; it, however, does leave the innocent party without the position it had assumed when entering into the contract. Thus, a counterparty's insolvency will cause the innocent party a loss equal to what it will cost the innocent party to replace the contract with a new contract equivalent to what remains of the defaulted original. If the innocent party is in the money at the time of default, it will experience an immediate credit loss, absent a curative replacement.

Two important techniques for bilateral counterparty risk control are *termination netting* and *credit support*. Termination netting, usually shortened simply to *netting*, is a contractual arrangement to terminate all outstanding transactions between the parties when a counterparty becomes insolvent and set off resultant payables against resultant receivables. This is meant to reduce the credit exposure of a counterparty to the net amount due.[59]

Whether a netting arrangement is legally and fully enforceable in the liquidation of the counterparty is critical to the efficacy of this form of counterparty risk mitigation. Thus, netting arrangements effectively exchange one risk --

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[58] *See generally Counterparty Credit Risk and Presettlement Risk, supra* note 17, at 1 (distinguishing between *presettlement* risk and *settlement* risk).

[59] *See generally* Darryl Hendricks, *Netting Agreements and Potential Credit Exposure, in* DERIVATIVES, REGULATION AND BANKING 335 (Barry Schachter ed., 1997) (determination of extent of potential, as opposed to current, credit risk reduction via bilateral netting is difficult to measure and sensitive to portfolio composition).

counterparty -- for another -- legal, although a transacting party might not give the two equal weight. In any event, netting is critical for the operation of a derivatives business, particularly for regulated market participants, because regulatory capital charges levied on a gross basis seriously reduce the profitability of that business.

Credit support normally involves provision of collateral by the counterparty or its supporter, but in some cases it involves provisions of third party guarantees. Technically, credit support does not eliminate counterparty risk; it just provides recourse in case of the counterparty's failure. For this reason, a party demanding credit support must assess how much counterparty risk, if any, it is willing to accept and what quantity and quality of collateral or guarantee it requires. Credit support can be used in conjunction with netting, i.e., to collateralize net exposures, assuming netting is legally reliable. This adds additional allure to netting, since collateralizing gross exposures would tie up relatively large amounts of liquid assets.

(ii) Settlement Risk

Some OTC derivatives contracts require bilateral settlement that involves an exchange between the parties. Settlement risk is the risk that, on the settlement date, one party will meet its requirement and the other will not. If the contract in question calls for the parties to swap gross payments with each other, a party that makes its payment first is exposed to the possibility that the counterparty will fail to reciprocate.

If the counterparty's failure is due to insolvency, the counterparty may never fulfill its obligation and the compliant party may never have its payment returned. If the counterparty's failure is due to something more mundane, say an operational failure, the compliant party's rights should be enforceable. However, even in the latter context, a delay in settlement is no small affair. A counterparty's failure to settle in a timely fashion can jeopardize the liquidity of the compliant party, which may

depend on precisely timed counterparty payments to meet other obligations.[60]

An acute example of settlement risk arises in currency swaps with parties residing in materially different time zones. If banks in one jurisdiction close before banks in the other jurisdiction open on the same day, one party will normally be required to meet its settlement obligations before the other party can follow. Lawyers can devise a number of practical solutions to a given settlement risk, even one involving differing time zones,[61] but the foregoing example demonstrates well the risk of a scheduled exchange becoming a one-way payment.

To address settlement risk generally, parties can engage in *payment netting*, also called *settlement netting*. This type of netting is the set-off of whatever is payable and whatever is receivable on any given settlement date. This reduces the settlement exposure to the net obligation. While payment netting is meant primarily to minimize the risk of unrequited payment, it also reduces transaction costs. A further benefit may be that it mitigates withholding taxes.[62] Like with termination netting, enforceability of payment netting upon the insolvency of the counterparty is critical to its efficacy.

3. Liquidity Risk

Liquidity risk is the risk that a party will be unable to transact without extraordinary cost or loss due to a lack of immediately available resources or prospects. In the context

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[60] *See* FED. RESERVE SYS., *Counterparty Credit Risk and Settlement Risk, in* TRADING AND CAPITAL-MARKETS ACTIVITIES MANUAL § 2021.1, at 1 (Mar. 1999) ("[S]ettlement risk has a number of dimensions that extend beyond counterparty credit risk to include liquidity, legal, operational and systemic risks."), *available at* http://www.federalreserve.gov/boarddocs/supmanual/trading/trad_p2.pdf.

[61] *See* ANTHONY C. GOOCH & LINDA B. KLEIN, DOCUMENTATION FOR DERIVATIVES 41 (3d ed. 1993).

[62] *Id.* at 40.

of OTC derivatives, this risk breaks down into two types: *funding liquidity risk* and *market liquidity risk*.

Funding liquidity risk is the risk that a party will not meet its payment obligations due to a temporary cash shortage. If the risk referred to a permanent cash shortage, the risk would more appropriately be called credit risk. In financial institutions, funding liquidity risk arises from cash-flow mismatches, which in turn arise from mismanagement of trades. While every financial transaction implicates funding liquidity capabilities, OTC derivatives can have a particularly impressive impact.[63]

Market liquidity risk is the risk that a party will not be able to terminate a transaction prior to maturity. Most OTC derivatives contracts are not normally assignable without the consent of the counterparty. This makes them difficult to liquidate, with only limited ways to *unwind*, i.e., terminate. A party could reverse its position by entering into an offsetting parallel contract.[64] A reversing transaction, however, is not ideal because it raises issues of increased credit exposure. Additionally, the party looking to unwind may not find an exactly offsetting position. This could be especially so for products in which only a relatively few dealers engage, such as certain currency swaps.[65]

Occasionally, the counterparty will acquiesce to the sale of the contract to a third party, but usually only if the third party's creditworthiness equals or exceeds that of the assigning party. The counterparty might also agree to buy back the transaction, especially if the buy-back frees the counterparty's credit line for further transactions. In either assignment or buy-back, the position of the party assigning or selling back, as the case may be, will be marked-to-

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[63] *See* FED. RESERVE SYS., *Liquidity Risk, in* TRADING AND CAPITAL-MARKETS ACTIVITIES MANUAL § 2030.1, at 1 (Sept. 2002), *available at* http://www.federal reserve.gov/boarddocs/supmanual/trading/trad_p2.pdf.

[64] Offsetting contracts demonstrate well how notional amounts can significantly overstate credit risk. *See supra* Part II(A)(2).

[65] *See* FED. RESERVE SYS., *Currency Swaps, in* TRADING AND CAPITAL-MARKETS ACTIVITIES MANUAL § 4335.1, at 4 (Feb. 1998), *available at* http://www.federal reserve.gov/boarddocs/supmanual/trading/trad_p4.pdf.

market.[66] If the value of that position is negative, that party will pay the assignee or counterparty, as the case may be, the absolute amount of that value. If the value of that position is positive, the assignee or counterparty, as the case may be, will pay that amount to the unwinding party.

4. Operational Risk

OTC derivatives transactions give rise to a number of risks. Accordingly, a derivatives consumer needs to manage not only underlying risks, but also derivatives-generated risks, such as market or credit risk. *Operational risk* is the possibility that a derivatives consumer's internal systems will fail to measure adequately, monitor effectively, or control intelligently the risks to which the consumer is exposed.

To minimize operational risk, consumers of derivatives must constantly calculate their exposure to and appetite for risk. They also must maintain sound plans for contingencies and emergencies, operate an efficient and reliable change of command, and ensure proper internal controls and oversight. These necessities involve human and technological elements. Failures in any of these criteria can lead to unexpectedly large losses and might even collapse the institution.

5. Legal Risk

OTC derivatives are relatively new to markets and even more so to legal systems. The extra novelty that characterizes the law's experience of OTC derivatives arises because innovative financial products tend to get tested by legal systems only some time after their introduction to the market and sophisticated financial institutions often settle inter-bank disputes. Not surprisingly then, very few courts have tested the provisions of, or concepts underlying, OTC derivatives contracts. Some jurisdictions have enacted legislation to clarify various derivatives issues. Such

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[66] For a discussion of marked-to-market, see *infra* Part II(F)(1).

legislation is not the norm and does not always cure all legal ills; it, in fact, may raise more questions than it resolves.

Generally speaking, parties to OTC derivatives contracts run the risk that certain provisions will not be enforced, either at all or as intended. They might even run the risk that the contracts themselves will be voided. Indeed, even the best-crafted derivatives contract in the most transparent and permissive legal regime runs the risk that the law will change during the life of the derivatives transaction.

Legal risk can attach to the contract itself. For example: (i) The contract might be viewed as unenforceable because it is an improper gambling arrangement or an unlicensed provision of insurance; (ii) the contract language might fail to describe precisely the arrangement an injured party intended; (iii) the applicable law might not permit certain aspects of the contract, or it might limit their enforceability; and (iv) some types of contracts might be recharacterized as unintended transactions.

Legal risk can also attach to the counterparty. For example: (i) The counterparty might not have the legal capacity to enter into the contract, i.e., law, regulation or internal constitutions may restrict it; (ii) the counterparty might be restricted in the purposes for which it enters the derivatives transaction; (iii) the counterparty might not be legally suitable for the transaction; (iv) the counterparty might be subject to certain immunities under law; (v) the signatory of the counterparty might not have the authority to bind the counterparty; and (vi) the counterparty might have reporting obligations inconsistent with the intended discrete nature of the transaction.

Additionally, credit support poses legal risks. For example, credit support may be given improperly. In the case of collateral, credit support may not be *perfected*, i.e., enforceable against third parties or the counterparty's liquidator. Credit support might be particularly sensitive to conflict of laws issues.

Much legal risk can be reduced with good and timely lawyering. Ultimately, however, legal systems always will struggle to keep pace with the ever-innovative financial

markets. That normally is appropriate, as legal approaches are by nature and, indeed, should be, somewhat deliberative. Lawyers specializing in derivatives, however, frequently are asked to advise on cutting-edge products and assist clients who must *take a view* on possible outcomes.[67] The law's seemingly endemic lag behind finance means that these lawyers often will be hard-pressed to counsel their clients definitively.

6. Systemic Risk

Financial institutions can act as both dealers and end-users of OTC derivatives. In many markets, these institutions both service their customers by providing OTC derivatives and trade the products to hedge and speculate for proprietary purposes. While the combination in and of itself may not be remarkable, banks' deep involvement in OTC derivatives as dealers draws attention because of the possible impact on the overall financial system.

Some observers believe OTC derivatives usage among dealers increases systemic risk. Systemic risk is the risk that the whole financial system will collapse because of the initial failure of just one or a few players. According to the critics, each derivatives transaction transfers underlying risk and creates credit risk because a derivatives party may fail to make required payments or deliveries under the derivatives contract. Thus, active derivatives trading generates a web of transactions and credit exposures, as party after party seeks to pass off some of the market or credit risk it has obtained under a derivatives transaction via another derivatives transaction, until a complex network of financial inter-dependencies arises among many financial institutions. Under a doomsday scenario, one of the derivatives contract parties fails, and then many other parties to many other derivatives contracts also fail, in an

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[67] *See generally* JAMES, *supra* note 8, at 16-19 (breaking down legal risk to product risk, counterparty risk, transaction risk, and handling risk).

unavoidable chain reaction that eventually collapses the financial system.[68]

The risk of such a financial catastrophe is thought to arise specifically from dealing in OTC derivatives because, arguably, the true financial conditions of entities employing these products are not always apparent. Moreover, risk in the products can be underestimated, dealing is concentrated among a relatively small number of players, market liquidity may not suffice for dealers' needs, and large volumes increase settlement risks.[69] For those who fear systemic risk, OTC derivatives are ironic; the purpose of the derivatives is to manage risk at a micro level, but their effect is to increase risk at a macro level.

Other observers believe that OTC derivatives usage among dealers does not increase and may, in fact, decrease systemic risk. Dealers, and even some end-users, of OTC derivatives today manage their risk on a portfolio basis. Without a direct correlation between offsetting derivatives transactions, optimists expect that the failure of a party to perform under its OTC derivatives contracts would not cause its counterparties, or other counterparties further down the chain, to fail under their contracts. Thus, the optimistic view is that OTC derivatives pose no more risk to the financial system than any other financial obligation.[70] Indeed, derivatives may even be stabilizing, especially when compared to common financial obligations, because derivatives place risk with parties who are better able, and deliberatively willing, to bear such risk. This implies not only that derivatives allow end-users to shift risk to dealers, but also that through derivatives risk can actually be

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[68] For a description of how derivatives trading recently may almost have led to systemic collapse, see ROGER LOWENSTEIN, WHEN GENIUS FAILED: THE RISE AND FALL OF LONG-TERM CAPITAL MANAGEMENT (2000).

[69] Michael R. Darby, *Over-the Counter Derivatives and Systemic Risk to the Global Financial System*, *in* DERIVATIVES, REGULATION AND BANKING 215, 222 (Barry Schachter ed., 1997) (internal citations omitted).

[70] *Cf.* THOMAS F. SIEMS, 10 MYTHS ABOUT FINANCIAL DERIVATIVES 8-9 (Cato Inst., Cato Policy Analysis No. 283, 1997).

cancelled.[71] Thus, a financial shock should be borne better by a network that has allocated risks with derivatives than one that has not.[72]

F. Exchange-Traded vs. Over-the-Counter

Derivatives, whether focused on market risk or credit risk, can be divided into two genres: exchange-traded and OTC. In a limited sense, exchange-traded options and futures do not differ much from OTC options and forwards. With either genre, derivatives allow market players to mimic trading on certain markets without entering into those markets and are used for hedging or speculation. In a more refined sense, however, OTC derivatives differ from their publicly traded kin in many significant ways.

1. Exchange-Traded

Certain derivatives, even options and futures, cannot be obtained on an exchange. That is because options and futures available on an exchange refer to a limited menu of underlyings. To justify the costs of creating an exchange-traded derivative, the exchange would require an underlying that is exchange-traded with a good degree of liquidity and price discovery. Moreover, even when comparing on-exchange options and futures with OTC options and forwards that relate to similar or even identical underlyings, it would be a mistake to consider exchange-traded and OTC derivatives products to be equivalent.

On-exchange derivatives are designed to be fungible products and so embody a high degree of standardization. When purchasing or selling an exchange-traded contract, the buyer and seller are obligated by inflexible terms and conditions set by the exchange: settlement dates, settlement amounts, and contract maturities are standard;[73] option

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[71] Darby, *supra* note 69, at 232.

[72] SIEMS, *supra* note 70, at 11.

[73] In the United States, LEAPS (long-term equity anticipation securities) are on-exchange options with maturities as long as 39 months.

strike prices are limited to increments of certain round numbers; settlement is physical; and options are usually American.[74] Some derivatives contracts that trade on exchanges even limit how much the price can move up or down on a given trading day.[75]

Most exchange-traded over-the-counter derivatives are physically-settled. Yet, the uniformity of contracts on an exchange allows a contract to trade many times before expiration. Thus, a buyer can offset its exposure under a derivatives contract or avoid taking physical delivery by simply selling the contract. Admittedly, this may be expensive or difficult during distressed market conditions and in the later stages of a given option or futures contract.[76]

Additionally, a typical derivatives exchange often provides a consistent level of credit support to those trading the contracts it hosts that many consider matchless. It does this by absorbing the credit risks of market participants. An exchange that bears the risks of party default usually does so via a central settlement system called a *clearinghouse.* Typically, a clearinghouse concentrates payment and delivery risks in a central entity by effectively acting as a mandatory counterparty to each party performing or expecting performance under a traded contract.[77]

They usually reference only the shares of companies with relatively high market capitalizations.

[74] Some exchange-traded options can be European. In the United States, for example, FLEX (flexible exchange) options can be either American or European and may be further customized (e.g., custom maturities, but no cash settlement). FLEX options are available only on a small number of exchanges and reference shares of only a few companies and indices. CBOT also hosts somewhat customizable Flexible Treasury Options on U.S. Treasury bonds and bills, which can be either American or European style.

[75] This feature can create a liquidity shortage for a contract that has traded to a limit. *See Options*, *supra* note 35, at 8.

[76] *See id.* (most trading takes place in first or second month of contract).

[77] Parties enter into an exchange-traded derivatives transaction by placing opposite buy and sell orders. The orders are then executed on the exchange, typically after which the clearinghouse confirms and cash-

For the clearinghouse to ensure settlement for market participants, it must be certain of protection from the default of market participants. This is accomplished by imposition of certain rules on the market participants. For example, rules relating to *margin* provide the clearinghouse with much of the credit protection it requires.[78] These rules are extra-structural to the derivatives products themselves, but do distinguish exchange-traded from OTC derivatives.

Margin is the cash or eligible securities that a market participant must provide to collateralize its contingent obligations that flow from exchange-traded contracts under which it is obligated.[79] Margin provision can be divided into two stages. *Initial margin* is the first collateral that the market participant deposits at the time the participant takes a derivatives position. *Maintenance margin* (or *variation margin* when speaking of futures) is the additional margin that the participant must deposit if the initial margin does not suffice because the exposure on the derivatives position increases or the earlier-provided margin value decreases.

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settles the transaction by taking a position opposite to each party and performing the relevant buy and sell obligations. BRENDA GONZÁLEZ-HERMOSILLO, THE MICROSTRUCTURE OF FINANCIAL DERIVATIVES MARKETS: EXCHANGE-TRADED VERSUS OVER-THE-COUNTER 28 (Bank of Can., Technical Report No. 68, 1994), *available at* http://www.bankofcanada.ca/en/res/tr68-e.htm. *See also* BANK FOR INT'L SETTLEMENTS, CLEARING ARRANGEMENTS FOR EXCHANGE-TRADED DERIVATIVES 11 (1997) (describing structures of clearinghouses in exchanges of G-10 countries). A clearinghouse can be an entity separate from, or a division of, an exchange. *See* FED. RESERVE SYS., *Financial Futures, in* TRADING AND CAPITAL-MARKETS ACTIVITIES MANUAL § 4320.1, at 5 (Apr. 2001), *available at* http://www.federalreserve.gov/boarddocs/supmanual/trading/trad_p4.pdf. Clearinghouses do not commonly act as counterparties or guarantors in ordinary securities transactions. *See* GONZÁLEZ-HERMOSILLO, *supra*, at 20.

[78] Many exchanges will also be backed by guarantees of member institutions. The liability under these guarantees can be limited (*pass the hat*) or unlimited (*good to the last drop*). *See Financial Futures*, *supra* note 77, at 5.

[79] A long option position does not require margin because it involves no contingent obligation of the option holder, unless the premium is not fully-paid at the start.

Margin requirements can be set by regulators or by the exchange or clearinghouse itself for its members, although brokers sometimes ask their customers for more margin than is minimally required.

For margin to reduce credit risk meaningfully, the margin and the position it is meant to cover must be measured regularly. Margin accounts for exchange-traded derivatives will usually be *marked-to-market* -- which involves valuating relevant assets at prevailing market values -- daily. Thus, an increase or decrease in the value of a derivatives contract will be reflected in near-immediate credits or debits to a party's margin account. A market participant that does not provide maintenance margin promptly after a drop in the account's value and consequent *margin call* -- when the broker demands that a customer deposit maintenance margin -- may find its positions unilaterally closed out.

It is difficult to overestimate the power of derivatives traded on exchanges. The uniformities and efficiencies of exchange-traded derivatives play a critical role in many risk management strategies. However, these very uniformities and efficiencies also limit flexibility.

2. Over-the-Counter

OTC derivatives contrast with exchange-traded derivatives because the former are made-to-order. When entering into an OTC derivatives contract, parties can effectively achieve the same economic results attainable on an exchange, but without the set formats and rules and with an easier ability to manage net exposures.

An important consequence of the made-to-order nature of OTC derivatives contracts is that parties can trade the risk of relatively unique underlyings. Equally important, OTC derivatives buyers and sellers can structure transactions with unique terms and conditions. Settlement dates and amounts, maturities, strike prices, and type of option (e.g., American or European style) will all be agreed upon by the parties.

The flexibility of OTC derivatives has many advantages. Indeed, maturities of OTC derivatives tend to be longer than

those of exchange-traded derivatives. As a consequence of the OTC customization possibilities, parties to OTC transactions can tailor individual derivatives to specific exposures or for specific risk postures. This allows them to structure a more productive hedge or precise position for their individual situations and tastes than could normally be achieved on an exchange. An OTC derivatives end-user might be able to obtain credit that does not involve cash margins or frequent marked-to-market mechanisms. Additionally, OTC derivatives parties will tailor provisions for closeout and assignment of the parties' rights and obligations to their individual tastes.

In off-exchange transactions, however, the ability to dispose of a contract can be relatively limited since the contract usually is not assignable except in certain extreme situations.[80] Moreover, in off-exchange transactions the credit risks generally are not absorbed by an exchange. This leads to a seeming advantage of exchange-traded over OTC derivatives transactions because an OTC derivatives contract party must pay relatively close attention to the possibility that the counterparty will fail to make good on obligations. OTC derivatives parties have devised a number of techniques, such as netting and credit support, to minimize bilaterally the risk of counterparty default.[81]

It is difficult to overestimate the power and value of customized derivatives. The external risks and consequent interests that influence the business and financial world are so varied that it would be near-impossible for exchanges to meet the needs of a large part of those wishing to manage risk. While exchange-traded derivatives certainly have many advantages, the one critical advantage they cannot consistently offer is precise risk management. This can be critical to an end-user because imprecise risk management can easily make the difference between the success and failure of a given venture.

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[80] *See supra* notes 64-65 and accompanying text.

[81] *See supra* Part II(E)(2)(ii).

G. Standardization of Documentation

OTC derivatives transactions are subject only to the rules devised by the parties or set by applicable and overriding law. Consequently, an agreement reflecting the negotiations between the parties is a necessary feature of the OTC derivatives markets. The agreement sets forth the particular financial terms of each tailored transaction, as well as the custom protections the parties wish to put into place. The law governing the relationship between the transacting parties will determine any legal issue not properly addressed in the documentation.

During the early years of the OTC derivatives markets, interest rate and currency swaps were the main forms of transactions.[82] Because of their relative rarity, these swap transactions were often documented in ad hoc comprehensive agreements. Even today, some OTC derivatives transactions are documented this way. Similarly, some short-term OTC derivatives, usually between highly rated parties, are transacted today only with sparse individualized documents, known as *tickets*, which provide fundamental financial terms only.

However, the early dearth of commonly understood terms retarded the development of the OTC derivatives markets. Eventually, standardization of terms and documents came to be understood as a way to allow parties to conduct derivatives transactions efficiently because it clarifies basics with relatively minimal time and resources. In the early and middle 1980s, a number of group efforts began to standardize the documentation of OTC derivatives transactions.

Trade associations commonly undertook the group efforts. The International Swaps and Derivatives Association, Inc. ("ISDA") led these efforts. ISDA is an international

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[82] Much of the discussion in this Part relies on the history of standardized OTC derivatives documentation in GOOCH & KLEIN, *supra* note 61, at 6-8. *See also* ALLEN & OVERY, AN INTRODUCTION TO THE DOCUMENTATION OF OTC DERIVATIVES 3-5, *at* http://www.isda.org/educat/index.html (last visited Nov. 11, 2002).

association headquartered in New York City that represents leading participants in the OTC derivatives markets. Among ISDA's stated goals is "promoting practices conducive to the efficient conduct of the business [of privately negotiated derivatives], including the development and maintenance of derivatives documentation."[83] Today, ISDA's name and documents are known to even the most peripheral derivatives end-users or dealers.

Document standardization in the United States, for example, began when ISDA published in 1985 the first edition of the Code of Standard Wording, Assumption and Provisions for Swaps ("Swaps Code") and revised it in 1986 to amend old terms and include new terms. The Swaps Code was a glossary of terms that reflected the practices of the major U.S. dollar interest rate swap players at the time and established professional terminology for swap agreements. In 1987, ISDA published another compendium, the 1987 Interest Rate and Currency Exchange Definitions ("1987 Definitions"), to facilitate communication among users of currency swaps and rate swaps in fifteen currencies other than the U.S. dollar.

Critical advances in standardization were made when ISDA published in 1987 two swap Master Agreement forms: the Interest Rate Swap Agreement form (for rate swaps in U.S. dollars) and the Interest Rate and Currency Exchange Agreement form (for rate and currency swaps in other currencies). These forms standardized the gamut of basic terms and conditions in various swap transactions.

As pioneering as they were, ISDA's 1987 Master Agreement forms were ultimately limited because they were designed to accommodate only swaps and contemplated cash settlement as the only form of performance. In 1989, in response to the market's adoption of new derivatives products, ISDA published addenda to the Master Agreement forms' schedules to oblige cap, collar and floor transactions ("Cap Addenda"). In 1990, ISDA attached addenda to the

[83] ISDA, *Mission, at* http://www.isda.org/wwa/mission.html (last visited Nov. 11, 2002).

forms' schedules to oblige swaptions ("Option Addenda"). In 1991, ISDA published the 1991 definitions ("1991 Definitions"), which reflected the markets' innovations by including some terminology and terms of the Cap and Option Addenda, modifying some of the 1987 definitions and adding definitions and rate options for swaps involving five additional currencies.

Despite these extensions, fast-evolving markets forced some derivatives markets participants to create their own addenda. For example, some participants privately devised addenda to extend the 1987 forms to commodity price and equity index-linked derivatives transactions. As the markets evolved, the 1987 forms became increasingly inadequate.

In 1992, ISDA reached a significant documentation milestone when it published two new forms of Master Agreement: One form was for international transactions involving more than one currency and the other form was for domestic transactions involving a single currency. From nearly every meaningful standpoint, ISDA's 1992 forms dominate the OTC derivatives markets today, particularly those markets relying on common law. Unquestionably, the forms have played a critical role in the expansion of the derivatives markets.

The 1992 ISDA forms are meant to accommodate various derivatives transactions between parties. In telling fashion, the 1992 forms refer simply to "Transactions," whereas the 1987 forms referred more specifically to "Rate Swap Transactions" or "Swap Transactions." The 1992 forms also accommodate performance of a party's obligations not just by payment, but also by delivery; this is an important improvement over the 1987 forms. The 1992 forms reflect end-users' and dealers' experiences in the markets and with regulators in the years following promulgation of the 1987 forms.

Today, parties executing Master Agreements based on ISDA forms will almost always employ the 1992 forms. Transactions pursuant to their original agreements continue to take place between parties that once executed Master Agreements based on the 1987 forms and have not yet

replaced those agreements with Master Agreements based on the 1992 forms. In any event, the 1992 forms are today indispensable to the continued development of many OTC derivatives markets and have effectively displaced the 1987 forms as the documentation standard in the relevant markets.

In October 2000, ISDA issued a form that enables parties to amend bilaterally in standardized fashion the 1992 forms of Master Agreement. Moreover, ISDA is expected to issue new 2002 Master Agreement forms in December 2002. ISDA has also published a variety of confirmation forms for a number of types of transactions, as well as many other useful agreements and manuals for the derivatives industry.[84]

ISDA regularly promulgates standard terms to account for changes in the markets, with publications such as: the 1993 Commodities Derivatives Definitions and 2000 Supplement to the 1993 Commodities Definitions; the 1994 Equity Option Definitions; the 1996 Equity Derivatives Definitions; the 1997 Government Bond Options Definitions; 1997 Bullion Definitions and 1997 Short Form Bullion Definitions; 1998 Euro Definitions; the 1998 FX and Currency Option Definitions; the 1998 Supplement to the 1991 Definitions (the supplement updates certain sections of the 1991 Definitions and addresses more currencies and reflects changes since 1991 in the nature of quotations to certain floating rate options); the 1999 Credit Derivatives Definitions; 2000 Definitions (which consolidates and updates the 1991 Definitions, 1998 Supplement to the 1991 Definitions and certain provisions of the 1998 ISDA Euro Definitions); and the NCU Supplement to the 2000 Definitions (for transactions involving one or more national currency units that the Euro replaced). ISDA expects to publish the 2002 Equity Derivatives Definitions by year-end 2002. The definitions booklets are designed to facilitate the types of derivatives transactions that their titles indicate.

[84] The various ISDA documents referred to in this Part are available directly from ISDA.

In addition, ISDA has promulgated four *protocols*: an original EMU Protocol (1998), a 2001 EMU Protocol (Greece) (2000), a 2001 Credit Support Protocol, and a 2001 Euro Protocol. These protocols allow for efficient amendment of pending transactions, employing a multilateral treaty deposit approach. The protocols allow a party to amend all of its transactions under ISDA Master Agreements by notifying ISDA of its adherence to a given protocol and binding itself to all or some of the amendments envisioned by that protocol vis-à-vis any counterparty; this amendment, however, is conditional on that counterparty notifying ISDA of its own adherence to matching amendments in that protocol. ISDA maintains and displays a list of adherence notifications from various market participants that have agreed to any of the protocols, allowing adhering entities to determine with whom and to what extent they have amended their contracts.

Notably, ISDA did not develop OTC derivatives standardization alone. As early as 1985, the British Bankers' Association ("BBA") published recommended terms and conditions for short-term London interbank interest rate and currency swaps, such as LICOM terms for the currency options market and BBAIRS terms for the interest rate swaps market. Later, the BBA adopted terms relevant to synthetic agreements for forward exchange ("SAFEs"). Foreign exchange standardization was furthered by the BBA's publication of the 1992 International Currency Options Market Master Agreement ("ICOM") form and the 1993 International Foreign Exchange Master Agreement ("IFEMA") form. In 1997, the BBA updated the ICOM form and published a Foreign Exchange and Options Master Agreement ("FEOMA") form for use in spot and forward foreign exchange transactions.[85] Also, associations in Australia, France, Germany and Hong Kong, and other nations have developed standardized terms, and industry

[85] For a description of BBA documentation activities in currency derivatives matters, see BRITISH BANKER'S ASS'N, GUIDE TO THE 1997 INT'L CURRENCY OPTIONS MKT. (ICOM) MASTER AGREEMENT TERMS 6-7 (1997).

groups in other countries have developed standardized modifications to the ISDA master agreements, to accommodate local legal concerns.[86]

The development of standardized terms and terminology has been extensive and has enabled the OTC market to expand significantly. There are, however, limits to standardization. The standardized language is itself complex.[87] In addition, the language of the markets and the derivatives products themselves regularly evolve, creating continuous standardization needs. More prosaically, market participants never quite agree among themselves what terms should be standard, mostly because each participant operates under its unique internal policies and in its own regulatory or statutory regime. As such, standardized terms often result from drafting committee compromise and so might fall short of the precision and consistency of terms that a bilaterally conceived contract can achieve.[88]

Additionally, standardization must balance a goal of universal applicability with the need to address a parade of business practice and legal issues. These issues can affect a panoply of diverse parties, which operate under sundry cultural and regulatory systems. Some customization is therefore inevitable. Despite its drawbacks, standardization of OTC derivatives transactions is a critical and inescapable feature of today's OTC derivatives markets.

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[86] *See* GOOCH & KLEIN, *supra* note 61, at 7; ALLEN & OVERY, *supra* note 82, at 5.

[87] *See* MCLAUGHLIN, *supra* note 24, at 163-64 (Standardized derivatives Master Agreement is necessarily "based on intricate and sophisticated legal reasoning" and "[u]sers must not expect all material implications of the document's structures and detailed provisions, even when accompanied by user guidelines, to be self-evident.").

[88] *But see* Schuyler Henderson, *Swap Credit Risk: A Multi-Perspective Analysis*, 44 BUS. LAW. 365, 387-88 (1989) (standardization prevents use of important credit terms and discourages updating of relationship documentation).

H. ISDA Forms

1. The 1992 Master Agreements

ISDA met critical market needs when it published the two forms of Master Agreement in 1992: a Multicurrency-Cross Border form and a Local Currency-Single Jurisdiction form, (each, a "Master Agreement"). The Multicurrency-Cross Border form is used for transactions conducted in more than one currency and transactions between parties that are organized in, or act out of offices in, more than one jurisdiction. The Local Currency-Single Jurisdiction form is used for transactions conducted in the local currency of a single jurisdiction in which both parties are organized and out of which both parties act.[89] The two 1992 forms are identical, except for differences that reflect the purposes of the two forms.[90] Regardless of which form is used, the ISDA's 1992 Master Agreement is today's gold standard in the OTC derivatives world.

2. The Single Agreement Approach

Like the 1987 forms, both 1992 Master Agreement forms can technically operate without reference to any outside source other than governing law. In practice, however, parties that execute master agreements based on ISDA forms make extensive use of outside sources by incorporating

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[89] When it was first published, the 1992 Local Currency-Single Jurisdiction form contained two minor errors. ISDA quickly identified them and published a *Second Printing* corrected version. *See* ISDA, USERS GUIDE TO THE 1992 ISDA MASTER AGREEMENTS 37 (1993).

[90] Among other innovations, the 1992 Multicurrency-Cross Border Master Agreement form includes provisions on the following topics that are not included in the 1992 Local Currency-Single Jurisdiction Master Agreement: (i) deduction or withholding for taxes; (ii) payer and payee tax representations; (iii) provisions of tax forms and documents; (iv) tax agreement; (v) payment of stamp tax; (vi) tax events and tax events upon merger; (vii) transfer to avoid termination event; (viii) contractual currency; (ix) offices and multibranch parties; and (x) tax representations. *See id.* at 1-2.

many of ISDA's or other organization's definitions publications. Transactions are covered by an agreement prepared on the basis of the Master Agreement forms and are documented with a Confirmation. Each Confirmation is a supplement to, and integral part of, the Master Agreement. This feature is announced at the outset of the Master Agreement and in ISDA's forms of Confirmation.[91]

The ISDA approach embodies an alternative to the relatively cumbersome stand-alone agreement and to the incorporation of standard reference items into individual transaction documents.[92] While the ISDA approach certainly achieves great efficiency, it is meant for something even more: Participants in derivatives markets seek to have all transactions between party pairs (and certain other members of their respective groups, if so selected) constitute a single agreement because they are concerned about *cherry-picking* in insolvency proceedings of the counterparty. The concern is that a liquidator of the insolvent party would seek to assume favorable transactions -- but reject unfavorable transactions -- leaving the solvent party with a claim for damages only and grim prospects for full recovery. The single agreement approach -- as opposed to incorporating into separate agreements standard terms on which the parties have agreed -- holds out the hope that if the parties to the agreement make clear their joint intention that all specified transactions between them should be treated as a single arrangement, the liquidator would be forced to assume or reject all the transactions together.

ISDA's Master Agreement forms foreclose even the solvent parties from cherry-picking. Basic to the ISDA Master Agreement forms are the default and cross-acceleration concepts. Together, these mean that default by a party entitles the non-defaulting party to terminate all, not some, of the transactions under the Master Agreement, and to calculate the consequent amounts payable.

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[91] *See* 1992 ISDA MASTER AGREEMENT § 1(c).

[92] *See* GOOCH & KLEIN, *supra* note 61, at 30-32.

3. Structure of the Documentation

The structure of the standardized derivatives transactions documentation is a central feature of today's OTC derivatives markets. The three main forms of relevant ISDA documentation are: the Master Agreement, the Schedule to the Master Agreement, and the Confirmation. ISDA has also promulgated standardized credit support agreements to regulate the provisions of collateral or other forms of credit support for credit exposures that result from the transactions.

(i) Master Agreement

Each of the 1992 ISDA Master Agreement forms contains all the central non-economic and non-credit terms between the parties for their derivatives transactions. They address such universal matters as payments, taxes, representations and warranties, defaults, terminations, transfers of rights and obligations, expenses, and notices and various other contract formalities. Essentially, the Master Agreement is a generic document. Execution of the Master Agreement is not a transaction; it establishes only the ground rules for any transaction that falls within the Master Agreement's purview.

(ii) Schedule

The ISDA-supplied Schedule, incorporated by reference into the Master Agreement, provides room for the parties to individualize their interrelationship. In the Schedule, the standard Master Agreement terms can be modified so parties may control or vary their legal risks. Not surprisingly, it is the negotiation of the Schedule that is the most time-consuming and management-intensive task when adopting derivatives documentation. The major categories of legal risk addressed by the Schedule are: credit, change of corporate structure, insolvency, default, and tax. The Schedule accommodates a number of unique choices to be made by the parties. In case of inconsistencies, the Master

Agreement renders provisions of the Schedule superior to all other provisions of the Master Agreement.[93]

(iii) Credit Support

A recurring feature of OTC derivatives transactions is the view that each party must take on the creditworthiness of the other, as a derivatives product can only supply its rewards to the beneficiary party if the obligated party is solvent. The Master Agreement recognizes that parties seek to reduce their credit risk exposure and allows for easy incorporation of a credit support document. This document anticipates the provision of credit support -- namely, collateral -- to ensure payments are made as they come due. Provision of credit support in an OTC derivatives transaction will usually involve a periodic check of the exposure and the value of the collateral to ensure appropriate margin and level of collateralization.

ISDA has promulgated four standard credit support form documents: (i) a Credit Support Deed, meant to be governed by English law and reflecting the creation of a security interest in collateral; (ii) a Credit Support Annex, meant to be governed by English law, but reflecting a transfer of title of collateral; (iii) another Credit Support Annex, but meant to be governed by New York law and reflecting the creation of a security interest in collateral; and (iv) yet another Credit Support Annex, but meant to be governed by Japanese law and including two approaches to collateral, one of security interest and one of transfer of title. Each of the credit support document forms is meant to be an annex to the Schedule, except for the credit support Deed, which, for English law reasons, is meant to stand as an independent document.

Either standard document allows a party to collateralize its contingent obligation, which can materially impact credit lines and transaction structures and sizes. Like the Schedule, the credit support document allows the parties to

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[93] *See* 1992 ISDA MASTER AGREEMENT § 1(b).

make a number of unique choices, depending on which law might affect the arrangement.

(iv) Confirmation

Execution of a Master Agreement, even with an attendant Schedule, neither requires nor creates a transaction; it only establishes the environment in which a transaction can take place. Each individual transaction is effected by a Confirmation. A Confirmation lays out the economic details of a transaction between them and constitutes a supplement or amendment to the Master Agreement. Thus, OTC derivatives market participants might sweep into the purview of one Master Agreement all manner of derivatives transactions, such as currency rate swaps, interest rate options and physically-settled forwards. In event of contradiction, the Confirmation is relatively omnipotent; the ISDA Master Agreement and its enfolded Schedule are subject to the Confirmation.[94]

Under the terms of the Master Agreement forms, the parties must exchange a Confirmation in order for the Master Agreement to apply to the transaction in question.[95] The 1992 forms accommodate Confirmations in various evidentiary forms, such as written documents, telexes and electronic messages. ISDA has published a number of forms of Confirmation for various types of typical OTC derivatives transactions, although parties can effect a transaction by any viable type of confirmation.

Importantly, parties sometimes trade before exchange of a Confirmation. In such an event, the parties are exposed to the risk of weak or no documentation for the period between when a trade is made and the Confirmation exchanged. Accordingly, parties sometimes execute quick interim confirmations to assure themselves of certain fundamental terms and conditions and later execute more wide-ranging

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[94] *Id.*

[95] *Id.* at preamble.

Confirmations.[96] Additionally, it is not uncommon for parties to enter into a transaction on the basis of a Confirmation alone, before having entered into a Master Agreement. If such parties will not deal with each other on a regular basis, it is certainly possible that they will never sign a Master Agreement, even if they had intended to do so at the time of the trade, as the negotiation process may appear to them to be relatively daunting and only marginally valuable.

III. CONCLUSION

In the last twenty to thirty years, OTC derivatives have allowed -- or, given the competitive nature of markets, forced -- financial managers to rewrite risk management manuals. This is because modern OTC derivatives are powerful and efficient financial tools that simply were not available a generation ago. The relatively recent and massive advances in computer, telecommunication, and financial technologies make today's OTC derivatives possible. The fact that these fields increasingly inter-catalyze portends even more development of OTC products.

Entities engaging in OTC derivatives transactions today are many and varied. Large numbers of banks, commercial firms, governments, municipalities, pension funds, investment funds, and even individuals regularly participate in the OTC markets. The bulk of the OTC transactions are channeled through leading financial institutions. Thus, not only do OTC derivatives foster risk management among a wide range of actors, they also enlarge the function and importance of the financial industry.

Yet, the invasion disquiets some. To them, OTC derivatives are too intricate to be scrutable and too easily abused to keep financial systems safe. Others, however, counter that the products allow economic actors to trade risk like any other market item and that this trading allocates

[96] ISDA has published a Pre-Confirmation Trade Notification form for parties that wish to document the main financial terms of an equity derivatives transaction before the details of a final confirmation are concluded.

hazards and rewards efficiently. Not surprisingly, regulators oscillate between these two poles when considering OTC derivatives markets. Most of these markets, however, remain relatively freewheeling.

Given the rate of infiltration by modern derivatives into the financial world, casual observers could be forgiven for considering OTC derivatives transactions to be routine. Yet, as often as these transactions may occur, they are hardly pedestrian. Even the simplest form of OTC derivatives transaction can produce unexpected results if not conceived, arranged, and monitored by sophisticated players.

True, the basic forms of derivatives have been used for centuries. Yet, the modern era accommodates derivatives usage on an unprecedented scale, whether measured by volume, diversity, or sophistication. Essentially, the modern employ of derivatives, especially of the versatile OTC variety, has democratized risk. While democratization of this sort can give rise to abuse and subsequent backlash, the relentless usefulness of derivatives should forestall any discussion of stopping them. The real issues now are only if, and to what extent, derivatives can or should be controlled.