WPPSS AND *HAMMERSMITH*: INCREASED CREDIT RISK PROTECTION RESULTING FROM UNPRECEDENTED DEFAULTS

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I. INTRODUCTION

The largest municipal bond default in history occurred in January 1983 when the issuers of revenue bonds financing the Washington Public Power Supply System (WPPSS) Projects 4 and 5 repudiated their repayment obligations on the bonds.[1] The Washington Supreme Court in *Chemical Bank v. Washington Public Power Supply System*[2] upheld the action of the municipal participants, finding the bond issue *ultra vires*.[3]

A similar default occurred in February 1989 when the Hammersmith and Fulham London Borough Council (Hammersmith or the Council) ceased making payments on interest rate swap transactions it had entered. The Hammersmith default was the largest interest rate swap default in history. In January 1991 the highest British court, the House of Lords, in *Hazell v. Hammersmith and Fulham London Borough Council*[4] upheld Hammersmith's decision to cease making interest payments, also finding the swap transactions *ultra vires*.

These cases are similar in that both defaults are the largest of their kind and the courts found the actions of both municipalities *ultra vires*. The similarities between the cases stimulate interest as to the effects on the respective financial markets. As a result of WPPSS, the market for municipal bond insurance has flourished. The impact of *Hammersmith* is not yet documented. In fact, the Hammersmith default has had little impact, to date, on the interest rate swap market. The interest rate swap market has not yet developed a market for credit enhancer insurance because the default exposure to a swap counterparty is different from the exposure to a bondholder. Furthermore, the intermediary swap dealer can diversify its portfolio of swaps to limit its default exposure. This Note

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1. Projects 4 and 5 were two of five nuclear power plants WPPSS undertook to complete. Projects 4 and 5 were discontinued due to cost overruns. Chemical Bank v. Washington Pub. Power Supply Sys., 666 P.2d 329, 331 (Wash. 1983) [hereinafter *Chemical Bank*], *cert. denied*, 471 U.S. 1065 (1985).

2. *Id.* at 342.

3. An *ultra vires* act of a municipality is an act beyond the powers conferred upon it by law. Black's Law Dictionary 1365 (5th ed. 1979).

4. Hazell v. Hammersmith and Fulham London Borough Council, [1991] 1 All E.R. 545 (Eng. H.L.) [hereinafter *Hammersmith*].

discusses the reasoning behind the decisions in each case, the impact of the WPPSS default on the municipal bond market, and the impact *Hammersmith* will have on the swap market.

II. HISTORY OF WPPSS

Washington Public Power Supply System is a municipal corporation and joint operating agency of the state of Washington.[5] Its members consist of nineteen public utility districts and four cities: Ellensburg, Richland, Seattle, and Tacoma. WPPSS is authorized to acquire, construct, operate, and own facilities for the generation and transmission of electricity.[6] It may also issue revenue bonds payable from the revenues of the utility projects it operates.[7] WPPSS may not, however, levy taxes or issue general obligation bonds.[8]

A. The WPPSS Fiasco

During the 1970s, WPPSS commenced the construction of three nuclear power plants: WNP-1, WNP-2 and WNP-3.[9] In 1974, it decided to construct two additional plants, WNP-4 and WNP-5, to supplement the three existing WPPSS facilities.[10]

WPPSS organized eighty-eight "participants" in these two projects.[11] Each participant signed a "Participants' Agreement" obligating each to

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5. *Chemical Bank*, 666 P.2d at 331.

6. *Id. See also* Washington Revenue Code [hereinafter RCW] 43.52.300.

7. *Chemical Bank*, 666 P.2d at 331. *See also* RCW 43.52.3411.

8. *Chemical Bank*, 666 P.2d at 331. *See also* RCW 43.52.391. General obligation bonds are municipal bonds backed by the full faith and credit (which includes the taxing and further borrowing power) of a municipality. A general obligation bond is repaid with general revenue and borrowings, in contrast to a revenue bond which is issued to finance particular public works and is supported directly by the revenues of the project. John Downes & Jordan Elliot Goodman, Barron's Finance and Investment Handbook 296 (3d ed. 1990).

9. *Chemical Bank*, 666 P.2d at 331.

10. *Id.*

11. *Id.* at 332. The participants included nine Washington cities, nineteen Washington public utility districts, one Washington irrigation district, seven Oregon cities, four Oregon public utility districts, five Idaho cities, and forty-three rural electric cooperatives of which thirteen are in Washington. The remaining rural electric cooperatives are in Idaho, Montana, Nevada, Oregon and Wyoming. *Id.*

assume a share of the annual costs of the projects, including principal and interest payments on the revenue bonds as they became due, in exchange for a proportionate share in the "project capability."[12] The Participants' Agreement also contained a so-called "hell-or-high-water" clause which obligated the participants to pay for the construction of the nuclear plants whether or not any electricity was ever produced.[13]

The first series of WNP-4 and WNP-5 revenue bonds were issued in March 1977, and construction began soon thereafter. Between March 1977 and April 1981, WPPSS issued and sold WNP-4 and WNP-5 bonds fourteen times. Although the principal amount issued was $2.25 billion,[14] the repayment with interest totaled approximately $7.2 billion.[15]

By late 1981, WPPSS realized that the cost of completing WNP-4

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12. *Id.* "Project capability" is defined in § 1(v) of the agreement as:

> the amounts of electric power and energy, if any, which the projects are capable of generating at any particular time (including times when either or both of the plants are not capable of operating or the operation thereof is suspended, interrupted, interfered with, reduced or curtailed, in each case in whole or in part for any reason whatsoever), less project station use and losses.

Id.

13. Steven Goldberg, *Unconscionability in a Commercial Setting: The Assessment of Risk in a Contract to Build Nuclear Reactors*, 58 Wash. L. Rev. 343, 343 (1983). Clauses of this nature are often called "hell-or-high-water" clauses because of their unconditional promise to pay. *Id.* at 343 n.2. Specifically, § 6(a) of the Participants' Agreement provides:

> The participants shall make the payments to be made to Supply System under this agreement whether or not any of the projects are completed, operable or operating and not withstanding the suspension, interruption, interference, reduction or curtailment of the output of either project for any reason whatsoever in whole or in part. Such payments shall not be subject to any reduction, whether by offset or otherwise, and shall not be conditioned upon the performance or nonperformance by Supply System or any other Participant of entity under this or any other agreement or instrument, the remedy for any nonperformance being limited to mandamus, specific performance, or other legal or equitable remedy.

Chemical Bank, 666 P.2d at 332.

14. *WPPSS Default on $2.25 Billion in Bonds Is Record for Municipal Debt; Suits Seen*, Wall St. J., July 26, 1983, at A3.

15. Theodore J. Sawicki, Comment, *The Washington Public Power Supply System Bond Default: Expanding the Preventive Role of the Indenture Trustee*, 34 Emory L.J. 157, 159 (1985).

and WNP-5 would far exceed the original estimates. In fact, as of January 27, 1982, with WNP-4 twenty-four percent complete and WNP-5 sixteen percent complete, construction expenditures nearly reached the estimated total cost for the completion of both plants.[16] On that date, WPPSS officially terminated the projects because of anticipated cost overruns and a decline in demand for electric power in the region.[17]

B. The WPPSS Lawsuits

After the projects were terminated, Chemical Bank, as bond fund trustee and representative of the bondholders, brought a declaratory judgment action against WPPSS and the participants seeking a determination that the participants and WPPSS satisfy their obligations to the bondholders.[18] The participants entered numerous defenses to their repayment obligations including the defense that the agreements entered into by the participants were invalid due to the fact that it was beyond the scope of the authority of the participants under Washington state law to enter into such contracts.[19]

The trial court found for Chemical Bank, holding the Participants' Agreements valid as a matter of law; both WPPSS and the participants had statutory authority to enter into such agreements and the agreements imposed a contractual duty on the participants to meet their obligations.[20] WPPSS and most of the participants appealed to the Washington Supreme Court.[21] The Supreme Court addressed the sole issue of whether the participants, as municipal corporations, were authorized to enter into a contract such as was entered into by WPPSS and the participants. If the participants held such authority, they would be required to repay the principal and interest on the bonds. If no such authority existed, the bond issue would be *ultra vires* and the municipal corporations would have a complete defense to repayment.[22]

C. The Washington Supreme Court

The Washington Supreme Court found that issuing these revenue bonds was beyond the authority granted to WPPSS and the participants by

16. *Chemical Bank*, 666 P.2d at 331.
17. Sawicki, *supra* note 15, at 183.
18. *Chemical Bank*, 666 P.2d at 331.
19. *Id.* at 333.
20. *Id.*
21. *Id.*
22. Sawicki, *supra* note 15, at 184.

Washington state statutes, thereby reversing the trial court.[23] In holding the bond issue *ultra vires*, the Washington Supreme Court relied primarily on a narrow interpretation of the Washington Revenue Code granting authority to the various municipal corporations to produce and sell electricity.[24] In construing these statutes, the court noted that it has consistently required the acquisition of an "ownership interest" by such municipal participants.[25] To satisfy the requirements of an ownership interest, the municipal participants must retain sufficient control over the project.[26] The court found that by purchasing project capability,[27] the participants were required to guarantee the WPPSS bonds unconditionally (whether electricity was ever produced or not). The court said the participants were not purchasing electricity but instead the *possibility* of electricity. Thus, they did not meet the requisite ownership interest criterion.[28]

Upon finding that the purchase of project capability did not satisfy the ownership interest test, the court examined the agreement to determine whether the participants retained sufficient control over the project to constitute the equivalent of an ownership interest.[29] The participants' control was limited to a participants committee which met periodically to approve or disapprove of major decisions relating to the management of the projects.[30] The court concluded that this was not sufficient to constitute the type of project management necessary to satisfy the ownership interest requirement.[31]

In order to reinforce its *ultra vires* finding, the court emphasized the enormous burden ultimately placed on the ratepayers and taxpayers of the state of Washington had the participants fulfilled their bond obligations.[32]

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23. *Chemical Bank*, 666 P.2d at 342-43.

24. *See* RCW 54.16.040 (Public utility districts are authorized to "purchase within or without its limits, electric current for sale and distribution within or without its limits. . . ."); RCW 35.22.280(15) (First class cities of Tacoma and Richland are authorized to "provide for lighting the streets and all public places, and for furnishing the inhabitants thereof with gas or other lights. . . ."); RCW 35.24.290(3) applying to third class cities; RCW 35.27.270(40) applying to towns; RCW 35A.80.010 applying to code cities; RCW 43.52.410 which authorizes the creation of agencies such as WPPSS, allows public utility districts and cities to "enter into contracts of compacts with any operating agency or a publicly or privately owned public utility for the purchase and sale of electric energy or falling water . . . ."

25. *Chemical Bank*, 666 P.2d at 336.

26. *Id.* at 337.

27. See *supra* note 12 for a definition of "project capability."

28. *Chemical Bank*, 666 P.2d at 336.

29. *Id.* at 337.

30. *Id.*

31. *Id.* at 339.

32. *Id.* at 342.

As a matter of public policy, the enormous risk of such a venture to ratepayers is balanced by either the benefits of ownership or substantial management control.[33] Further, the court said that the *ultra vires* doctrine applies to government action to "protect the citizens and taxpayers . . . from unjust, ill-considered, or extortionate contracts, or those showing favoritism."[34] Also, "the rationale for the rule is the protection of those unsuspecting individuals whom the entity represents."[35]

In his concurrence, Justice Dore focused on the fact that the WPPSS bonds are revenue bonds. Under Washington state law, WPPSS may only issue revenue bonds.[36] WPPSS may not issue general obligation bonds or raise taxes. Holders of revenue bonds have no claim upon funds raised or to be raised by taxation in order to secure payment of their obligations. Since WNP-4 and WNP-5 were never completed and never generated revenue, no source of funds became legally available with which to satisfy the bond obligations. Thus, the only way to satisfy the bond obligations would be to require payment through taxation or income generated from general obligation bonds. WPPSS lacked legal authority to do this.

Based on both the *ultra vires* doctrine and the fact that the WPPSS bonds are revenue bonds, the Washington Supreme Court allowed the municipal participants to avoid these "unjust ill-considered" bond issue contracts.[37] As a result of the decision, the burden of this $2.25 billion investment resulting in a $7.2 billion loss has fallen on the WPPSS bondholders.[38]

III. HISTORY OF HAMMERSMITH

As noted above, the courts' findings between the *WPPSS* case and the *Hammersmith* case are similar; however, the circumstances leading up to the courts' findings are not.

The Local Government Act of 1972, which divided England into local

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33. *Id.* at 337.

34. *Id.* at 342 (quoting 10 Eugene McQuillin, Municipal Corporations §29-02, at 200 (3d rev. ed. 1981)).

35. *Id.* (quoting Noel v. Cole, 655 P.2d 245, 248 (Wash. 1982)).

36. *See supra* note 8 (differentiating revenue bonds from general obligation bonds).

37. *Chemical Bank*, 666 P.2d at 342.

38. Sawicki, *supra* note 15, at 187. $7.2 billion is the total amount, including interest and principal, bondholders will forego. Bondholders may recover a portion of their losses from an $800 million settlement pot to be distributed to various bondholder groups. However, there are still various problems regarding which bondholders will recover and how much. Dennis Walters, *Bondholders Group Decides Against High Court Appeal in WPPSS Case*, The Bond Buyer, August 6, 1992, at 1.

government areas consisting of counties, districts, London boroughs, and parishes, created the Hammersmith and Fulham Borough Council. The local authority charged with the administration of local government in a particular area consists of an elected council which "shall have all such functions as are vested in them by this Act or otherwise."[39] The functions of a principal council under many statutes are extended to include public health, housing, planning and highways, environmental matters, education, housing and social welfare services, including the care and protection of children, the sick and the elderly.[40] Grants from Parliament, through taxation and community charges derived from local residents and by income generated by the council in performance of its functions, fund the expenditures incurred by a local authority in the discharge of its duties.[41] The borrowing powers of a local authority derive from the Act of 1972, Schedule 13, Part I.[42] These provisions limit the purpose and method of borrowing by a local authority.

A. Hammersmith's Swap Involvement

The Hammersmith and Fulham Borough Council borrowed sums which, on March 31, 1989, totaled £390 million ($658 million), largely representing borrowings incurred to undertake capital projects over many years.[43] There were several loans and each had its own terms of repayment. There is no question concerning the legality of these borrowings and each outstanding loan remains payable with interest according to its terms.[44]

From December 1983 to February 1989, the Council entered into numerous interest rate swap contracts.[45] It designed each contract to provide a profit for the Council if the Council correctly predicted a rise or fall in interest rates over the life of the contract. The Council could then apply the profit in meeting the interest burden of its borrowings. The question before the court was whether the Council possessed the legal authority to enter into such interest rate swap contracts.[46]

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39. Local Government Act, 1972, §§ 2(1), 2(2), 14(1) and para. 1(2) of sched. 2. (See Halsbury's Statutes of England and Wales (4th ed. 1990 reissue) for more information concerning the Local Government Act of 1972.)

40. *Id.* at § 270.

41. *Hammersmith*, [1991] 1 All E.R. at 548.

42. *Id.*

43. *Id.* This figure is based on the March 31, 1989 Wall Street Journal exchange-rate of 1.6870 U.S. dollars per pound sterling.

44. *Id.* at 549.

45. *Id.*

46. *Id.*

B. Swaps: How They Work and Why They Are Used

Before embarking on the holding and rationale of the *Hammersmith* case, it is necessary to define interest rate swaps and discuss how the Council employed them in its attempt to earn profits. Since the early 1980s, interest rate swaps have become one of the most popular vehicles many companies and financial institutions utilize to hedge against interest rate risk. The interest rate swap market evolved in 1982 and grew rapidly. By 1988 the outstanding portfolios of forty-nine leading swap dealers totaled $889.5 billion in notional principal.[47] By 1988 approximately thirty to forty percent of all capital market transactions involved an interest rate, currency, or some other type of swap.[48] By 1992, the interest rate swap market alone totaled at least $1.5 trillion.[49]

1. Swaps Defined

An interest rate swap is an agreement between two parties to exchange a series of interest payments without exchanging the underlying principal. In a typical fixed/floating rate swap, the first party promises to pay the second, at designated intervals, a stipulated amount of interest calculated at a fixed rate on the notional principal. The second party promises to pay the first at the same intervals a floating amount of interest on the notional principle calculated according to a floating-rate index. Virtually all common interest rates are swapped.[50]

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47. Larry D. Wall & John J. Pringle, *Interest Rate Swaps: A Review of the Issues*, Econ. Rev., Nov.-Dec. 1988, at 22. Notional principal or amount is defined as the amount in an interest rate swap to which interest rates are applied in order to calculate periodic payment obligations. Estimates of swap volumes are generally expressed in terms of aggregate notional amounts, although such aggregates far exceed actual credit exposure in the swaps referred. Schuyler K. Henderson & John A.M. Price, Currency and Interest Rate Swaps 203 (2d ed. 1988).

48. *Hammersmith*, [1991] 1 All E.R. at 549.

49. Steven Lipin & William Power, *"Derivatives" Draw Warnings From Regulators*, Wall St. J., Mar. 25, 1992, at C1, C10.

50. Common interest rates that are swapped include fixed, prime, London interbank offered rate (LIBOR), bankers acceptance, treasury bill, certificate of deposit, commercial paper, and zero coupon rates in the dollar interest rate swap market. LIBOR is the most common interest rate used in international swap transactions and is the "rate that the most creditworthy international banks dealing in Eurodollars charge each other for large loans." Downes & Goodman, *supra* note 8, at 346.

2. Why participants Use Swaps

Interest rate swaps provide a mechanism for restructuring cash flows and, if used properly, provide a financial instrument for hedging against interest rate risk. (See Figure 1). A wide variety of participants use them to hedge against interest rate risk in one form or another. Following are several examples of how interest rate swaps reduce interest rate risk:

EXAMPLE OF A PLAIN VANILLA INTEREST RATE SWAP

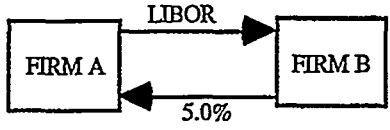

Figure 1. In this example, Firm *A* agrees to pay Firm *B* a floating rate of interest equal to LIBOR. In return, Firm *B* agrees to pay Firm *A* a fixed rate of 5%. The parties do not actually exchange the full amounts of the interest payments. Rather at each exchange date, a single amount is transferred to cover the difference in the promised interest payments.

a. Swaps Used to Lower Borrowing Costs

One of the most prolific uses of interest rate swaps is the lowering of long-term fixed cost borrowing to an individual participant. For example, a municipality might use interest rate swaps to lower its debt cost of issuing revenue bonds. (See Figure 2).[51] As a result of the difference in quality spreads between the two debt markets, the municipality and Firm

51. Assume that the municipality can borrow funds by issuing long-term revenue bonds at a fixed rate of 11.5% while Firm *A* would have to pay a fixed rate of 13%. At the same time, suppose that the municipality could raise funds at a floating rate equal to LIBOR - 1/2% while Firm *A* could raise funds at a floating rate equal to LIBOR -1/4%. (This assumption is plausible when you consider that the quality spread (difference between yields on securities of the same maturity but different quality) is larger for long-term fixed rate liabilities than for short-term floating rate liabilities.) James Bicksler & Andrew H. Chen, *An Economic Analysis of Interest Rate Swaps*, 41 J. Fin. 645 (1986)). Although the higher rated municipality borrows more cheaply than the lower-rated issuer in both markets, the former participant enjoys a greater advantage in the fixed-rate market. Conversely, the lower-rated issuer (Firm *A*) faces less of a quality differential in the floating-rate market. If each borrower raises funds in the market in which it has a *comparative* advantage, the resultant interest rate payments can be swapped to achieve cheaper funding for both.

A can enter into an interest rate swap agreement resulting in lower borrowing costs for both participants.

USING SWAPS TO LOWER FIXED-RATE BORROWING COSTS

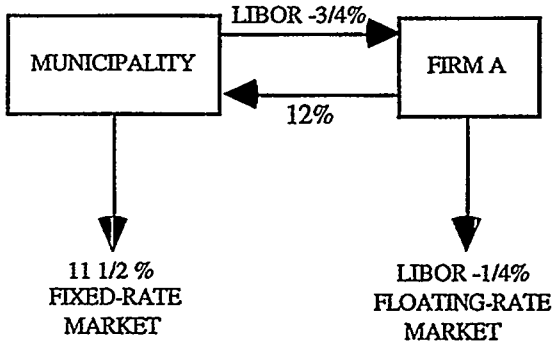

Figure 2. In this example the municipality raises funds in the fixed-rate market and promises to pay Firm *A* a floating-rate interest. Firm *A* raises funds in the floating-rate market and promises to pay the municipality a fixed-rate interest. The result is a combined cost savings of 1.25% shared by the two parties.

b. Swaps as a Gap Management Tool

Interest rate swaps are utilized in gap management[52] to artificially alter the asset/liability composition of a firm or financial institution. For example, many European financial institutions hold assets whose returns are denominated in relatively short maturities that are repriced frequently. Thus, the interest rates attached to these assets are essentially floating. At the same time, these European institutions hold liabilities with relatively long maturities with fixed interest rates. On the other hand, many United States financial institutions have assets whose returns are denominated in fixed rates of interest with relatively long maturities and liabilities with

52. "Gap management" refers to altering the mix of rate sensitive assets and rate sensitive liabilities in order to minimize the "gap" (the difference between the amount of rate sensitive assets and rate sensitive liabilities) in order to minimize interest rate risk exposure. Robert J. Schwartz & Clifford W. Smith, Jr., The Handbook of Currency and Interest Rate Risk Management 21-25 (1990).

relatively short maturities.[53] These differences in asset/liability composition represent opposite types of gaps in their respective balance sheets. Thus, the use of interest rate swaps may benefit both parties by reducing their respective balance sheet gaps and decrease their exposure to interest rate risk.

A simplified example of a swap to artificially "match" the maturity of an institution's respective assets and liabilities is provided in Figure 3.

USING SWAPS IN GAP MANAGEMENT

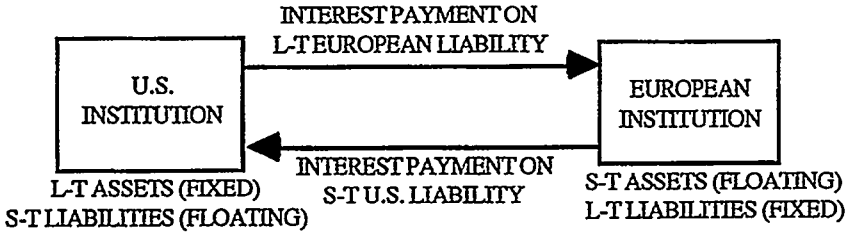

Figure 3. In this example, the U.S. Institution agrees to pay the fixed interest charges of the long-term liabilities of the European Institution. In exchange, the European Institution promises to pay the floating interest charges of the short-term liabilities of the U.S. Institution. Thus, the U.S. Institution receives fixed interest payments and pays fixed interest payments while the European Institution receives floating interest payments and pays floating interest payments. By entering into the swap agreement, each institution has reduced its interest rate risk on its assets and liabilities.

c. Swaps Used to Manage Basis Risk

Interest rate swaps can also be used as an effective tool for swap market participants managing the basis risk[54] in their balance sheets. For example, suppose that a municipality is financing an asset yielding a return of LIBOR +3/4%, with a floating rate note at a cost of the six-month T-Bill rate -1/4%. Firm *A* has floating rate funds at LIBOR +1/4%. Figure 4 illustrates how a swap may be arranged to lower the

53. Bicksler & Chen, *supra* note 51, at 648.

54. "Basis risk" is the risk attributable to uncertain movements in the spread between a future price and a spot price. Donald E. Fischer & Ronald J. Jordan, Security Analysis and Portfolio Management 538 (5th ed. 1991).

cost of capital to the municipality while allowing Firm *A* to switch to paying a rate tied to the T-Bill rate rather than a rate tied to LIBOR.

USING SWAPS TO MANAGE BASIS RISK

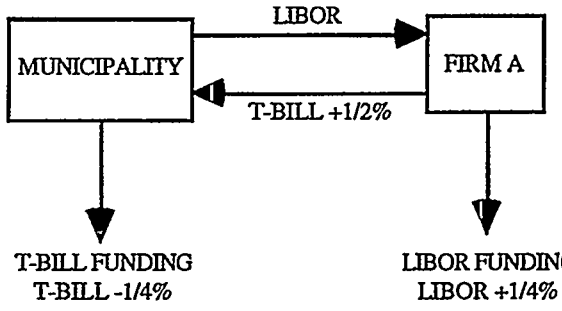

Figure 4. Under this floating/floating swap, the municipality raises funds in the T-Bill rate market and promises to pay Firm *A* a rate based on the LIBOR rate. Firm *A* raises funds in the LIBOR market and promises to pay the municipality a rate based on the T-Bill rate. The net result is a positive 150 basis point spread for the municipality.

These examples, while not exhaustive of the interest rate swap possibilities, illustrate several of the uses and reasons why a municipality such as Hammersmith may utilize swaps to hedge against interest rate risk.

C. Hammersmith Gets in Deep

As noted above, interest rate swap transactions typically allow a borrower to receive money at a fixed rather than a variable rate or vice versa in order to hedge against interest rate fluctuations. However, the Hammersmith Council's transactions were undertaken with the intention that the profits from swap contracts would mitigate the burden of interest payable for their borrowings if the Council successfully forecast fluctuations in interest rates.[55] If the Council swapped fixed interest payments for variable interest payments, it would profit from a subsequent fall in interest rates. The Council, however, would lose money if interest rates rose after the swap. Similarly, if the Council swapped variable for

55. *Hammersmith*, [1991] 1 All E.R. at 550.

fixed interest payments, it would profit from a subsequent rise in interest rates but lose if the rates fell. The Hammersmith Council entered into its first interest rate swap in December 1983.[56] Between December 1983 and March 1987, it entered into very few interest rate swaps; therefore, the Divisional Court said, "the limited nature of the Council's activities does not enable us to hold that [the Hammersmith Council was] not engaged in interest risk management."[57]

Between April 1987 and July 1988, the Hammersmith Council's participation in the interest rate swap market increased dramatically.[58] This marked increase in activity led the Divisional Court to conclude that, "[t]he scale and range of transactions makes it clear that the council was not engaged in interest risk management but engaged in a trade designed to exploit the market in these transactions with a view to a profit."[59]

D. The Interim Strategy

In July 1988, the auditor[60] questioned the legality of the transactions. As a result, the Council's director of finance closed all transactions except those that would create a loss for the Council.[61] From August 1988 to February 23, 1989, the Council continued to engage in interest rate swaps as part of an "interim strategy" designed to reduce the extent of its exposure to loss which arose due to a rise in interest rates.[62] The Council's obligations terminated due to cash payments and the assignment of some agreements. Financial obligations under existing swap contracts were also honored.[63]

The interim strategy ceased on February 23, 1989, when, subsequent to receiving advice from the auditor to desist from further activity unless

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56. Hazell v. Hammersmith and Fulham London Borough Council, [1990] 2 W.L.R. 17 (Eng. Q.B.) [hereinafter *Hammersmith III*], *reprinted in* [1990] 3 All E.R. 33, 40 (A later 1990 court action will be referred to as *Hammersmith II*, see *infra* note 76 and accompanying text.).

57. By 'interest risk management' the Divisional Court means use of these transactions for *legitimate* as opposed to *speculative* profit-making purposes. *Id.* at 56.

58. *Id.* at 41.

59. *Id.* at 56.

60. The auditor (the appellant, Hazell) was appointed by the audit commission for local authorities in England and Wales to audit the accounts of the Hammersmith and Fulham London Borough Council from April 1, 1983. *Hammersmith*, [1991] 1 All E.R. at 549. The auditor's general duties are prescribed by § 15(1)-(2) of the Local Government Finance Act of 1982. *Hammersmith III*, [1990] 3 All E.R. at 39.

61. *Hammersmith*, [1991] 1 All E.R. at 561.

62. *Id.*

63. *Id.*

supported by legal opinion, the Council determined to take no further action with regard to existing or future swap transactions until the law had been clarified.[64] By March 31, 1989, the Council had entered into 592 swap transactions of which 297 were still outstanding.[65] The aggregate notional amount involved in all the Council's transactions totaled £6.052 billion ($10.210 billion). The transactions outstanding on March 31, 1989 involved aggregate notional amounts totaling £2.996 billion ($5.054 billion).[66] These figures do not accurately reflect the position of the Council since some of these contracts were actually hedges against others.[67] However, there is no doubt that the volume of swap transactions the Council undertook was great considering the Council's actual borrowing on March 31, 1989 amounted to £390 million ($658 million).[68] Thus, even if all the swap contracts were used to hedge against interest rate fluctuations, the Council more than adequately covered its position. In fact, the Council entered into contracts with aggregate notional principal approximately fifteen times the actual amount necessary to protect their borrowing position.[69]

The auditor swore in an affidavit on May 30, 1989 that, at then current interest rates and using the five year swap rate on February 9, 1989 (11%) as the basis for the calculation for swaps, the result would be a loss to the Council of £74.4 million ($125.5 million). If interest rates fell by one percent, the Council would still lose £12.8 million ($21.6 million).[70] If interest rates rose by one percent the Council would lose £185.7 million ($313.3 million).[71] If six-month LIBOR on February 9, 1989 (13%) is used as the basis for calculating the swaps, the Council would stand to lose £292.7 million ($493.8 million). If interest rates fell by one percent the Council would lose £93.5 million ($326.4 million)[72] and £406.3 million ($685.4 million) if interest rates rose by one percent.[73] Given that the Council's estimated expenditure for 1989 was £85.7 million ($144.6 million)[74] and its quoted budget was only £44.6 million ($75.2 million),[75] it is quite apparent that the Council

64. *Id.*
65. *Id.* at 552.
66. *Id.*
67. *Id.*
68. *Id.*
69. Arguably, the Council only needed to enter into swap contracts equal to, at most, the amount of their borrowing (£390 million) in order to protect themselves against adverse interest rate movements.
70. *Hammersmith*, [1991] 1 All E.R. at 552.
71. *Id.*
72. *Id.*
73. *Id.*
74. *Id.*
75. *Id.*

was engaged in a large quantity of swap transactions in proportion to its hedging needs.

E. The Hammersmith Lawsuits

In May 1989, the auditor applied, pursuant to section 19 of the Local Government Finance Act of 1982, for a declaration that the items appearing in the Council's capital market fund account for 1987 and 1988 were unlawful and for an order for rectification of the accounts. The grounds of the application were that (1) there was no authority in law for the items of account; and, (2) rectification of accounts was required for them to comply with the law.[76] A number of banks involved in the Council's capital market activities (including Midland Bank Plc., Security Pacific National Bank N.A. , Chemical Bank, Barclay's Bank Plc., and Mitsubishi Finance International Plc.) applied for and were granted leave to be joined as respondents to the auditor's application in order to protect their financial interests.[77]

The Divisional Court,[78] on November 1, 1989, granted the declaration sought by the auditor and ordered the 1987 and 1988 accounts be rectified, holding that the Council's capacity to enter into contracts was limited to the power conferred on it by statute.[79] This meant that although the Council had an implied power under section 111 of the Local Government Act of 1972 to do "anything which facilitated the discharge of any of its functions, the swap transactions entered into by the local authority did not fall within the ambit of section 111(1) because there was insufficient connection between the permitted . . . function to raise and invest money and the swap transactions, which . . . at best merely alleviated the consequences of borrowing . . . ."[80] Thus, all the interest rate swap transactions that the Council entered into were *ultra vires* and void. The court felt that the Council was merely speculating on interest rate movements rather than facilitating the duty of borrowing itself.[81] The banks with nearly £600 million ($1.012 billion) at stake appealed.

The court of appeals held that a local authority had implied power under section 111 of the 1972 Act to enter into interest rate swap

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76. Hazell v. Hammersmith and Fulham London Borough Council, [1990] 3 All E.R. 33, 33 (Eng. C.A.) [hereinafter *Hammersmith II*].

77. *Hammersmith III* [1990] 3 All E.R. at 38.

78. The case was tried to the Divisional Court, appealed to the Court of Appeals and appealed again to the highest English court, the House of Lords. *Hammersmith*, [1991] 1 All E.R. at 545-46.

79. *Hammersmith II*, [1990] 3 All E.R. at 34.

80. *Id.*

81. *Id.*

transactions provided that such transactions were entered into for the purpose of interest rate risk management. However, if the transactions were entered into for speculative purposes the contracts were *ultra vires*.[82]

The court found that all the transactions up to July 1988 "were tainted with the improper purpose of speculative trading, since prior to that time the local authority had not made any attempt to match those transactions with its actual debts and investments and neither had it made any detailed analysis of the risk involved,"[83] and were, therefore, *ultra vires*. However, the court felt that the transactions entered into as part of the interim strategy from July 1988 to February 1989 were lawful because they were entered into for the purpose of mitigating any potential loss which might result from the earlier transactions.[84] The court also found persuasive that during the interim period the transactions were entered into in good faith and with the auditor's knowledge and acquiescence.[85] The auditor and the Council subsequently appealed.

F. The House of Lords

On January 24, 1991, the House of Lords held that *all* the Council's interest rate swap transactions were *ultra vires* and unlawful.[86] First, although the Council had the implied power under section 111 of the Local Government Act of 1972 "to do anything ancillary to the discharge of any of its functions which included its function of borrowing,"[87] there was no express statutory power entitling the Council to enter into the interest rate swap contracts. The court held that the transactions were not ancillary nor incidental to the Council's function of borrowing within the meaning of section 111.

Second, the court held that any power to carry out swap transactions as part of the interim strategy also had to be derived from section 111 of the Act of 1972. The transactions during the interim period fell into the same category as the original transactions and were themselves unlawful because the only underlying function to which these transactions were incidental was that relating to the original *ultra vires* transactions.[88]

Thus, the House of Lords found that all the Council's interest rate swap transactions were *ultra vires*. Therefore, the Hammersmith Council was relieved from making its otherwise contractually obligated interest

82. *Id.*
83. *Id.*
84. *Id.* at 34-35.
85. *Id.*
86. *Hammersmith*, [1991] 1 All E.R. at 546.
87. *Id.* at 558.
88. *Id.*

rate swap payments of £500 to £600 million ($843.5 million to $1.012 billion) to the banks.[89]

IV. THE AFTERMATH OF WPPSS

The $7.2 billion loss suffered by the WPPSS bondholders sent shockwaves throughout the municipal bond market by substantially raising the financing costs of municipal borrowers. Although municipal bond defaults are rare,[90] the WPPSS debacle helped make conservative bond investors even more skeptical about participating in multibillion dollar projects. With the WPPSS fiasco fresh in their minds, bond investors have become less interested in investing in municipal bonds.

One way to curb investors' skepticism is for a municipal borrower to purchase bond insurance. The WPPSS ordeal fueled the increasing demand for municipal bond insurance.[91] Through bond insurance a property and casualty insurance company irrevocably guarantees to pay the bondholders' coupon and/or principal payments in the event of default by the issuer. The insurance may be sold directly to investors or, more commonly, sold to the municipal bond issuers at the time of issue.

Municipalities that wish to issue bonds to raise money for local projects feel the burden of the perceived increased need by investors for bond insurance. Before the WPPSS default, a municipality could issue bonds without the need for these "belt and suspenders" issues, as they are

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89. Several test cases resulting from the interest rate swap defaults in the United Kingdom were selected to be tried because they covered the great majority of the points of law that arose following the House of Lords' ruling in January 1991 that all interest rate swap agreements between banks and local authorities were invalid. The six lead actions were chosen for trial with the aim of deciding key points, enabling resolution of the remainder without recourse to the courts. However, all six of the lead cases were settled without trial, clearly undermining the purpose of the test cases. As of May 16, 1992, there were 196 live actions remaining involving several dozen banks and a number of local authorities. Thus, new test cases will be selected and the process will begin anew. Anne Richmond, *Final Swaps Test Case Settled,* The Fin. Times Ltd., May 16, 1992. *See also* John Mason, *Final Swaps Test Case Settled,* The Fin. Times Ltd., May 16, 1992.

90. According to Susan Peabody, a vice-president at Alliance Capital Management in New York, the municipal bond default rate over the last fifty years is less then 0.03% of all issues, including WPPSS. Amy Freedman, *Benefiting From Tax Aversion,* Fin. Serv. Wk., Oct. 15, 1990, at 27.

91. In 1980, only 3.4% of municipal bonds carried bond insurance. By 1988, 28% of long-term municipal bonds were insured. John Kostrzewa, *Insured Bonds Gaining Favor With Investors,* Providence J. Bull., June 19, 1988, at F3.

commonly referred to among bond traders.[92] With the highly publicized default of the WPPSS issue, as well as the default of notes issued by New York City and Cleveland in the 1970s,[93] an increasing number of municipalities find it necessary to insure their bond issues.[94]

V. THE AFTERMATH OF HAMMERSMITH

Whereas the WPPSS bond default has led to municipal bond investor skepticism and ultimately to increased use of municipal bond insurance, it is unclear what lies ahead for the interest rate swap market in the aftermath of the Hammersmith situation. One thing is for certain, interest rate swap participants have discovered that major swap defaults are a reality. This section explores the default risk present in an interest rate swap agreement as well as the measures swap participants may take to hedge against this risk.

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92. Insured municipal bonds are referred to as "belt and suspenders" issues because, similar to the double protection of a person's pants falling down provided by wearing both a belt and suspenders, insuring municipal bonds provides the investor with double protection against default--one form of protection by the municipality itself and a second form of protection by the bond insurer. *Id.*

93. *Id.*

94. The theory behind municipal bond insurance, as set forth by A.V. Thakor, *An Exploration of Competitive Signaling Equilibria with "Third Party" Information Production: The Case of Debt Insurance*, 37 J. Fin. 717 (1982), argues that there are two consequences of bond insurance: (1) insurance coverage increases the expected value of the coupon and maturity payments, thus reducing the perceived default risk of the bond issue; and (2) insurance coverage may act as a third party signal to investors that reduces their uncertainty about the instability of the issue. Municipalities purchase bond insurance to lower their borrowing costs after taking into account the cost of the insurance premiums. The municipalities' borrowing costs are lowered because the bond, once insured, will no longer bear the credit rating of the municipality, but will instead carry the credit rating of the insurer, which will be higher. It follows that the credit rating of the bond insurer will be higher than the credit rating of the municipal borrower. If this were not true, the bonds would be guaranteed by a credit agency (the insurer) with a higher probability of default than the borrower (the municipality). In fact, three of the four largest bond insurers were given "Aaa" ratings by Moody's in 1986. (The fourth insurer was not rated by Moody's.) Robert L. Bland & Chilik Yu, *Municipal Bond Insurance: An Assessment of its Effectiveness at Lowering Interest Costs*, Gov't Fin. Rev., June 1987, at 24.

A. Default Exposure

The default exposure to a swap counterparty[95] is different from the exposure to a bondholder. Two basic differences exist. The first is that only the interest is at risk in a swap transaction, but the interest as well as the entire principal is at risk in a bond issue. Swaps are based on the periodic exchange of interest instead of an advance of principal. Secondly, in a swap transaction it is possible to find a replacement for the defaulting counterparty, but the issuer of a bond cannot be replaced.

When a swap dealer acts as a principal in a swap transaction, the dealer takes on the risk that one of the parties may fail to perform according to the terms of the agreement. Even if a counterparty defaults, the dealer must continue making payments to the other party. The dealer would enter into a new transaction to replace the lost counterparty with a new contract theoretically having the same principal, maturity, and payment schedule. This has to be done at prevailing market rates, which would almost certainly be different from those prevailing at the initiation of the swap.[96]

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95. A counterparty is "a principal to a swap or other derivative instrument, as opposed to an agent such as a broker or dealer." Kenneth R. Kapner & John F. Marshall, The Swaps Handbook 492, 494 (1990). A derivative instrument is "an instrument that is defined on, and whose value is a function of, some other instrument or asset. Examples include futures, options, and swaps." *Id.* at 494.

96. Interest rate swaps can lead to a loss for a counterparty only if two events occur together. First, the counterparty to the swap must cease making its interest rate payments according to the terms of the agreement. Second, interest rates must move adversely to the affected party so there is a cost in replacing the cash flows from the original swap contract. The first event is referred to as credit risk while the second event is referred to as market risk. *Id.* at 382. The quantification of credit risk and market risk will be examined individually and then combined to obtain the default risk exposure.

Assume that a client approaches the swap dealer for a $100 million three-year nonamortizing floating-for-fixed interest rate swap (a nonamortizing debt is a debt obligation in which the full principal is repaid in a single transaction upon maturity of the debt with no repayments of principal prior to maturity. *Id.* at 508.). The client pays an annual coupon based on one year LIBOR and the dealer pays an annual fixed-rate. (See Figure 5)

Using his credit expertise, assume the dealer determines the probability of client default as summarized in Table 1. The probability of default in years two and three is conditioned on the fact that default has not already occurred.

Table 1

Probability of Client Default Within Specified Time Frame

Default Occurs Within	Probability of Default
0 - 12 months	0.0%
12 - 24 months	1.0%
24 - 36 months	2.5%

The dealer must next determine the market risk. The market risk is measured as the present value of the payments the dealer will not receive from the client as a result of a default. The present value is determined using the standard zero coupon methodology for swap valuation as outlined by Benjamin Iben in Interest Rate Swaps. The expected payments are based on the difference between the floating-rate the dealer would receive (LIBOR) and the fixed-rate the dealer would have to pay (e.g., 4.15–.125 or 4.025 percent) multiplied by the principal ($100 million). The LIBOR rates are derived by using the Chicago Mercantile Exchange (CME) closing Eurodollar futures prices for March 1994 and March 1995 on February 13, 1992 as a proxy for the LIBOR forward rates for these months. Because the Eurodollar futures contracts traded on the CME settle against LIBOR, they provide a means for readily observing forward rates for LIBOR. Benjamin Iben, Interest Rate Swaps 276 (1991). The present value equation is given as:

$$PV = \sum_{i=1}^{n} \frac{(\text{LIBOR} - \text{Mid-rate})(\text{principal})}{(\text{zero rate})^{i}},$$

where

n = number of payments to be received.

For example, if default occurs immediately after the first payment is made, the expected present value of the payments the dealer forgoes due to default is determined as such:

$$PV = \frac{(7.4\% - 4.025\%)(\$100\,\text{million})}{(1.0600)} + \frac{(8.08\% - 4.025\%)(\$100\,\text{million})}{(1.0669)^2}$$

$$= \$6{,}746{,}368$$

If the default occurs immediately after the second payment is made, the expected value of the final payment the dealer forgoes due to default is determined in this manner:

$$PV = \frac{(8.08\% - 4.025\%)(\$100\,\text{million})}{(1.0669)} = \$3{,}800{,}731$$

The resultant values are summarized in Table 2. These values

represent the change in revenue relative to the expected revenue from the original swap contract. If the dealer were forced to enter into a new swap contract as a result of the original counterparty default, the dealer would be forced to pay a higher fixed-rate coupon in order to equate the expected present values of the payments made by the dealer with those received by the new counterparty.

Table 2

Market Exposure in the Event of Default

If Default Occurs After	Loss (Market Risk) From Interest Rate Change
1 year	$6,746,368
2 years	$3,800,731

However, the losses occur only if the counterparty defaults. The default exposure is found by multiplying the market risk by the probability of default. (See Table 3) The default exposure is considerably less than the market exposure since the dealer has assigned the counterparty a low probability of default. After quantifying its default risk exposure, the bank must determine how to most effectively manage this exposure.

Table 3

Default Risk Exposure

If Default Occurs After	Default Risk Exposure From an Interest Rate Change	
1 year	$67,463	0.067% of principal
2 years	$95,018	0.095% of principal

EXAMPLE OF A SWAP TO DEMONSTRATE DEFAULT EXPOSURE

Figure 5. This example demonstrates a basic interest rate swap in which the dealer receives 5.125% from the fixed-rate payer in exchange for paying the floating interest rate (LIBOR). In a separate transaction, the dealer receives the floating-rate (LIBOR) from the fixed-rate receiver in exchange for paying the fixed rate of 4.875%. This assumes a mid-rate of 5.0% and a premium of 0.125%.

B. Managing Default Risk

Default risk is largely unsystematic in nature because the likelihood of default among relevant market participants is not highly correlated. Because default risk is unsystematic it can be reduced through diversification.[97] Economic conditions will affect most counterparties to some degree; however, the correlation among counterparties is likely to be quite low. Thus, a large portfolio of interest rate swaps with different counterparties will minimize the default risk to the dealer. Nevertheless, the swap dealer must protect himself from individual defaults which will have a potentially large adverse affect on the dealer's balance sheet. There are a number of methods available to a swap dealer to protect himself from default risk and this section briefly considers each method.

1. Charging a Default Risk Premium to the Counterparty

The first method is to charge each counterparty a default risk premium based on the structure of the swap agreement and the counterparty's estimated likelihood of default.[98] The default risk exposure to the dealer calculated for a default after the first year was found to be $67,463. This is equal to 0.067% of the principal amount of $100 million. A swap dealer can thus justify charging the counterparty a 0.067% default risk premium on the first payment received to protect the dealer against a

97. Kapner & Marshall, *supra* note 95, at 65.
98. Recall the default risk exposures in Table 3.

counterparty default. Therefore, the premium for the second payment would be 0.095% ($95,018/$100 million). However, a survey of twenty leading swap dealers revealed that although the swap dealers make the default risk assessment, they do not usually pass on any default risk premiums explicitly through the quoted price of the swap.[99] Instead, if the swap dealer could not cover the default risk premium at the prevailing swap price in the market, the deal was not done.

2. Incorporating "Termination Clauses" that Provide for Appropriate Payments to Cover Damages in the Event of Default

A second method utilized to manage default risk is the use of termination clauses. All swap contracts include termination clauses that provide for the assessment of damages in the event that one party defaults. The International Swap Dealers Association's[100] standards provide several alternative methods for determining settlement payments upon early termination. The principal problem with required payments under termination provisions is that the counterparty may not be in a position to make any payments if the default is associated with the counterparty's bankruptcy.[101] The counterparty may not be in a position to make the required payments or may be stayed from making the payments by the bankruptcy laws of its state or country. Furthermore, even when payment is made, it will likely be made at less than full value.

3. Reducing the Size of Default Risk by Reversing Existing Swaps

A third way to manage default risk is to reduce exposure by reversing existing swaps. Assume a swap dealer enters a five-year interest rate swap as fixed-rate payer with Counterparty *A* and then matches this commitment as fixed-rate receiver with a swap with Counterparty *B*. The swap dealer records a credit exposure on both swaps. Later, the swap dealer enters a five-year interest rate swap as fixed-rate receiver with

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99. *Interest Rate Swaps: Use, Risk, and Prices*, New Eng. Econ. Rev., Nov.-Dec. 1987, at 22-32.

100. The International Swap Dealers Association "is the preeminent voice to the public and regulators of users, dealers and associated firms involved in Derivative Products." Schwartz & Smith, *supra* note 52, at GI-10. A Derivative Product is "the financial result of combining an underlying security (or underlying securities) with one or more futures, options, interest-rate swaps, currency swaps and so on." *Id.* at GI-7. "Membership encompasses virtually every major financial institution worldwide and issues the most definitive market data available." *Id.* at GI-10.

101. Kapner & Marshall, *supra* note 95, at 395.

Counterparty *C* and would, normally, look to match this swap with a swap with another counterparty, Counterparty *D*. In the swap with Counterparty *D*, the dealer would be the fixed-rate payer. If the dealer does this, he would then have a recorded exposure on four separate swaps. Now, suppose that instead of doing the final swap with Counterparty *D*, the dealer again approaches Counterparty *B*. Recall that in his first swap with Counterparty *B*, the dealer is the fixed-rate receiver. Since the dealer now needs a swap to match its obligation to Counterparty *C*, in which the dealer is the fixed-rate receiver, the dealer offers such a swap to Counterparty *B*. At the same time, the dealer requests that the two opposing swaps between the swap dealer and Counterparty *B* cancel one another. As it happens, Counterparty *B* is amenable to this cancellation. By writing off-setting swaps in this way, the dealer reduces his swap exposure from four swaps to two swaps.[102]

4. Passing the Default Risk to Another Party by Assigning the Swap

A fourth method is to assign the swap to a third party. This transfers the default risk to the third party. However, this approach requires approval of both counterparties. Permissive assignment is generally not allowed under most swap agreements.[103] Therefore, assignment is a matter typically left to subsequent negotiation should the desire arise.

5. Improving the Creditworthiness of the Counterparty through Credit Enhancement[104]

A fifth way to manage default risk is to improve the creditworthiness of the counterparty through credit enhancements. The most common method is for the dealer to require the counterparty to pledge collateral in a margin account. The posting of collateral equal to the mark-to-market replacement cost of the swap is the preferred method.[105]

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102. This example is taken from Kapner & Marshall, *supra* note 95, at 396-97. Of course, it is unlikely that market conditions have remained unchanged since the first swap with Counterparty *B* was written. Thus, the off-setting swaps will require a different set of payments. To facilitate this, the dealer will make a single payment to Counterparty *B* or Counterparty *B* will make a single payment to the dealer in order to net the difference in value.

103. A permissive assignment is facilitated by including an assignment clause at the time the swap is written, thus allowing the dealer to make such a transfer. Kapner & Marshall, *supra* note 95, at 398.

104. Four of the five methods mentioned are found in Kapner & Marshall, *supra* note 95, at 393.

105. *Id.* at 395. Marking-to-market is the practice of periodically adjusting a margin account by adding or subtracting funds based on changes in market value.

Another method to improve the creditworthiness of the counterparty, though seldom used, is to require the counterparty to purchase credit enhancer insurance. For an illustration of this method, recall Figure 2. In this example, the two counterparties are using a swap transaction to lower borrowing costs. By entering into the interest rate swap contract, the municipality saves 75 basis points over what it would otherwise have to pay in the floating-rate debt market. Firm A saves 50 basis points over what it would otherwise have to pay in the fixed-rate debt market. In Figure 6 a swap dealer is added to the transaction.[106]

ILLUSTRATION OF CREDIT ENHANCER INSURANCE

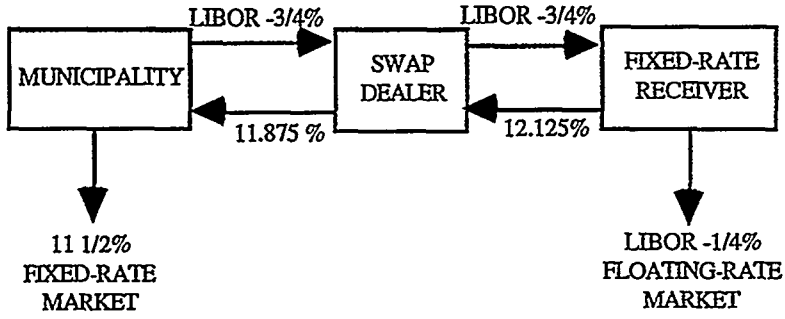

Figure 6. This example illustrates how credit enhancer insurance might work in a swap transaction. Assuming a mid-rate of 12% and a bid/offer spread of 0.25% (0.125% from each counterparty), by entering into the swap transaction the municipality saves 62.5 basis points while Firm *A* saves 37.5 basis points. Thus, the insurance must be priced at less than 0.625% of the principal amount for the municipality and 0.375% for Firm *A* in order to be profitable for the parties involved.

Assume that the dealer's current mid-rate for this swap is 12 percent. To this the dealer will add or subtract 1/8 point (12.5 basis points) depending on whether the client is paying or receiving the fixed rate. This reduces the savings to the municipality from 75 basis points to 62.5 basis

106. In the absence of swap dealers, significant search costs can be associated with finding potential counterparties with matching needs. The swap dealer stands ready to match any client's interest-rate requirements by offering himself as the counterparty to the swap. The swap dealer has assumed the risk that the interest rate he pays the client will change. Thus, in order to limit his risk, the dealer will ideally enter into a matching swap with another counterparty. If such a party is found, the dealer has limited risk and can be viewed as standing between the two counterparties in the traditional sense of a financial intermediary. Kapner & Marshall, *supra* note 95, at 27-31.

points and the savings to Firm *A* from 50 basis points to 37.5 basis points. Assume also that the credit ratings of the municipality and Firm *A* are unacceptable to the dealer. In order for the dealer to require credit enhancer insurance from the parties, the insurance must be priced low enough that the swap transaction is still worthwhile for the parties involved. For the municipality, the insurance would have to be priced at less than 0.625% of the principal amount. For Firm *A*, the insurance would have to cost less than 0.375% of the principal amount if the transaction is to remain profitable.

VI. ANALYSIS

The similarities between the two defaults (both were the largest defaults of their kind, and the actions of both municipalities were found *ultra vires* by the courts), lead to two obvious questions: (1) Why did the defaults occur? and (2) How will the financial markets involved react to such defaults? This Note focuses on the second question. The municipal bond market has developed an extensive credit enhancer insurance market to protect bondholders against default, while the interest rate swap market is still attempting to cope with the Hammersmith default.

The Hammersmith default has increased participants' awareness that large defaults are possible. However, a market for credit enhancer insurance to protect parties against default of counterparties has not yet emerged. Instead of developing a market for credit insurance, interest rate swap participants handle default risk exposure on an individual swap contract basis. Thus, Hammersmith has simply increased the amount of information available to swap participants to manage default risk exposure.

In the early days of the swap market, the level of income the swap dealer received was substantially higher than it is today. As the market has matured, the income received by the dealer has declined substantially. The entry of new players into the market has exerted downward pressure on prices as the market has become increasingly competitive.[107] According to one banker, "the marketplace today is too competitive and the bid/offer spread too narrow to add a charge for a guarantee."[108] However, John Caouette, president and chief executive officer of Capital Markets Assurance Corporation, thinks there may be some opportunities in the future if the market continues to deteriorate. He states, "[a]s the market adapts to credit risk, the economics of credit enhancement will

107. Dale F. Cooper & Ian R. Watson, *How to Assess Credit Risk in Swaps*, The Banker, Feb. 1987, at 31.

108. Simon Brady, *Time Runs Out for Low-Rated Swappers*, Euromoney, Feb. 1991, at 9.

work."[109] Before that can happen, swap spreads will have to widen or the price of credit enhancement will have to come down.

There are even more basic reasons why the municipal bond insurance market has flourished as a result of WPPSS while the interest rate swap market has not developed such a market in the face of Hammersmith. This section will analyze those basic reasons and conclude by exploring the costs and benefits of a market for insurance as related to the municipal bond market and the interest rate swap market.

In order for a risk to be insurable, three components must be present. First, the risk must be a risk to which many individuals are exposed. Second, the risk manifestations must not be highly correlated among those exposed. That is, the risk must be unsystematic in nature. Third, the probability of a manifestation of the risk must be known with a high degree of certainty.[110]

Municipal bond default risk is insurable because many municipalities are exposed to a similar risk and the individual municipalities have a near zero correlation. That is, the probability of municipality *A* defaulting has no effect on the likelihood of municipality *B* defaulting. Additionally, while it is difficult to say whether municipality *A* will or will not default, the statistical likelihood of default can be estimated with relative certainty.[111]

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109. Caren Chesler-Marsh, *The Market Gets Choosy*, Euromoney, Aug. 1990, at 19 (quoting John Caouette, president and chief executive officer of Capital Markets Assurance Corporation).

110. Kapner & Marshall, *supra* note 95, at 134.

111. Financial risk is typically measured using the standard deviation of the expected return of an asset. Assume that the present value of all interest and principal payments the municipality is obligated to make to the bondholders totals $1 million. For simplicity's sake, assume that the expected default rate is .25 and if default occurs, the bondholders expect to recover 40% of the value of the payments owed them ($400,000). The expected return of this bond issue to the bondholders as a group is equal to $850,000.

$$E(R) = .25(\$400{,}000) + .75(\$1{,}000{,}000)$$
$$= \$850{,}000$$

The municipal bond insurer offers to cover any losses resulting from a default. If a default occurs, the insurer expects to pay out $600,000. If not, the insurer benefits by the amount of the premium (note that this example ignores the insurance premium). Therefore the expected payout by the insurer is equal to $150,000.

Insurance developed in the municipal bond market because the

$$E(payout) = .25(\$600{,}000) + .75(\$0)$$
$$= \$150{,}000$$

The default exposure to the insurer (standard deviation of the expected payout, σ) is $259,808.

$$\sigma = [.25(\$600{,}000 - \$150{,}000)^2 + .75(\$0 - \$150{,}000)^2]^{\frac{1}{2}}$$
$$= \$259{,}808$$

Although the insurer has assumed the risk of all the individual municipal bond issues, it is not at significant risk because the individual risks of default are not highly correlated. (This is a simple application of the Markowitz portfolio selection model. Harry M. Markowitz, Portfolio Selection: Efficient Diversification of Investments (1959).) Thus, the standard deviation of a portfolio of n independent municipal bond issues with the same measure of risk default and same present value of payments is equal to:

$$\sigma(n) = \frac{\sigma}{\sqrt{n}},$$

where
σ = individual bond issue default risk exposure,
n = number of identical bond issues insured, and
$\sigma(n)$ = average bond issue default risk exposure to the insurer

(this follows from the equation:

$$\sigma_p^2 = \sum_{i=1}^{n} w_i^2 \sigma_i^2 + \sum_{i=1}^{n} \sum_{j=1}^{n} w_i w_j Cov(r_i r_j),$$

where
w_i = weight of the i^{th} bond issue, defined as the market value of the i^{th} bond issue divided by the market value of the portfolio of bond issues
r_i = expected insurance payout under each possible scenario,

setting $w_i = 1/n$ because of equal present value of payments and all covariances equal to zero because of independence of the bond issues).

From a portfolio perspective, the single per-issue default risk (standard deviation of the mean, $\sigma(n)$ declines as the number of bond issues in the insurer's portfolio increases. For example, each $1 of individual bond issue risk is reduced to $0.50 with four insured bond issues and is reduced to $0.25 with sixteen insured bond issues. Insurance works because the insurer's risk, when spread across a large policy base, is a small fraction of the insured's risk. Kapner & Marshall, *supra* note 95, at 137.

individual insured bondholders are unable to spread the independent risk exposures of the individual bond issues across a large enough base. That is, the financial limitations of the individual bondholders prevent them from adequately diversifying the default risk exposures of the bond issues.[112] The insurer, on the other hand, has financial resources with which to adequately spread the risks across a large base. Thus, the insurer acts as an intermediary to offer a product that the market participants are unable to otherwise produce.

The default risk exposure to an interest rate swap dealer is diversified away much as it is to a municipal bond insurer. As the swap dealer increases the number of swaps in its portfolio, the average dollar risk per swap contract decreases. Due to the fact that the default exposure of individual counterparties are relatively uncorrelated and the statistical likelihood of individual defaults can be estimated,[113] the swap dealer enjoys the same benefits of diversification as the municipal bond insurer.

Although the principles of diversification to reduce unsystematic risk apply equally to the municipal bond market as to the interest rate swap market, the interest rate swap market has not developed a market for credit enhancer insurance. Whereas the insured municipal bondholder is restrained financially from adequately diversifying its portfolio, the swap dealer, as a result of its financial resources, is able to fully diversify its portfolio. Thus, there is no need for an intermediary insurer.

In both the *WPPSS* case and the *Hammersmith* case, the courts' *ultra vires* holdings allowed the governmental entity to escape liability. Had the municipalities been held liable, the burden would ultimately fall on the taxpayers of the respective municipalities. Instead, the liability is passed to the WPPSS bondholders and the swap banks involved with Hammersmith.

The use of municipal bond insurance creates a blanket of protection for municipal taxpayers from ill-advised bond issues. That is, the courts are no longer forced to protect the taxpayers from liability due to municipal bond defaults. If an insured municipality defaults, the insurer is now liable. Thus, the taxpayers can rest easy as they will not have to float the bill for municipal bond defaults.

Since the interest rate swap market has not developed credit enhancer insurance, the municipal taxpayers are still at the mercy of the courts. If the court finds the actions of the defaulting municipality *ultra vires*, the taxpayers have no liability. However, if the court does not find the municipality's actions *ultra vires*, the municipality and ultimately the taxpayers are still liable for the swap contract payments. If a market for interest rate swap insurance existed, the taxpayers could escape liability

112. The bondholders who can adequately diversify their portfolios would not choose the insured municipal bonds because insured bonds offer a lower rate of return than a similar yet uninsured bond.

113. *See supra* part V.

altogether for swap contract defaults. As a result, the taxpayers of an insured municipal bond issue are protected against liability; whereas, the taxpayers of a municipality involved with interest rate swaps must rely on the courts for protection.

Insurance, therefore, provides the external benefit of protection for the taxpayers that would not exist if the bondholders did not require insurance. Insurance, however, also produces a degree of inefficiency in the municipal bond market that is not present in the interest rate swap market. The introduction of an intermediary, the insurer, suggests that the cost of insurance will exceed its expected monetary value.[114] One reason is because the insurer must cover its own administrative costs and its owners expect to earn a reasonable profit. However, there are more interesting and more important reasons. Thus the issue of operating costs will be ignored. Instead, two simple economic concepts explain why the cost of insurance will exceed its expected monetary value: moral hazard and adverse selection.

A. Moral Hazard

Moral hazard arises when an individual, because he is insured, behaves in such a way to increase the probability that he will need the insurance. There is moral hazard when an insured driver is more reckless than an uninsured driver, when a homeowner fails to install a security system because he is insured against break-ins, and when a person with health insurance takes more risks on the ski slopes than he otherwise would.[115] Because individuals act in this manner, it is impossible for insurance companies to offer premiums that are fair in the sense of expected values.

For example, using the default rates from Equation 3, (.25 probability of default and the bondholders receiving $400,000 verses a .75 chance of no default and the bondholders receiving $1,000,000), the expected return to the bondholders is $850,000. With these figures the insurer can expect to pay out $150,000.[116] As risk averters, the bondholders and municipality are willing to share the insurance premium of $150,000 in order to guarantee that the bondholders will receive $850,000 whether a default occurs or not.[117]

As a result of the insurance, the parties involved will not take precautions to guard against default. The bondholders will not keep as

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114. Kapner & Marshall, *supra* note 95, at 137.

115. Steven E. Landsburg, Price Theory and Applications 541 (1989).

116. *.25($600,000) + .75($0) = $150,000.*

117. Although the municipal issuer typically purchases the bond insurance, the bondholders share this cost through lower interest payments due to the reduced risk of the issuer.

close a watch on the municipality as they would absent insurance, while the municipality will be less concerned with overseeing expenditures, cost overruns and other considerations. Therefore, the probability of default will increase, perhaps from .25 to .50. The expected return will decrease to $700,000[118] while the expected insurance payout will increase from $150,000 to $300,000.[119] Thus, the cost of insurance is increased above its true price due to moral hazard. Therefore, the insurer will be forced to raise the premiums the municipality would have to pay absent moral hazard.

B. Adverse Selection

Adverse selection arises when the insurer knows less than its customers do about the probability of actually needing the insurance. Assume there are "sound" municipalities with a .25 probability of defaulting on a bond issue and "unsound" municipalities with a .50 probability of defaulting.[120] If the insurer markets insurance at rates fair to the sound municipalities, the insurer will break even on sales to the sound municipalities and lose money on its sales to unsound municipalities. In order to stay in business, the insurer must market a policy with rates that are some compromise between the two. This ultimately increases the cost of insurance for the sound municipalities above what they would have to pay were there perfect information in the market.

VII. CONCLUSION

The interest rate swap market does not experience these problems because the swap dealers are able to adequately diversify the default risk away. Hence, there is no need for credit enhancer insurance and there are no resultant inefficiencies introduced to the market. Thus, there is a tradeoff. The municipal bond market is less efficient than the interest rate swap market in the sense that the problems of insurance exist. However,

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118. *E(R) = .50($400,000) + .50($1,000,000) = $700,000.*

119. *.50($600,000) + .50($0) = $300,000.*

120. Although this phenomenon will be less pronounced with a multimillion dollar bond issue at stake than with a health insurance policy, for example, the municipality still has better information about itself than an outsider (the insurer). This assumes that the investigation involving the bond issue will reveal far more information than a health insurance investigation would due to the dollar amounts involved.

the taxpayers of insured bond issuing municipalities are fully insured against default liability; whereas, the taxpayers of municipalities involved with interest rate swaps are still at the mercy of the courts as to whether they are liable for the mistakes of their municipal officers.

The extensive default risk management methods now in use make it unlikely that the interest rate swap market will develop a market for credit enhancer insurance similar to the municipal bond insurance market that developed as a result of the WPPSS default. However, a watershed event in the interest rate swap market such as the Hammersmith default may push the swap market in that direction. In fact, one bank thinks the idea will fly and is developing a structure that will provide a cut-price guarantee.[121] It may even take a major default by a swap dealer, rather than a municipal counterparty, before the interest rate swap market develops a market for credit enhancer insurance.

121. Brady, *supra* note 108, at 9. (After speaking to approximately fifteen market participants, the author found no one willing to admit that he was working on a credit enhancer system for interest rate swaps. Whatever this bank had in mind either did not prove practicable or the bank is not willing to share its idea.)