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CIBC WORLD MARKETS
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1998 Survey of Derivatives and Risk Management Practices by U.S. Institutional Investors

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Executive Summary

In 1998 the New York University Stern School of Business, CIBC World Markets and KPMG Investment Consulting Group undertook a survey of derivatives usage and risk management practices among U.S. institutional investors. Our sample included pension plan sponsors, college and university endowments, and private foundations. To our knowledge, this is the first survey to cover these three classes of primary fiduciaries in the United States. It is important to note that this survey does not include hedge funds, nor does it include investment managers or counselors. The latter were excluded because they manage money for multiple primary fiduciaries and therefore their risk management and derivatives policies may vary by client.

Our target population consisted of 12,000 foundations, 1,000 pension plan sponsors and 500 university endowments. A total of 1708 surveys were mailed in June of 1998, with a follow-up second mailing in September. Survey collection and data processing were administered by the New York University Salomon Center. The total response rate was 17.5% (298 responses). Among institutions defined as "large" our response rate was 25%, while for the "medium" and "small" categories the response rates were 18.5% and 14% respectively.[1]

Among the key findings are the following:

(1) For the entire sample, 46% of institutions permit their asset managers to use derivatives. Responses ranged from 70% granting permission among large institutions, to 49% and 26% in the medium and small categories, respectively. Across types of investors, 63% of pension plan sponsors permit their asset managers to use derivatives. The figure drops to 38% among college and university endowments and to 28% for private foundations.

(2) Of those institutions that permit derivatives use, only 59% reported open derivatives positions as of 12/31/97. This translates into 27% of all respondents to the survey reporting derivatives outstanding. The evidence suggests, however, that this is a conservative estimate of derivatives positions since many institutions answered qualitative questions about their use of derivatives but did not indicate the size of their positions.

(3) Where derivatives are used, the positions tend to be small relative to total assets. The modal notional value of derivatives as a percent of assets is 1.0%, while the median value is 5.0%. Derivatives are most frequently used in the management of foreign bond portfolios, foreign equities, and foreign exchange arising from any source.

(4) Risk reduction and hedging is by far the most common motivation for users of derivatives (55%). Asset allocation is a distant second (26%) followed by achieving incremental returns or market timing, each of which was cited by 15% of users.

(5) The most commonly cited reason for not using derivatives is that investment objectives can be met without them. However, almost as many institutions cited "increased investment risk" associated with derivatives as the reason for not using them. This is an interesting juxtaposition to the most common reason for using derivatives—the reduction of risk.

(6) Attitudes toward the management and control of risk vary considerably. When asked specifically about the management of foreign currency risk (79% of the respondents permit foreign investment) responses were varied. Just under 50% of all institutions expressed the view that currency risk should be hedged or managed to acceptable levels. Approximately 30% did not explicitly manage currency risk (although their external asset managers might perform this function) and another 16% reported that currency risk was desirable for its diversification benefits.

[1] Size categories were based on assets under management. Pensions: Large greater than $10 billion, Medium between $1 and $10 billion and Small under $1 billion; Foundations and Endowments: Large greater than $500 million, Medium between $100 and $500 million, and Small less than $100 million.

(7) Risk governance surrounding derivatives at institutional investors appears to be less intensive than at banks and securities dealers, as might be expected. Among the "large" institutions in our sample, 41% have a designated risk manager or risk management committee and 39% have a written policy on risk management. Among derivatives users, 68% have a written policy on their use.

(8) The large majority of institutions (80%) place some limitation on the nature or extent of derivatives activity among internal or external managers. The most common limits deal with the types of derivatives that are permitted, derivative strategies that are allowed, and limits on the notional value of derivatives as a percent of assets. Such limits are more common among pension plan sponsors than among foundations, and among large institutions when compared to small ones.

(9) Value at risk (VAR) is not commonly used by the fiduciaries in our sample (it may be more common among asset managers employed by our respondents). Only 23% of large institutions report using VAR, compared with 81% of major G-10 banks and securities firms as reported in the latest BIS/IOSCO survey.[2] Use of VAR is marginally higher among derivatives users than non-users.

(10) When asked how their derivatives use is expected to change over the coming year, 65% of those that permit derivatives expected usage would stay the same and 29% expected it to increase. Larger institutions were more likely to increase usage (48%) than smaller institutions (25%).

[2] The Group of Ten is made up of eleven industrial countries (Belgium, Canada, France, Germany, Italy, Japan, the Netherlands, Sweden, Switzerland, the United Kingdom and the United States) which consult and co-operate on economic, monetary and financial matters. The most recent survey by the Bank for International Settlements (BIS) and the Technical Committee of the International Organization of Securities Commissions (IOSCO) is "Trading and Derivatives Disclosures of Banks and Securities Firms," published by the BIS, Basle Switzerland, November 1998.

I. INTRODUCTION

Over the last five years there have been numerous surveys on the use of derivative securities by non-financial corporations and institutional investors. In part, the motivation for these surveys reflects the rapid growth in derivative securities trading activity and a desire to better understand which groups are using derivatives and for what purposes. In addition, the reports of losses associated with derivatives activity at some institutions has prompted managers, shareholders and regulators to ask about the risk management techniques that are used by institutional investors when it comes to derivatives.

Our review of the literature finds that since 1994, 17 surveys of derivatives use by institutional investors have been published (See Appendix 1). Ten of these surveys focused on U.S. institutional investors while the remainder had a non-U.S. or international focus. Some surveys focused solely on pension fund managers, while others surveyed only mutual funds, banks, or life insurance companies. Several surveys included a cross-section of institutional investors including investment managers who act on behalf of the primary fiduciaries of investment funds. These surveys have produced widely varying estimates on the percentage of institutions that use derivatives (from 21% in the survey of U.S. mutual funds by Koski and Pontiff, to 92% in the survey of U.S. pension fund managers by Record Treasury Management). However, the surveys are in general agreement that hedging or risk management is the top reason for using derivatives among those who do.

This survey, conducted by the New York University Stern School of Business, CIBC World Markets, and KPMG Investment Consulting Group focuses on derivatives use and risk management by primary fiduciaries in the United States. Our sample includes pension plan sponsors, college and university endowments, and private foundations. To our knowledge this is the first comprehensive survey to include these three populations. We specifically excluded hedge funds and asset management companies. The latter were excluded because their risk management and derivatives activity may be different for specific primary fiduciary clients.

Among our key survey findings, less than half (45%) of the institutions in our sample permit the use of derivatives. This percentage is smaller for university endowments (38%) and for private foundations (27%). Among institutions classified as "large," derivatives were permitted by 65% of respondents. Of those institutions that permit derivatives, only 59% report that they actually held non-zero derivative positions as of 12/31/97. Thus, about 27% of the respondents to our survey actually reported holding a derivatives position.

We can convert our sample estimates to population estimates (see "Sample Estimates and Population Estimates" in Section IV) by weighting our response rates by the proportion of the total population in each group. For example, the use of derivatives is much more common among large institutions compared with small ones, but large institutions were more heavily sampled than small ones. Adjusting for the fact that small institutional investors are far more numerous than large ones, we estimate that only about 28% of all institutional investors (i.e. the population) are permitted to use derivatives, and only about 13% of all institutional investors actually hold non-zero derivatives positions. Unless specifically noted, all numbers in the remainder of this paper are sample estimates, not population estimates.

Where derivatives are used, the positions tend to be small – the modal notional value is 1.0% of assets, and the median notional value is 4.6% of assets. By a wide margin, risk reduction/hedging is the most frequently cited reason for using derivatives. Slightly more than half (55%) of our respondents have a regular schedule for receiving reports on derivatives activity, while the remainder follow no set schedule. Overall, the respondents report a high level of satisfaction that derivatives use is helping the institution achieve its intended purpose, and 29% of the institutions expected to increase their derivatives usage in the coming year (1998).

The structure of this report is as follows. In the next section we describe our sampling methodology. In section III, we present an overview of the characteristics of those institutions that participated in the survey. Our findings regarding the use of derivatives are presented in section IV. Section V examines risk management practice in general. A summary of our findings and overall conclusions are contained in the final section.

II. SAMPLING METHODOLOGY

In planning for this survey, we decided to focus on primary fiduciaries as the sampling unit rather than investment managers or counselors. Two considerations led us to this approach. First, the use of derivatives by external managers is often dictated by the primary fiduciary and not left to the discretion of the manager. And second, external mangers often manage funds on behalf of numerous accounts and so they cannot be asked for a definitive response on whether or not they (as managers) use derivatives.

We identified four categories of institutional investors who act as primary fiduciaries – mutual funds, pension plan sponsors, college and university endowments, and foundations. With a sampling population of nearly 8,000 mutual funds, 12,000 foundations, 1,000 pension sponsors, and 500 university endowments, we could not undertake a 100% sample. Instead we elected to conduct a stratified sample of each category. Assuming that derivatives use is more common among larger institutions, we sampled 100% of all institutions classified as "Large" or "Medium" and a proportional random sample of the remaining institutions within each category classified as "Small." This approach allows us to make inferences about the entire population of institutional investors, as well as about the sub-categories (by size or type of institution). A more complete description of our sampling methodology is presented in Appendix 2.

In June 1998, we mailed 2,346 questionnaires to a stratified sample of institutional investors drawn from four categories: mutual funds, pension plan sponsors, college and university endowments, and foundations. A second round of surveys was mailed in September 1998 to institutions that did not respond to the first mailing. Survey participants were told that responses to individual survey questionnaires would be confidential and available only to the researchers at the New York University Salomon Center. A copy of the questionnaire is included in this report as Appendix 3.

Table 1 summarizes the four populations and the response rate for each. The mutual fund category was dropped from the survey because of the low response rate. Consequently, all tabulations in this report reflect the results from the pension plan sponsor, university endowment, and foundation populations only. These three groups yielded 298 completed surveys, or a 17.45% response rate.

Table 1 Survey Population and Response Rates

Group	Population	Surveys Mailed	Usable Responses (Response Rate)	Population source and population size
1	Mutual Funds	638	18 (2.8%)	Morningstar Principia CD-ROM, March 31, 1997 issue; 7,985 funds
2	Pension Plan Sponsors	781	123 (15.7%)	*Pensions and Investments* Magazine, 1998 top 1,000 U. S. pension/employee benefit funds
3	University Endowments	368	98 (26.6%)	National Association of College and University Business Officers, 466 colleges and universities
4	Foundations	559	77 (13.8%)	The Foundation Directory, CD-ROM version; 12,449 U.S. foundations
2,3,4	Usable Sample Population	1,708	298 (17.4%)	

From Table 1, we see that the response rate for university endowments (26.6%) is substantially larger than the overall average, while the response rate for foundations (13.8%) is smaller. In addition, the response rate for large, medium and small institutions is 25.0%, 18.4%, and 13.9% respectively. These results suggest that university endowments and large institutions are relatively over-represented in our sample,

while foundations and small institutions are relatively under-represented. In Appendix 2, we show that these differences in response rates are statistically significant.

Differences in response rates could be important when we use the survey to make inferences about the universe of all institutional investors. Similarly, the results for any population (say pension sponsors) may be biased to the extent that large pension funds are over-represented relative to small funds. In this report, we will present our survey findings directly without adjusting for the possible impact of sampling response bias.

III. CHARACTERISTICS OF SURVEY RESPONDENTS

Institutional investors reflect a large range of assets under management both within and across groups. Summary statistics for our survey respondents are presented in Table 2. The largest respondents to our stratified sample oversee tens of billions of dollars, while the smallest oversee less than ten million dollars. Of our three investor classes, pension plan sponsors generally have the largest pool of assets under management, with a median of $1.8 billion compared to about $200 million for foundations and endowments. Our sample of private foundations and university and college endowments manage smaller pools of assets that are broadly similar in terms of their quartile values.[3]

Table 2 Reported Assets Under Management (in US$ mm)

Population	Largest	75% Quartile	50% Quartile	25% Quartile	Smallest
Full Sample (N=294, NA=4)	143,000	1,672	519	161	1
Pension Plan Sponsors (N=122, NA=1)	143,000	6,155	1,800	837	31
University Endowments (N=98)	50,000	494	198	74	3
Foundations (N=74, NA=3)	9,000	435	204	66	1
Large Institutions (N=46, NA=1)	143,000	33,750	11,100	935	327
Medium Institutions (N=159, NA=3)	10,650	1,797	650	273	40
Small Institutions (N=89)	1,050	325	75	28	1

With such a wide range of asset sizes it is likely that responses will be sensitive to this variable. In many cases the apparent differences across the three classes of investors is a reflection of the difference in typical asset size in each class. However this is not always the case. For example assets under management does not explain differences across classes in the use of a designated risk manager or written risk management policies (see Table 5).

We expect asset size to be correlated with certain institutional characteristics such as the degree of reliance on external managers, the extent of investment overseas, and the use of derivatives. In some sense external managers can be a substitute for size—the smaller institution gets the expertise and pays a small fraction of the asset manager's fixed costs associated with overseas investing or derivatives use. In Table 3 (panels A and B) we present summary statistics for use of external managers and overseas investment.

[3] Our largest university endowment represents a consortium of state schools whose endowments are managed collectively. The largest single university endowment (Harvard) is roughly the same size as the largest private foundation (The Ford Foundation). The population of college and university endowments is far smaller (only 466) compared to the population of private foundations (numbering more than 12,000).

In the full sample, 93% of our respondents report using external managers, and those who do use an average of 13 external managers. "Large" institutions have a slightly smaller percentage (80%) of their assets managed externally than "medium" or "small" institutions, but on average they use a far greater number of external managers (32) than smaller institutional investors.[4] Across types of institutions, 20% of foundations report using no external managers at all. In contrast nearly 100% of plan sponsors and college endowments use at least one external manager. This may be a reflection of the small size of the typical foundation in our sample.

In the full sample, 79% of our respondents invest outside of the United States with an average foreign investment of 13% of assets. While 89% of large institutions invest internationally, only 64% of the smaller institutions do so. Large institutions hold about 15% of their assets in non-U.S. investments compared to 10% for small institutions. In our sample, large institutions employed external managers on average for 79% of their international investment. Relatively more foreign assets are managed externally for medium institutions (87%) and small institutions (94%).

Table 3 Use of External Managers and Non-U.S. Investment

Panel A External Managers

	Percent of institutions using external managers	Average assets managed externally (among users of external managers)	Average number of external managers (among users of external managers)
Full Sample (N=298)	93%	88%	13
Pension Plan Sponsors (N=123)	96%	88%	19
University Endowments (N=98)	99%	88%	11
Foundations (N=77)	80%	88%	7
Large Institutions (N=47)	89%	80%	32
Medium Institutions (N=162)	97%	89%	12
Small Institutions (N=89)	87%	90%	6

Panel B Investment Outside the U.S. and External Managers

	Percent of institutions investing outside the United States	Average percentage of assets invested outside the United States (among those investing outside the U.S.)	Percent of non-U.S. assets managed externally
Full Sample (N=298)	79%	14%	88%
Pension Plan Sponsors (N=123)	84%	14%	83%
University Endowments (N=98)	86%	13%	95%
Foundations (N=77)	62%	12%	83%
Large Institutions (N=47)	89%	15%	79%
Medium Institutions (N=162)	84%	14%	87%
Small Institutions (N=89)	63%	10%	94%

[4] See Appendix 2 for the definitions of large, medium, and small institutions by category of investor.

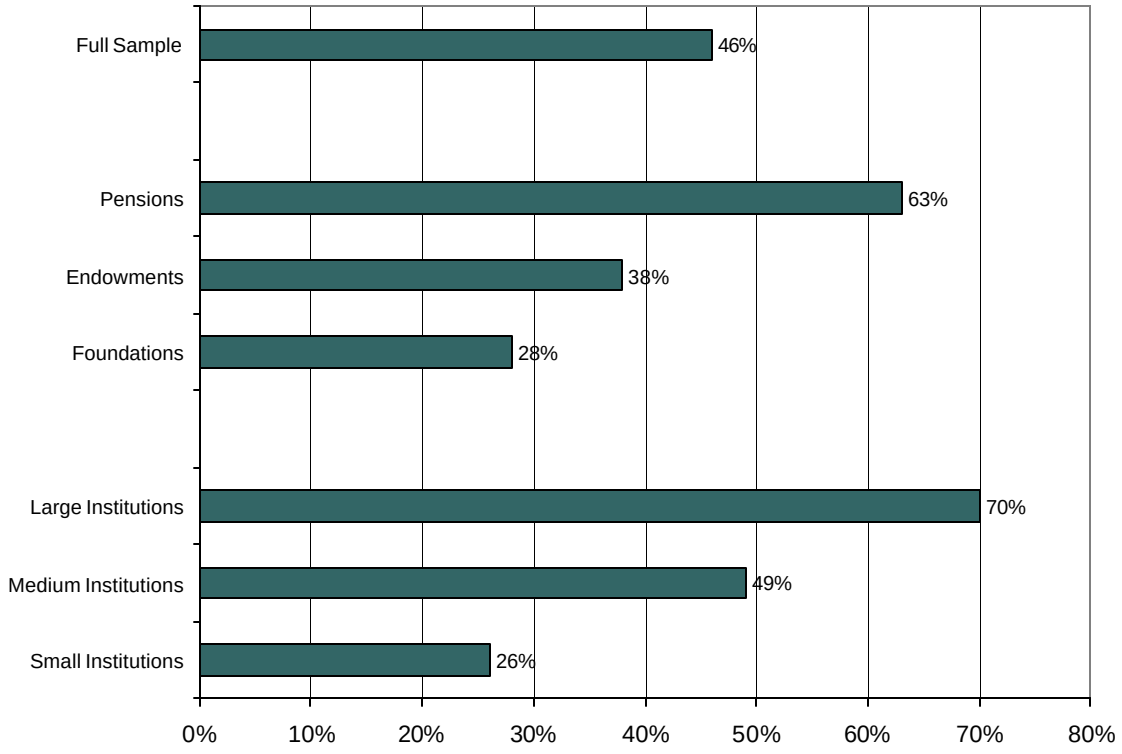
IV. USE OF DERIVATIVES

Permission to use derivatives

We asked all institutions to indicate whether they were *permitted* to use derivatives in the management of any of the institution's assets, and then to indicate the notional value of derivatives as a percentage of overall assets under management. As shown in Figure 1 and Table 4A, derivatives use is permitted at 46% of all institutions in the full sample. Permission to use derivatives is more common among pension funds in our sample (63%) and less so among university endowments (38%) and foundations (28%). Similarly, permission to use derivatives is more common among large institutions (70%) as compared to medium or small institutions (49% and 26% respectively). The proportion of large institutions with permission to use derivatives is roughly comparable to survey results for large non-financial firms.[5]

A chi-squared test rejects the hypothesis of independence across investor categories and/or size categories. The likelihood of having permission to use derivatives is significantly higher than the sample average (46%) at pension funds and at large institutions, while it is significantly lower than the sample average at both foundations and at small institutions.

Figure 1 Percentage of Institutions Permitting Derivatives Use Across Categories



Positions Outstanding

Not all institutions with permission to use derivatives report holding non-zero positions in derivatives based on responses to Question 2. For the full sample, only 79 institutions (59% of those that permit derivatives

[5] See, for example, the Wharton/CIBC World Markets "1998 Survey of Derivatives Usage by U.S. Non-Financial Firms," page 2.

use) report positions in derivatives (Table 4B). Institutions reporting open positions are heavily concentrated among the large institutions. For the large category, 88% of institutions with permission to use derivatives report open positions in Question 2, compared to only 9% of small institutions. Similarly, more pension plans have reported positions (69%), compared to 49% for university endowments, and 38% for foundations.

We interpret the preceding results on the size of derivatives positions cautiously for several reasons. First, institutions might feel comfortable reporting that they are permitted to use derivatives, yet be reluctant to report the size of their positions. Second, institutions may be "dressing down" their derivatives positions at yearend. Third, as we report below, the typical position is very small relative to total assets. In Table 4B, we note that 56 institutions across the full sample have not indicated a positive yearend derivatives position. This group comprises 29 respondents who left question 2 blank and another 27 that entered a zero. Those 29 who provided "no answer" may have positions, but not know their size. Those 27 who answered "zero" may hold small positions that are really negligible relative to the overall fund size. Regardless of the specific reason, there is reason to conclude that the proportion of institutions reporting open positions is a conservative estimate of total use. One additional reason for this view is that a significant number of respondents with no reported positions (but permission to use) answered other qualitative questions about their derivative activity, such as the most common instruments employed.

The size of derivative positions (as a percentage of notional principal value) for those institutions that permit their use varies considerably. Across the full sample, the most common (modal) position for those institutions that permit derivatives use is 0% of assets (i.e. no position) and only 1.0% of assets for those 79 institutions that report a positive position. For the latter group, the median position is 4.6% of assets, the average is 6.7%, and the largest proportion was 67% reported by one institution.

Table 4A
Permission to Use Derivatives (as of 12/31/97)

	Permitted	Not Permitted	No Answer
Full Sample	135 (46%)	161 (54%)	2
Pension Plan Sponsors	77 (63%)	46 (37%)	0
University Endowments	37 (38%)	60 (62%)	1
Foundations	21 (28%)	55 (72%)	1
Large Institutions	33 (70%)	14 (30%)	0
Medium Institutions	73 (49%)	81 (51%)	2
Small Institutions	23 (26%)	66 (74%)	0

Table 4B
Institutions Reporting Positive Derivatives Positions (as of 12/31/97)

	Permitted	Permitted and Hold Position > 0	Permitted and Zero Position or No Answer
Full Sample	135	79 (59%)	56 (41%)
Pension Plan Sponsors	77	53 (69%)	24 (31%)
University Endowments	37	18 (49%)	19 (51%)
Foundations	21	8 (38%)	13 (62%)
Large Institutions	33	29 (88%)	4 (12%)
Medium Institutions	79	48 (61%)	31 (39%)
Small Institutions	23	2 (9%)	21 (91%)

Table 4C
Sample Estimates and Population Estimates of Derivatives Use (as of 12/31/97)

	Percent that Permit Use of Derivatives		Percent that Permit Use of Derivatives and have Position > 0	
	Sample Estimate	Population Estimate	Sample Estimate	Population Estimate
Full Sample	45.3%	27.9%	27.5%	12.6%
Pension Plan Sponsors	62.6%	53.3%	44.7%	36.5%
University Endowments	37.8%	35.9%	18.4%	14.8%
Foundations	28.0%	19.3%	11.7%	0.4%

Sample Estimates and Population Estimate

The Figures presented in Tables 4A and 4B are "sample estimates" in that they reflect the responses of a particular survey sample. However, because of the sample design, we can use our results to make inferences about the frequency of characteristics in the larger populations.

Consider for example, a population of N=1,000 firms in which we classify N_L=100 as "large" and N_S=900 as "small." Suppose we conduct a complete sample of all "large" firms (n_L=100), 80 of whom respond to the survey and 60 of these respond "Yes" to a question (75% "Yes"). Suppose also that we conduct a proportional (1/9) random sample of all "small" firms (n_S=100), 20 of whom respond to the survey and 10 of these answer "Yes" (50% "Yes"). Thus, we have 70 "Yes" answers (60+10) out of 100 surveys, or 70% "Yes" *based on the returned surveys*. We call this the **sample estimate**.

But our estimate for the entire population of 1,000 must account for the fact that "large" firms represent only 1/10 of the population while "small" firms represent 9/10. Therefore, the estimate of the percentage "Yes" in the entire population (the **population estimate**) would be 1/10 x 75% + 9/10 x 50% = 52.5%.

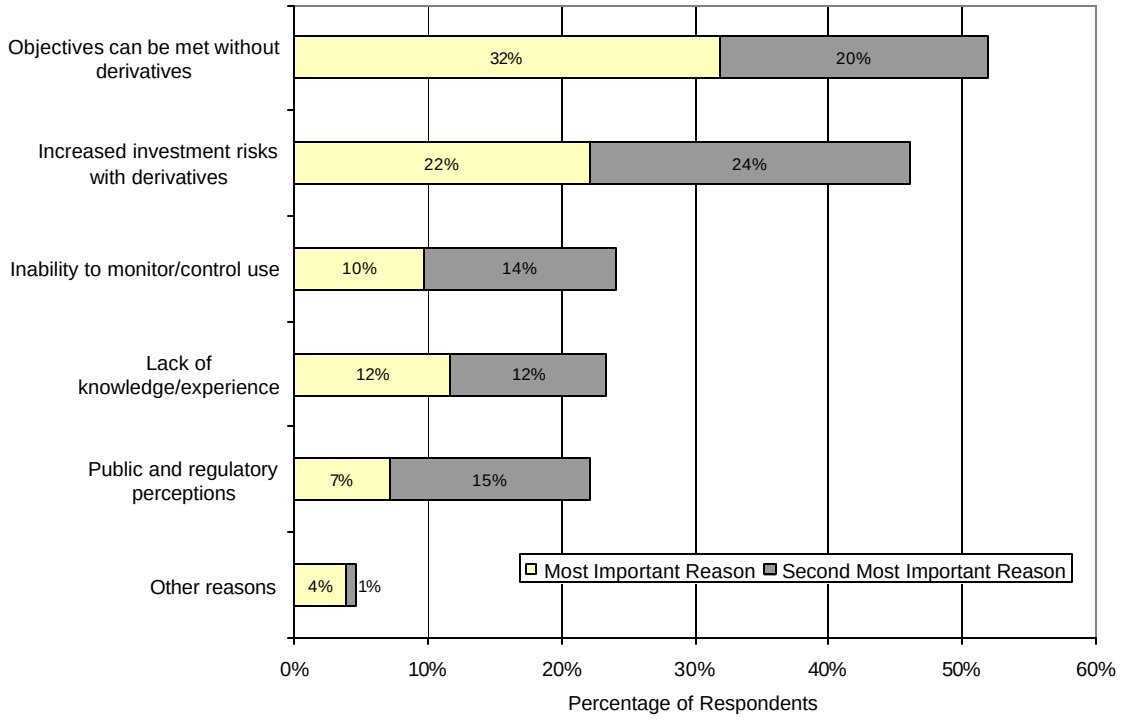
Using the population weights of each category (large, medium and small) in each investor category (pension plans, endowments, and foundations), we can construct population estimates for questions asked in the survey. In Table 4C, we show the sample estimates and the population estimates for the percentage of institutional investors that (a) are permitted to use derivatives and (b) actually hold non-zero derivatives positions. Because the small investor category is so numerous, and small investors are the least likely to make use of derivatives, the population estimates are considerably lower than the sample estimates. This is less the case for the university endowment population where we have conducted the largest sample of the overall population.

Based on Table 4C, it appears that only 27.9% of *all* institutional investors may have permission to use derivatives. And only 12.6% of *all* institutional investors may hold non-zero derivatives positions.

Reasons for not using derivatives

Respondents that do not permit derivatives were asked to indicate the "most important" reasons for their policy. Figure 2 summarizes the responses from the full sample. The most commonly cited explanations were increased investment risk and the ability to meet objectives without them. Among the larger institutions, however, there is a virtual tie between those two reasons and concerns about how derivatives are perceived by contributors, regulators and others. For the smaller institutions, the primary reasons for not using derivatives are the two already cited, followed by lack of knowledge and inability to control or monitor their use.

Figure 2 Reasons for Not Using Derivatives



The remaining questions on derivatives apply only to those institutions that permit the use of derivatives, so the maximum sample size is N=135.

Use of Derivatives by Asset Class

Question 10 attempts to identify what asset classes are most likely to involve derivatives. Respondents were asked to select from a list those asset classes in which investments were permitted and those in which derivatives were permitted. Figure 3 summarizes the proportions investing in each class and permitting derivatives. Figure 4 shows the same data but with derivatives permission expressed as a percentage of investment permission. For example, the commodity class has a very high rate of derivatives permission at approximately 85% of those active in the class. Similarly, among those institutions with foreign exchange assets from any source, 93% have permission to use derivatives. Not surprisingly, derivatives use is least intensive in Real Estate, Emerging markets, and Cash and Equivalents.[6]

[6] In Question 10, "Foreign Exchange" was included as a stand-alone asset class distinct from foreign bonds or equities to account for overlay strategies and institutions that hedge foreign exchange exposures from any source.

Figure 3 **Use of Derivatives by Asset Class**

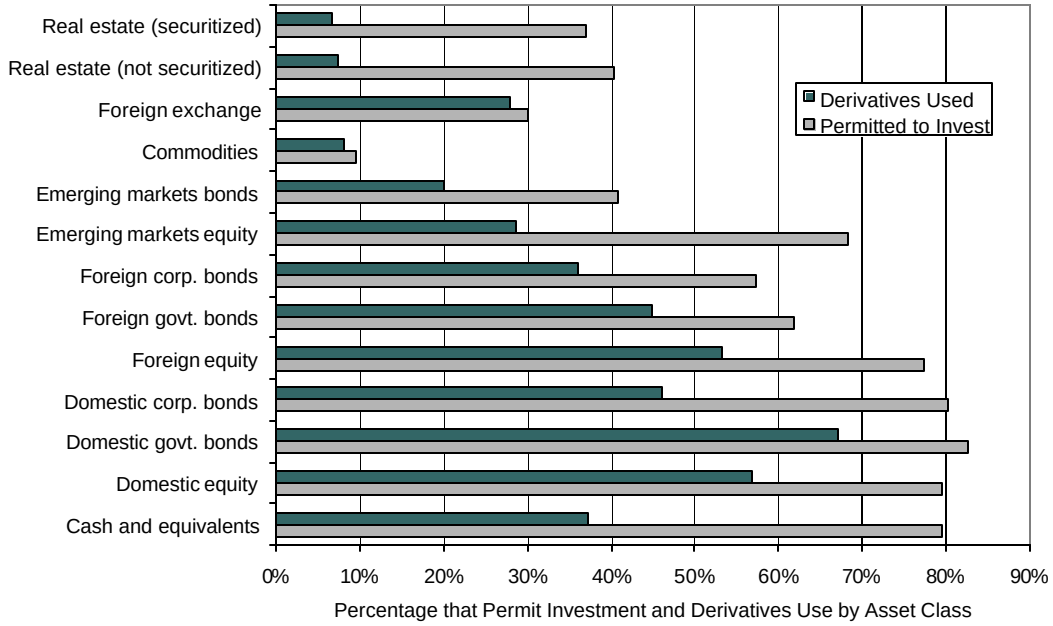
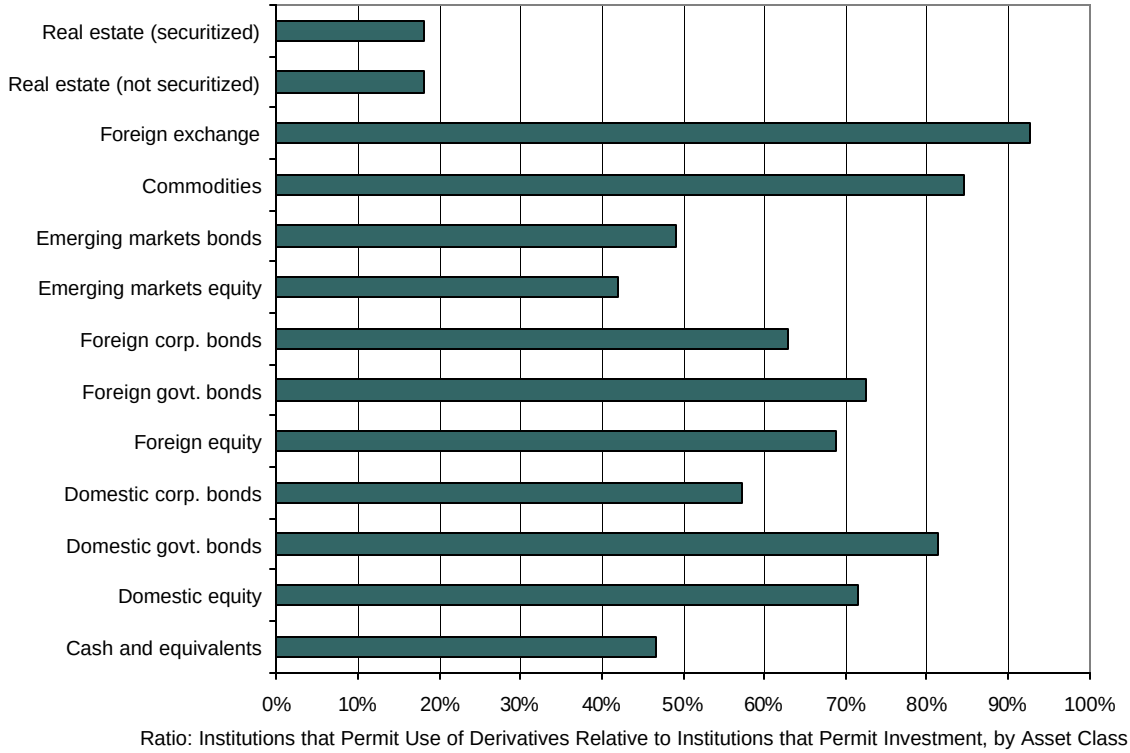


Figure 4 **Intensity of Derivatives Permission by Asset Class**



The amount of derivatives actually employed as a percentage of assets in each class is shown in Table 5. Across the full sample, the largest derivative positions are in foreign bonds (14% of assets) and foreign exchange (10% of assets). Derivative positions in these two categories are significantly larger for pension funds and large institutions. By comparison, foreign bonds and foreign equities are the two largest categories for notional value of derivative in university endowment portfolios, while foreign equities and domestic bonds are the two largest categories for private foundation portfolios. The notional value of real estate derivatives in all portfolios is negligible.

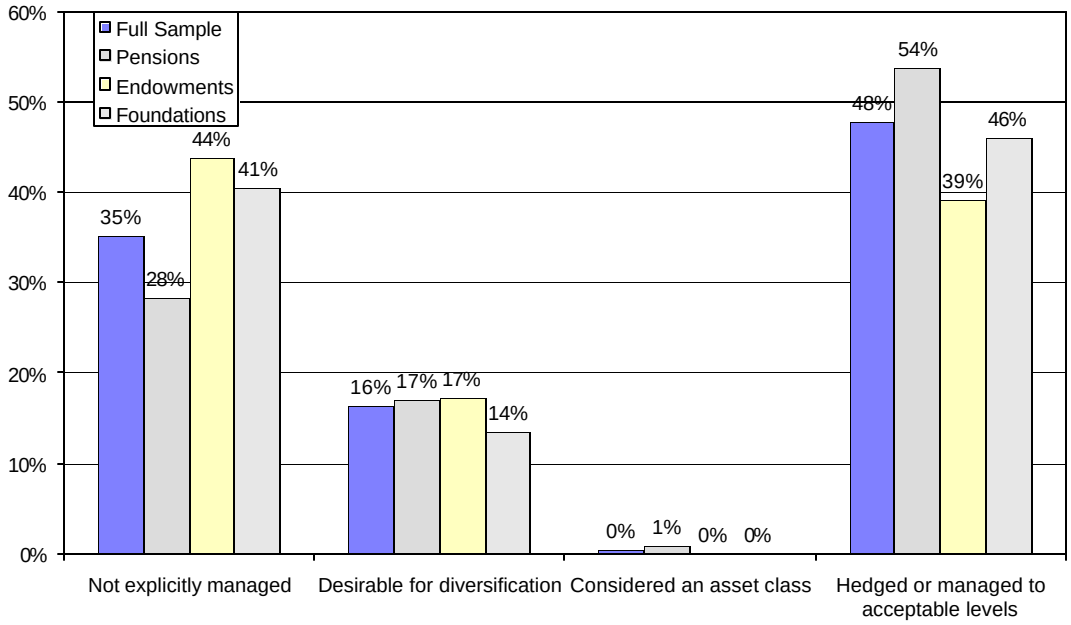
Table 5 Notional Value of Derivatives as a Percentage of the Assets in Each Class

	Cash & Equivalents	Domestic Equities	Foreign Equities	Domestic Bonds	Foreign Bonds	Foreign Exchange	Real Estate
Full Sample	4	5	8	8	14	10	0.3
Pensions	4	6	8	9	20	16	0.6
Endowments	5	5	7	5	8	7	0
Foundations	0	1	9	7	3	0	0
Large Institutions	3	4	17	11	19	30	0.1
Medium Institutions	5	4	6	7	12	7	0.4
Small Institutions	0.1	8	3	7	10	0	0

Views Regarding Currency Risk Management

The results in Table 5 suggest that the intensity of derivatives use appears greater in foreign currency denominated assets compared to domestic assets. In order to gauge general attitudes toward risk we asked specifically about each institution's philosophy about currency risk management. We chose currency risk because it is most frequently debated in academic and practitioner publications and a large number of portfolios have at least some exposure to this risk. The results in Figure 18 show that nearly half of all institutions with exposure to currency risk held the view that it should be managed or hedged to acceptable levels, suggesting that currency risk adds noise to targeted investment strategies. One-third of our respondents replied that currency exposure is not explicitly managed. The remainder expressed the view that currency risk is desirable from a diversification standpoint. We are aware of some managers that view currency risk as an asset class in itself, although only one of the respondents to this survey expressed that view.

Figure 5 **Attitudes Toward Foreign Currency Risk Among Institutions Reporting Foreign Currency Exposure**



The "derivative of choice" varies by the type of underlying exposure. Institutions were asked to indicate the derivatives they used most often in each four broad categories: equity, currency, interest rate, and commodity. The results are summarized in Figure 6a for institutional investors. In Figure 6b we show for comparison the results from the 1995 Wharton/CIBC World Markets survey of non-financial firms. Investors appear much more likely to use exchange-traded contracts compared to non-financial firms. We suspect that the lower transaction costs on exchanges are relatively attractive to investors; whereas the greater customization and structuring associated with the over-the-counter market appeals to corporates.

Figure 6a **Most Frequently Used Derivative Type by Underlying Asset Class for Investors**

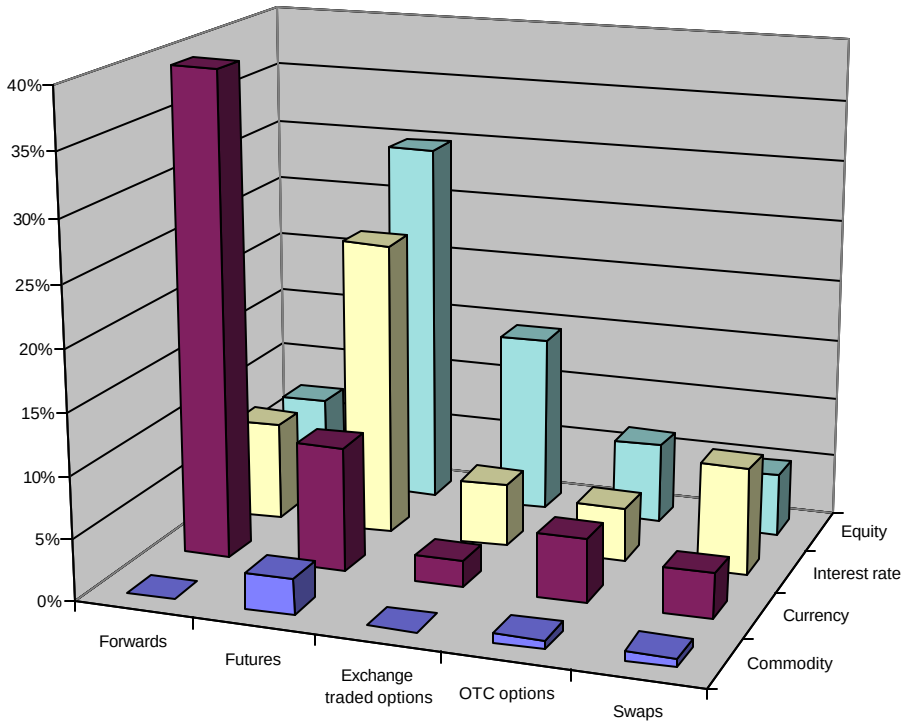
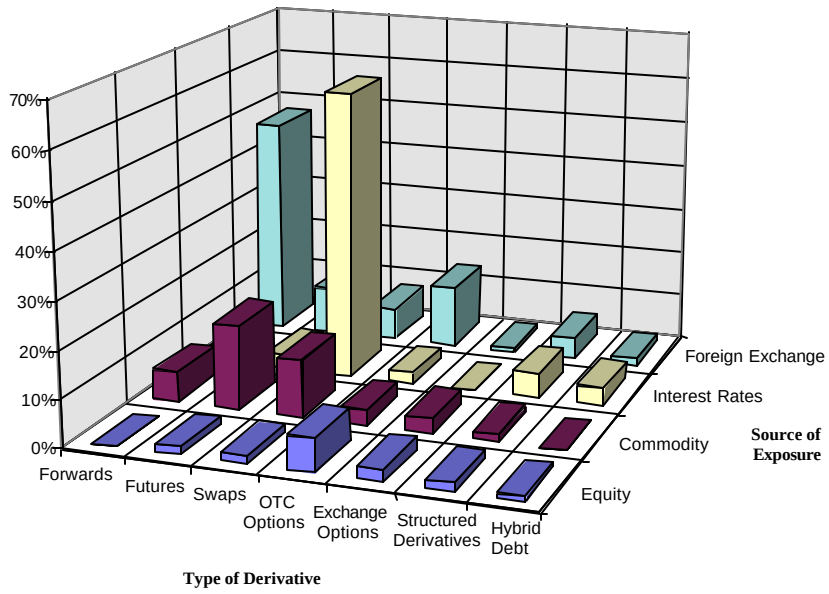


Figure 6b **Most Frequently Used Derivative Type by Underlying Exposure for Non-financial Firms**



Investor Use of Credit Derivatives

One of the fastest growing derivatives markets is credit derivatives. In a credit derivative, the performance of the contract is linked in one of several ways to the performance of a credit risky asset. One of the simplest of the credit derivatives is the total return swap. In a typical total return swap, one counterparty pays a floating rate tied to LIBOR in exchange for receipt of the total return—coupon plus/minus price changes—on a reference asset. The reference asset is typically a loan or bond issued by a corporation, financial institution, or even a government. Through total return swaps an investor can "synthetically" invest in a bank loan, thus avoiding the practical aspect of servicing a corporate loan. The loan itself remains on the bank's balance sheet, but the investor receives the performance of the loan. When a pool of loans or bonds is used to back newly issued securities, the performance of which is tied to the credit performance of the pool, the structure becomes a collateralized bond obligation (CBO) or collateralized loan obligation (CLO).

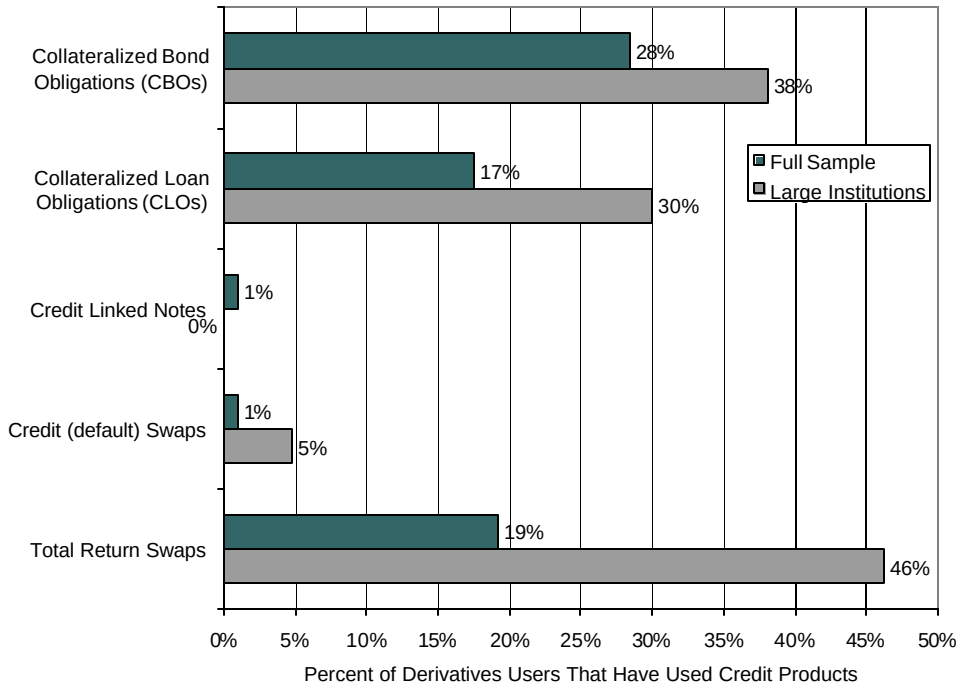
Another common structure in the credit derivatives market is the credit default swap ("credit swap"). In a credit swap, one counterparty agrees to make a payment to the other if a "default event" occurs on a specified credit risky asset such as a corporate bond. Credit swaps are pure default risk instruments in which an investor earns a spread, or fee, for accepting the default risk on a specified asset or pool of assets. In a credit linked note, a credit swap is combined with an ordinary bond to create a bond in which the return of principal is linked to the occurrence of a credit event.

These new markets have grown dramatically in the 1990s, although they remain small by comparison to the interest rate derivatives market or the corporate debt market. The Office of the Comptroller of the Currency reports that U.S. National Banks had $191 billion of credit derivatives in the first quarter of 1999. Estimates put the global market at around $500 billion. The collateralized loan and bond markets have boomed in recent years. Moody's Investors Services rated $81.6 billion of these securities in 114 transactions during 1998.

One source of growth for these markets has been hedge funds (who are not covered by this survey) and traditional investors eager to gain access to the credit markets either on a leveraged basis or because they simply cannot originate and service loans. In effect these institutions rent the balance sheets of participating financial institutions. The financial institutions pass on all or part of the credit risk of a particular asset(s) to the investor while funding the asset and providing servicing. The financial institutions receive a LIBOR based payment or swap spread in return.

Given the newness of these credit derivatives, we were curious about which products were being incorporated into the portfolios of primary fiduciaries. Rather than attempt to estimate volumes, we simply asked whether or not various credit products were used. The results in Figure 7 show that collateralized bond obligations, which look the most like traditional fixed income investments, are the most common structures in the full sample. Products linked to bank loans – total return swaps and CLOs – have been used by just under 20% of the sample, while the use of credit swaps and credit linked notes is negligible in our sample. We expect these results to be highly sensitive to institution size and the data bear this out. Large institutions are significantly more likely to use these new structures. In particular, 46% of large institutions have made use of total return swaps, more than twice the average of the full sample.

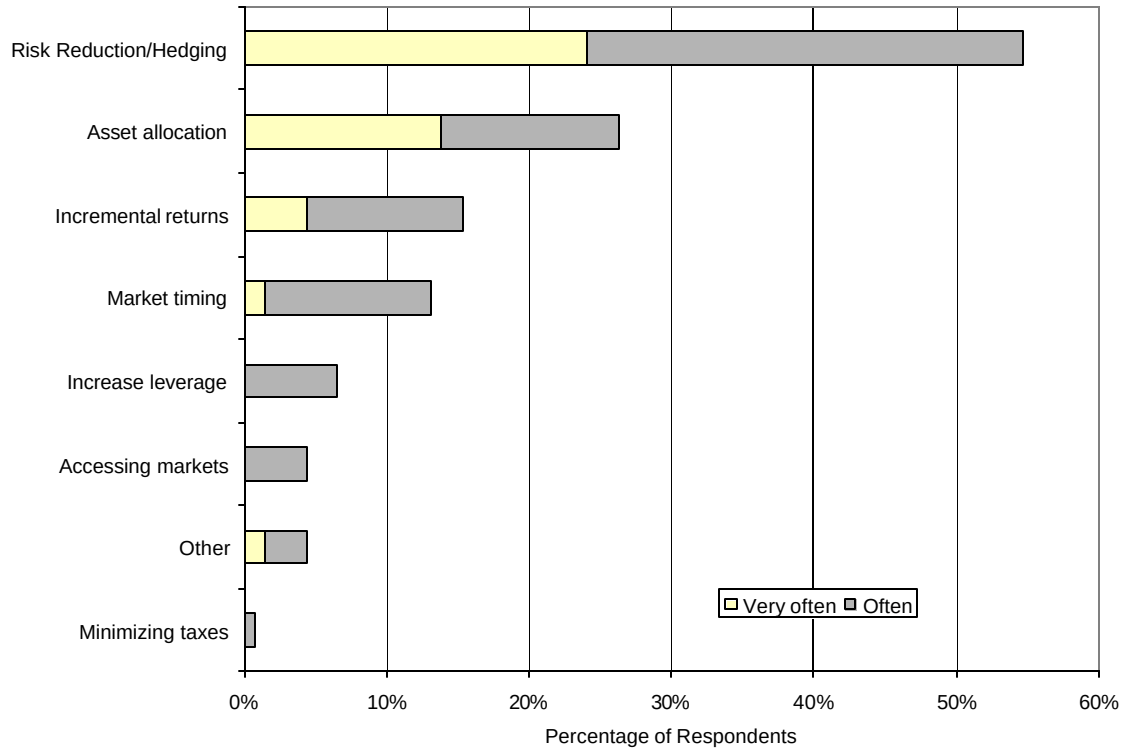
Figure 7 Credit Derivatives and Collateralized Bond/Loan Obligations



Why Investors Use Derivatives

We asked institutions to indicate how often they use derivatives for various commonly cited rationales. The results in Figure 8 show that risk reduction/hedging is the most frequently cited reason (55%) followed by asset allocation (26%). Using derivatives to achieve incremental returns or for market timing were each listed as reasons by about 15% of respondents. Derivatives were not used frequently to increase leverage in this population, a result consistent with the generally conservative goals of these institutions.

Figure 8 Reasons for Using Derivatives Given by Institutional Investors

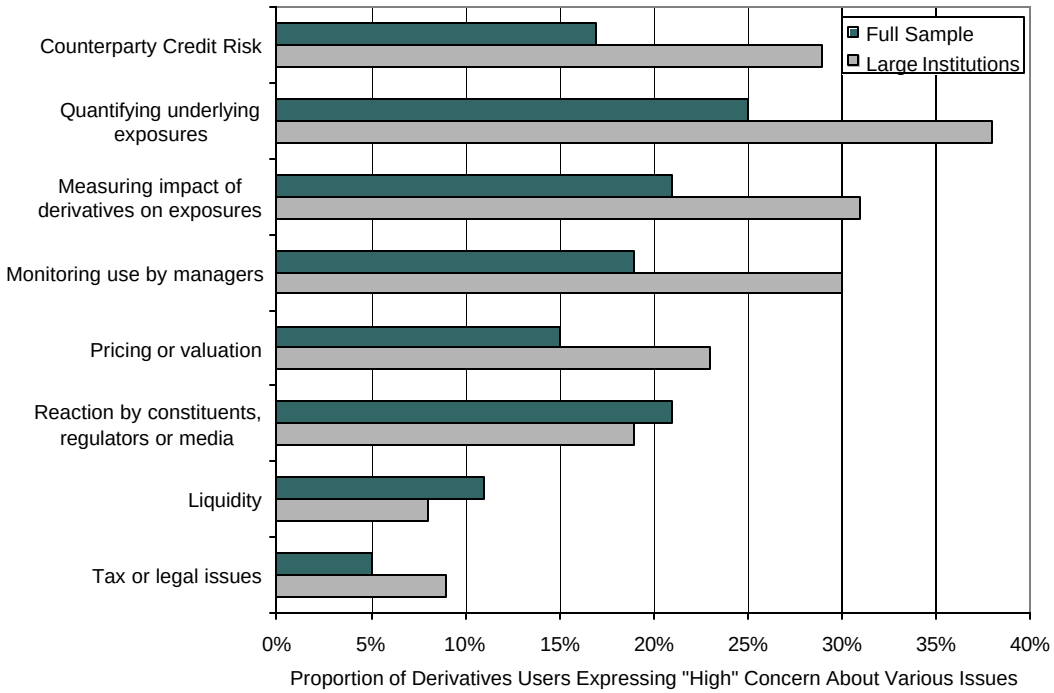


Concerns About Derivatives

Derivative users face many issues that are, to some extent, unique to the product. These include the credit risk of derivatives counterparties, relatively complex pricing, and evaluating their effectiveness as hedges or sources of additional returns. In Question 15 we provided a list of issues commonly raised in connection with derivatives and asked respondents to indicate their degree of concern about each. Responses are shown in Figure 9. The question of counterparty credit risk rates a "high" level of concern as do the three choices related to measuring and managing derivatives positions, including monitoring their use by asset managers. In fact monitoring managers' use of derivatives is the number one concern if we look at all institutions that rated their concern as either "high" or "medium."

The larger institutions are generally more likely to indicate a "high" level of concern for those issues than the sample average. It does not appear that so-called "bad press" surrounding derivatives is a universal concern, nevertheless over 20% of institutions expressed high concern in this area.

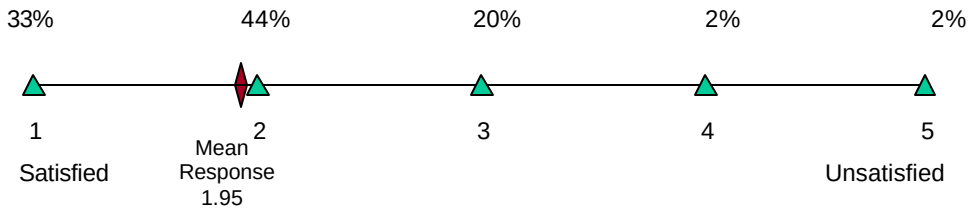
Figure 9 Concerns About Derivatives



Satisfaction with Derivatives and Future Use

Respondents were asked to indicate, on a scale from 1 to 5, how satisfied they were that derivatives were achieving their intended purpose. Figure 10 presents these results along a scale in which a rating of 1 indicates satisfied and 5 unsatisfied. The proportion of derivative users is indicated across the top of the figure with the mean response marked with the diamond (1.95). Approximately 77% of the sample indicated a high degree of satisfaction.

Figure 10 Satisfaction that Derivatives Use is Achieving its Intended Purpose



Given the response to the preceding question, it is not surprising to find that most institutions expect their use of these products to increase or stay about the same. Large institutions are much more likely to plan an increase in derivatives usage over the next year. However, 25% of small institutions plan an increase and none reported planning a decrease in derivatives usage.

Table 6 Expected Change In Derivatives Usage Over the Next Year

	Decrease	Stay the Same	Increase
Full Sample	5%	65%	29%
Pension Plan Sponsors	6%	61%	32%
University Endowments	3%	68%	30%
Foundations	5%	77%	18%
Large Institutions	6%	45%	48%
Medium Institutions	6%	71%	23%
Small Institutions	0%	75%	25%

V. Risk Management Practices

We asked numerous questions about the risk management practices of the institutions in our sample. The questions covered general approaches to risk, such as the existence of a risk manager or risk management policies, and specific questions concerning the control and reporting of derivative positions.

Risk Governance

Risk governance refers to the framework established for the measurement and control of financial risks. Recently, the Group of Thirty (1993) undertook a comprehensive study of derivatives experience across market participants.[7] This study produced a set of recommendations to assist both dealers and end-users to better manage the risks of their derivatives activities. Among other recommendations, the Group of Thirty (1993) report emphasizes the importance of assigning responsibility for risk management at a high level in the organization. With respect to the primary fiduciaries in our sample, we were interested in how many had specifically assigned responsibility for risk management.

Thirty-one percent of the full sample reported having either a designated risk manager or a risk management committee. Assets under management does not seem to effect the probability significantly, with large institutions reporting 41% and small institutions 39% (the medium category reported 22%).

A well-specified written policy toward risk could serve as a partial substitute for a designated risk manager if it guides the choice of asset manager, or sets out requirements to which asset managers must adhere. A written risk policy is more common than a risk manager in all groups as shown in the second column of Table 7. For the full sample, 44% of respondents have a written policy. Foundations are at the low end of the spectrum with 34% having a written policy. Interestingly, small institutions are more likely to have a written risk management policy (51%) than either large or medium size institutions. The likelihood of having a written risk management policy jumps to 73% when the institution also has a risk manager or risk committee. Again, this likelihood is somewhat larger than the average for foundations and small institutions.

Among respondents that permit derivatives use, a written derivatives policy is significantly more common. More than three-fourths of large institutions that permit derivatives have a written policy on them and approximately half of small institutions have one. These numbers are comparable to results for non-financial firms in the 1998 Wharton/CIBC World Markets survey in which 79% of derivatives users had a written policy covering their use. It appears only slightly more likely that a written policy exist with respect to internally managed assets compared to externally managed funds.

[7] See Group of Thirty, *Derivatives: Practices and Principles*, (Washington, D.C.), 1993, and the follow up survey by the Group of Thirty, *Derivatives Follow-Up Survey of Industry Practice*, (Washington, D.C.), 1994.

Table 7 Risk Governance

	All Survey Respondents			Those Permitting Derivatives	
	Institution has a Risk Committee or Risk Manager	Institution has a Written Risk Management Policy	Risk Management Policy When there is Committee or Manager	Written Policy Governing Derivatives	
				Internally Managed	Externally Managed
Full Sample	31%	44%	73%	68%	65%
Pension Plan Sponsors	34%	48%	69%	77%	75%
University Endowments	38%	45%	68%	61%	61%
Foundations	16%	34%	81%	44%	40%
Large Institutions	41%	39%	58%	87%	79%
Medium Institutions	22%	41%	74%	63%	64%
Small Institutions	39%	51%	80%	42%	52%

Use of Value at Risk

Value-at-risk (VAR) has become an industry standard for reporting the market risk of trading positions at banks and securities firms. In the latest comprehensive survey, 81% of major G-10 banks and securities firms disclosed a VAR figure for their trading activities.[8] Although widespread among dealers, the use of VAR is believed to be less common among institutional investors, for various reasons. Fiduciaries must rely on external managers to provide VAR figures, or the data necessary for its calculation. The longer investment horizon typical of institutional investors is also less suited to the use of VAR in the form developed by banks and dealers faced with very short holding periods.

This survey confirms the perception that VAR is not widespread among investors (Table 8). Approximately a quarter of large institutions use VAR in some way; however, this percentage declines quickly with size. Use of VAR as reported in our sample is marginally more likely among large institutions that also use derivatives, however, overall there is little link between derivatives use and VAR.

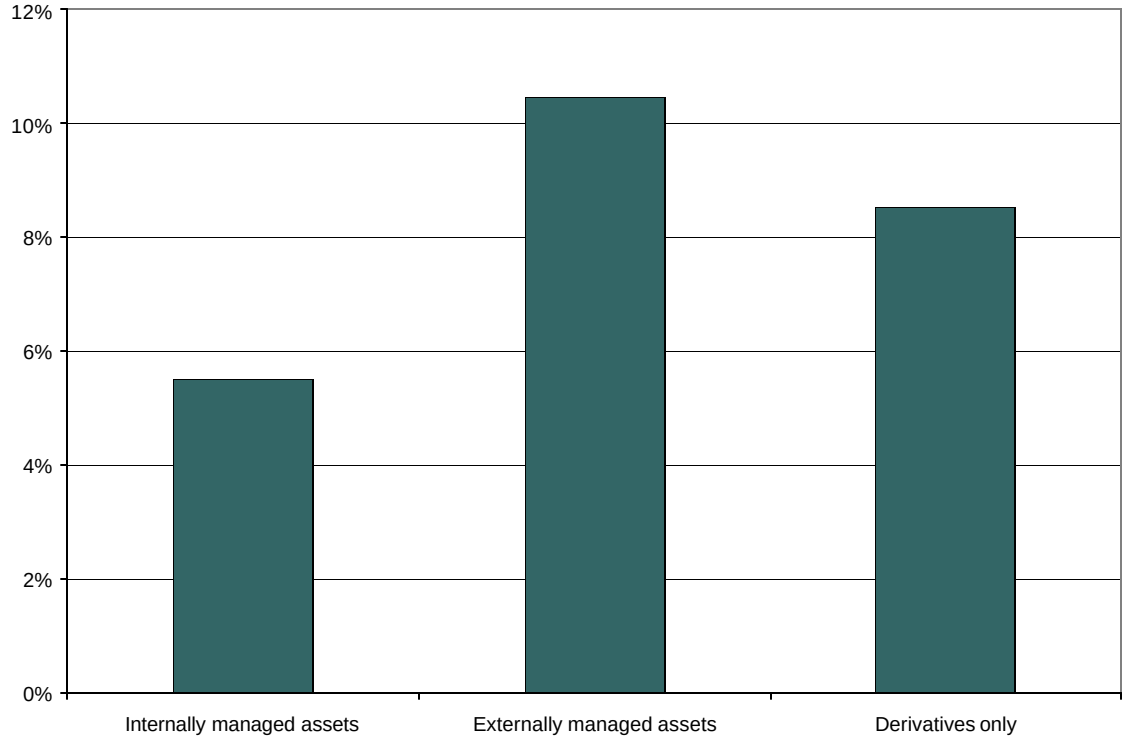
Table 8 Value at Risk

	Use VAR for Assets or Derivatives	Use of VAR among those with Derivatives Position > 0
Full Sample	12%	13%
Pension Plan Sponsors	14%	16%
University Endowments	10%	6%
Foundations	13%	11%
Large Institutions	23%	28%
Medium Institutions	8%	6%
Small Institutions	15%	0%

[8] "Survey of Disclosures About Trading and Derivatives Activities of Banks and Securities Firms," Basle Committee on Banking Supervision, November 1998.

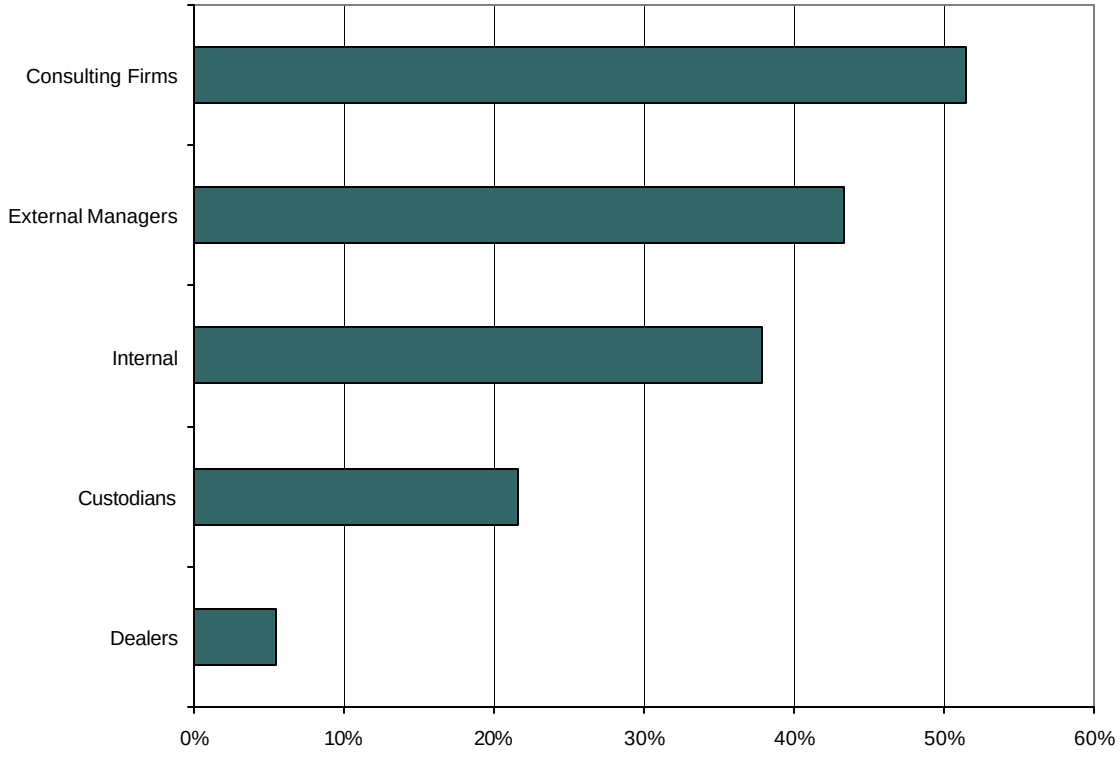
We also asked institutions to categorize their use of VAR based on whether it is applied to internally managed assets, externally managed assets, or only derivative positions. The results in Figure 11 show that about 10% use VAR for externally managed assets, under 6% use VAR for internally managed assets, and only 8% use VAR for their derivatives positions. Consistent with these low figures, only about 12% of respondents indicated that *any* of their external managers reported VAR figures on the assets under their management.

Figure 11 **Percentage of Respondents Using Value at Risk Across Different Investment Categories**



For those 37 institutions in our sample that reported using value at risk for any of their investments, we asked them to indicate where they received their VAR calculations. These results are summarized in Figure 12. Consulting firms were the most common source, followed by external asset managers and internal calculations. Custodians and securities dealers do not appear to be a common source for value-at-risk figures.

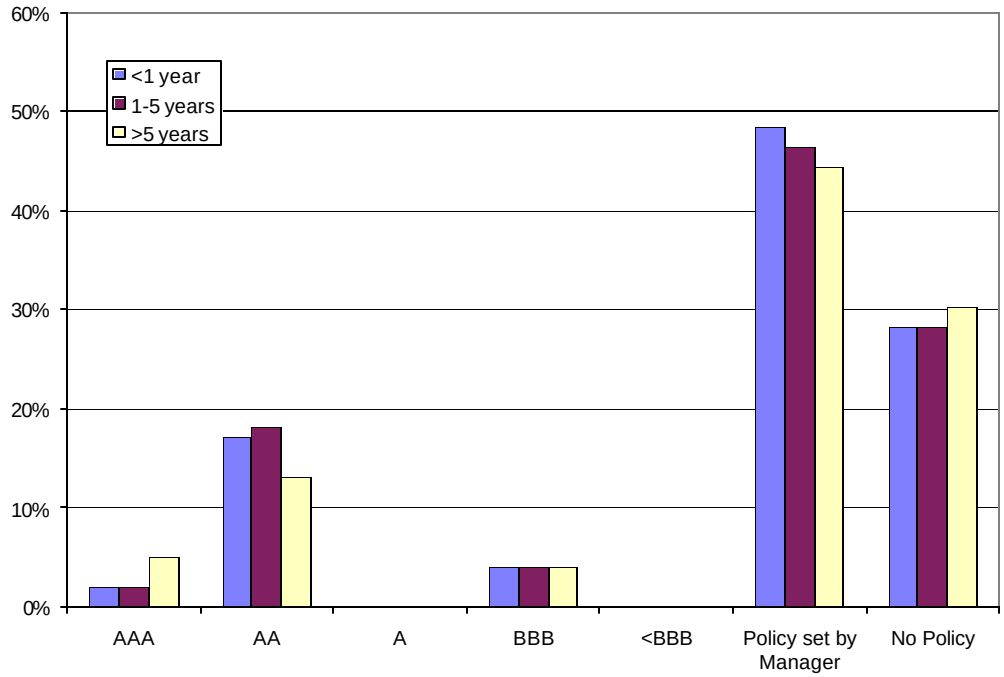
Figure 12 Sources of Value at Risk Calculations



Counterparty Credit Risk

Institutional investors could manage the counterparty credit risk of their derivative activities by setting a minimum credit rating for derivative transaction. In Figure 13, we see that about 45% of the institutions in our sample leave decisions on minimum counterparty credit rating to their asset manager. Another 30% have no set policy on counterparty credit ratings. The remaining institutions have set policies and a AA credit rating is the modal minimum requirement.

Figure 13 Minimum Acceptable Credit Ratings for Derivatives Counterparties



Credit risk reporting is not very common either for internally managed or externally managed positions. As shown in Table 9, credit risk measurement is more common for internally managed positions and essentially absent among university endowments and foundations in our sample. The fact that external asset managers are not providing this number to portfolio fiduciaries does not mean institutional funds managers are not calculating such numbers for their internal risk management purposes. Of those institutions that use credit risk measures, roughly equal proportions report obtaining their measures from asset managers, consulting firms, custodians, or internal calculations.

Table 9 Calculation and Reporting of Counterparty Credit Risk

	Internally Managed Positions	Externally Managed Positions
Full Sample	31%	18%
Pension Plan Sponsors	57%	30%
University Endowments	0%	6%
Foundations	0%	0%
Large Institutions	53%	36%
Medium Institutions	22%	12%
Small Institutions	11%	16%

Limits on Derivatives Activity

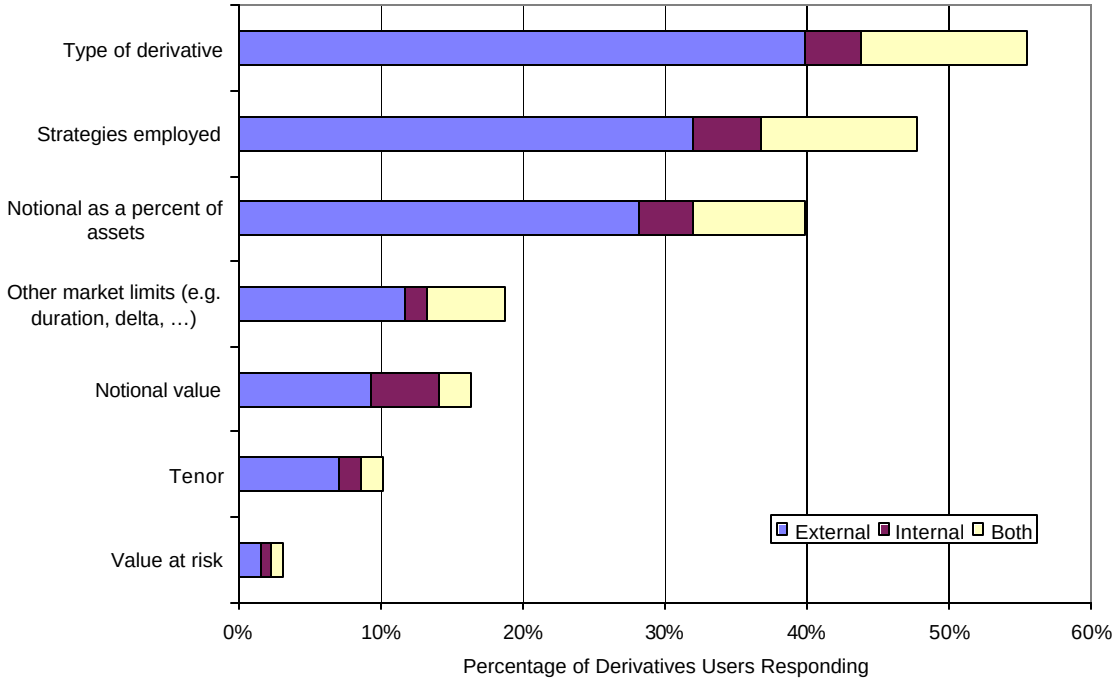
Controlling derivative activity is a challenge in any organization, but perhaps particularly in institutional investing where multiple managers are involved. We asked those institutions that use derivatives to indicate the types of limits they employ. In Table 10, we see that 80% of all respondents to this question impose some type of limitation on derivatives activity. These limits are typically imposed on external managers rather than internal managers. Use of limits is more widespread in our sample among pension plan sponsors and large institutions, than among foundations and small institutions.

In Figure 14, we summarize our findings for the full sample regarding the types of limits that are placed on either internal or external managers (or both). About 55% of our respondents restrict the types of derivatives instruments that managers may use. Restrictions on the type of derivative strategy are imposed by 48% of respondents. And, nearly 40% impose a limitation based on the notional value of derivatives as a percentage of assets under management. Much less common are limits on the dollar notional value of derivatives, on tenor of derivatives, or value-at-risk measures.

Table 10 Use of Limits on Internal or External Managers by Investors that Permit Use of Derivatives

	No Limits on Activities are Imposed	Limits on Activities are Imposed
Full Sample	20%	80%
Pension Plan Sponsors	15%	85%
University Endowments	23%	77%
Foundations	38%	62%
Large Institutions	9%	91%
Medium Institutions	20%	80%
Small Institutions	33%	67%

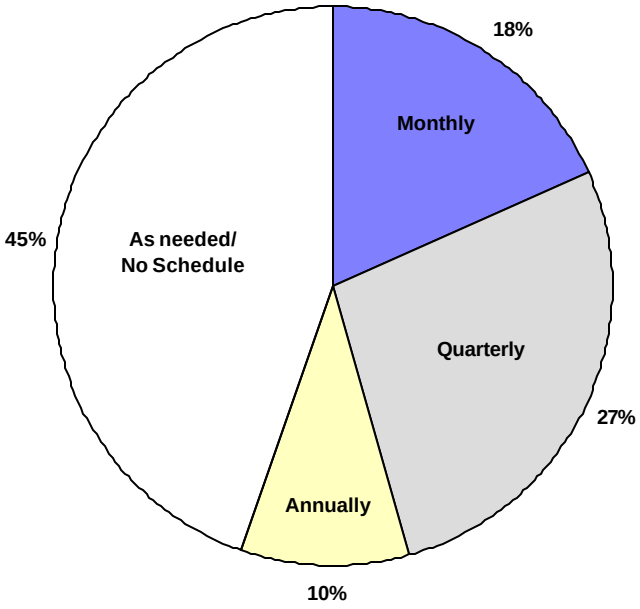
Figure 14 **Percentage of Derivatives Users Imposing Various Limits on Internal and/or External Asset Managers**



Risk Management Reporting

We asked about the frequency with which derivatives activity is reported to either the investment committee or portfolio fiduciaries. As shown in Figure 15, about half the institutions report derivatives activity monthly or quarterly. An equal number do not follow a set reporting schedule or report "as needed."

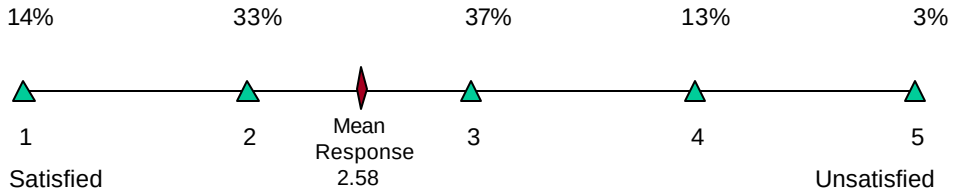
Figure 15 **Frequency of Reporting on Derivatives Activities to Investment Committee or Fiduciaries**



Satisfaction with Risk Reporting by External Managers

We asked all institutions where derivatives use is permitted to rate their satisfaction with derivatives reporting by external managers on a five-point scale. The results across all respondents are shown in Figure 16. Only 14% of all respondents assign the highest level of satisfaction to current reporting. Although institutional investors are more satisfied than not, these results suggest that external managers are not reporting their derivatives use as well as they could be. There were slight differences in responses across our size categories and types of investors, but these differences were not statistically meaningful.

Figure 16 **Satisfaction with Derivatives Reporting by External Managers**



VI. Conclusion

Our goal in this survey was to gain a better understanding of the use of derivative instruments and the risk management of derivatives activity among U.S. institutional investors. Our survey covered pension plan sponsors, college and university endowments, and private foundations. To our knowledge, this is the first survey to cover these three classes of primary fiduciaries in the United States. We conducted a stratified sample of these three populations across large, medium and small institutions, so that we could construct estimates of survey responses for the entire population and not simply for those who chose to answer the survey. Notably, public mutual fund managers are not included in this survey for lack of an adequate response rate. Hedge fund managers were not included by design. It is our view that hedge funds look more like asset managers – a group we did not want to survey – than primary fiduciaries.

Use of Derivative Instruments

Overall, our survey suggests that the use of derivatives by institutional investors is widespread, covering all investor categories and sizes. Across the entire sample, 46% of respondents permit their asset managers to use derivatives. This figure varies from 63% for pension plan sponsors, to 38% among college and university endowments, to 28% for private foundations. Permission to use derivatives varies with the size of the institution, with 70% of large institutions granting permission, dropping to 49% and 26% among the medium and small categories respectively. Our estimate of the frequency of derivative use among *all* institutional investors is lower than the numbers reported above, because of the very large number of small institutional investors where the likelihood of derivative use is lower.

Although derivative use is widespread, it also appears that the intensity of use is not that high. Fewer than half of all our respondents are permitted to use derivatives and only about one-quarter actually hold positions. The vast majority (88%) of large institutions with permission to use derivatives actually hold positive positions. This figure drops to 61% for medium institutions and only 9% for small institutions. The pattern is less extreme when analyzed by type of institution. Among those institutions that permit the use of derivatives, pension plans are most likely to hold a derivatives position (69%), followed by university endowments (49%) and then foundations (38%). Again, our estimate of the fraction of *all* institutional investors with positive derivatives positions is lower (12.6%) because of the very large number of small institutional investors where the likelihood of derivative use is lower.

Even when derivatives are used the positions tend to be small as a percentage of assets. The modal notional value of derivatives as a percent of assets is 1.0%, while the median value is 5.0%. Derivatives are most frequently used in the management of foreign bond, foreign equity and foreign exchange risks, and derivative positions are greater for foreign bonds and foreign exchange than other underlying assets.

Among those institutions that do not permit the use of derivatives, more than half (52%) reply that there investment objectives can be met without the use of derivatives. Roughly the same number (46%) reply that increased risk associated with derivatives is part of their logic for not permitting their use.

Risk Management Practices

Risk governance surrounding derivatives at institutional investors appears to be less intensive than at banks and securities dealers, as might be expected. In our sample, 31% of responding institutions have a designated risk manager or risk management committee and 44% have a written policy on risk management. However, when there is a risk manager or risk management committee in place, the fraction of institutions with a written risk management policy rises to 73%. Among institutions that permit derivatives, 68% have a written policy on their use.

The large majority of institutions (80%) place some limitation on the nature or extent of derivatives activity among internal or external managers. The most common limits deal with the types of derivatives that are

permitted, derivative strategies that are allowed, and limits on the notional value of derivatives as a percent of assets. Such limits are more common among pension plan sponsors than among foundations, and among large institutions when compared to small ones.

Only 55% of all institutions that permit derivative have a regular schedule for receiving reports on derivatives activity. The remainder have no set schedule or receive reports on an "as-needed" basis.

Value-at-risk (VAR) is not commonly used by the fiduciaries in our sample (it may be more common among asset managers employed by our respondents). Only 23% of large institutions report using VAR, compared with 81% of major G-10 banks and securities firms as reported in the latest BIS/IOSCO survey.[9] Use of VAR is marginally higher among derivatives users than non-users.

The Future

Overall, institutions replied that in general they were satisfied that their usage of derivatives was achieving its intended purpose. However, there was less overall satisfaction with derivatives reporting by external managers. Across all institutions, 29% predicted that their use of derivatives would increase over the next year. Another 65% replied that their use of derivatives would remain about the same, and only 5% predicted a decrease. Among large institutions, a greater percentage (48%) predicted an increase in derivatives use.

Overall, this survey has provided a number of useful indicators of derivatives use and risk management practices across a large range of U.S. institutional investors. The use of derivatives appears to vary by size and type of institution. Certain institutions make much more substantial use of derivatives than do others. Further analysis may reveal which factors influence the likelihood and intensity of derivative use among institutional investors.

[9] See footnote 2 for references.

Appendix 1 – Table 1: Surveys of Institutional Investor Use of Derivatives

	Country / Location					
User Category	U.S.	Canada	U.K.	Other Europe	Asia	International
Pension Sponsors (Corporate and Public)	1. NYU/Stern (1995) 2. Record Treasury Mgmt (1994/5) 3. *Institutional Investor* (1995) 8. Record Treasury Mgmt (1996) 15. Pensionforum – *Institutional Investor* (1997)	16. Greenwich Associates (1998)	5. Watson Wyatt (1995) 10. NAPE (1996) 12. *WSJ*-Watson Wyatt (1996)	5. Watson Wyatt (1995) 12. *WSJ*-Watson Wyatt		
Endowments	1. NYU/Stern	16. Greenwich Associates (1998)				
Mutual Funds	17. Kosko & Pontiff (1998)					
Investment Managers	4. Ernst & Young (1995)		4. Ernst & Young (1995)	4. Ernst & Young (1995)		
"Institutional Investors"	14. Greenwich Associates (1997) 18. Greenwich Associates (1998)		11. Univ. of Manchester (1996)			6. Greenwich Associates (1994/96)
Banks	7. Derivatives Sales Alert (1996)				13. Nippon Credit Bank (1996)	
Life Insurance Companies			9. LIFFE (1996)			

Source: Smithson, Hayt and Song (1996), and *Managing Financial Risk*, CIBC Yearbooks for 1997, 1998, and 1999.

Notes to Table 1:

1. NYU/Stern survey of U.S. pension and endowment funds with assets ranging from $2.3 - $3.3 billion.
2. RTM survey of U.S. pension fund managers.
3. *Institutional Investor* magazine survey of corporate and public pension plan sponsors.
4. Ernst & Young survey of 143 investment management complexes in the U.S., U.K., France and Ireland.
5. Watson Wyatt survey of 44 pension funds in 10 European countries.
6. Greenwich Associates interview survey of 1,962 users and potential users in North America, Europe and Asia (1,810 taxable fixed-income and 152 U.S. equity investors).
7. Derivatives Sales Alert survey of foreign banks in the U.S.
8. RTM survey of top 200 U.S. pension plans.
9. London International Financial Futures and Options Exchange (LIFFE) survey of 55 largest U.K. life insurance companies.
10. National Association of Pension Funds (NAPF) survey of 750 U.K. pension funds.
11. University of Manchester survey of 192 U.K. institutional investors (with 36 responses).
12. *Wall Street Journal* – Watson Wyatt survey of 68 European pension funds.
13. Nippon Credit Bank survey of 49 regional banks, 48 "second tier" regional banks, 185 credit associations, and 30 laborers credit corporations in Japan.
14. Greenwich Associates interview survey of 160 equity derivatives users in the U.S.
15. Pensionforum – *Institutional Investor* survey of 800 corporate and 250 public pension plan sponsors in the U.S.
16. Greenwich Associates interview survey of 92 Canadian pension funds.
17. Survey by Jennifer Lynch Koski and Jeffrey Pontiff ("How Are Derivatives Used? Evidence from the Mutual Fund Industry," *Journal of Finance*, Vol. 54, no. 2 (April 1999): 791-816) of 679 U.S. mutual funds.
18. Greenwich Associates interview survey of 118 equity derivatives users in the U.S.

Appendix 1 – Table 2: Responses to Surveys of Institutional Investor Use of Derivatives

User Category	Survey	"Do You Use Derivatives?" % who do	Top Reason for Using Derivatives – % so indicating
Pension Sponsors (Corporate and Public)	1. NYU/Stern	67%	Risk Management - 70%
	2. Record Treasury Mgmt	92%	Risk Management - 31%
	3. *Institutional Investor*	52%	Risk Management - 35%
	5. Watson-Wyatt	54%	Risk Management - 54%
	8. Record Treasury Mgmt	NA	Hedging/Risk Reduction - 62%
	10. NAPE	NA *	NA
	12. WSJ- Watson-Wyatt	NA	NA
	15. Pensionforum-*II*	47.5%	Hedging returns - 48%
	16. Greenwich Associates	47.0%	NA
Endowments	1. NYU/Stern	67%	Risk Management - 70%
Mutual Funds	17. Koski & Pontiff	20.8%	NA
Investment Mangers	4. Ernst & Young	31%	NA
"Institutional Investors"	6. Greenwich Associates	36% (US), 96% (Europe/M.E.), 40% (Asia), 52% (Japan-intl), 41% (Japan-dom)	Hedging-Risk Reduction ***
	11. Manchester	NA	NA
	14. Greenwich Associates	NA	Hedging - 58%
	18. Greenwich Associates	NA	Hedging - 61%
Banks	7. Derivatives Sales Alert	43-46% **	NA
	13. Nippon Credit Bank	48%	Risk Management - 32%
Life Insurance Companies	9. LIFFE	71%	Asset Allocation - 85%

Source: Smithson, Hayt and Song (1996), and *Managing Financial Risk*, CIBC Yearbooks for 1997, 1998, and 1999.

Notes: * 31% of private plan and 25% of public plan sponsors were *not* authorized to use derivatives

** 43% for foreign exchange derivatives and 46% for interest rate derivatives

*** Response from 79% of taxable fixed-income investors, and 60% of U.S. equity investors

Appendix 2 – Sampling Methodology and Response Rates

The following table presents a summary of our stratified random sampling methodology.

		Pension Funds	**College & University Endowments**	**Foundations**		**Total**
Large	Definition	>$10BN	>$500MM	>$500MM		
	Sample Population	79	49	60		**188**
	Sampling Frequency	100%	100%	100%		
	Sample Size	79	49	60		**188**
	Sample Responses	24	10	13		**47**
	Response Rate	30.38%	20.41%	21.67%		25.00%
	Population Weight	7.90%	10.52%	0.48%		1.35%
Medium	Definition	$1<x<$10BN	$100<x<$500MM	$100<x<$500MM		
	Sample Population	504	152	255		**911**
	Sampling Frequency	93%	100%	100%		
	Sample Size	471	152	255		**878**
	Sample Responses	71	48	43		**162**
	Response Rate	15.07%	31.58%	16.86%		18.45%
	Population Weight	50.40%	32.62%	2.05%		6.55%
Small	Definition	<$1BN	<$100MM	<$100MM		
	Sample Population	417	265	12,134		**12,816**
	Sampling Frequency	55%	63%	2%		
	Sample Size	231	167	244		**642**
	Sample Responses	28	40	21		**89**
	Response Rate	12.12%	23.95%	8.61%		13.86%
	Population Weight	41.70%	56.87%	97.47%		92.10%
Total population		**1,000**	**466**	**12,449**		**13,915**
Total Sample		**781**	**368**	**559**		**1708**
	Sample Responses	123	98	77		**298**
	Response Rate	15.75%	26.63%	13.77%		17.45%

We classified our target universe of institutional investors into three populations (pension funds, college and university endowments, and foundations) and three size categories (large, medium and small). Our sampling frame for each population was *Pensions and Investments* magazine list of the top 1,000 U.S. pension plan sponsors, the National Association of College and University Business Officers list of college and university endowments, and The Foundation Directory CD-ROM listing of U.S. foundations. After examining the size distribution of institutions in each of these populations, we defined three categories (large, medium and small) for each population. For pension plans, institutions with more than $10 billion in assets were classified as "large," between $1-10 billion as "medium," and under $1 billion as "small." For both university endowments and foundations, institutions with more than $500 million in

assets were classified as “large,” between $100-500 million as “medium,” and under $100 million as “small.” These definitions gave us target sample populations as given in the above table.

We elected to sample 100% of all institutions classified as either “large” or “medium.” We dropped 33 medium-sized pension plans from the sample either for lack of a defined benefit plan or sufficient address information. For “small” institutions, we chose a 60% random sample of pension plans and university endowments. Again, we had to exclude several pension plans for lack of a defined benefit plan or sufficient address information resulting in a 55% sample. However, for university endowments, selecting all institutions corresponding to a random number from the uniform distribution less than 0.60 gave us167 institutions of a 63% sample. For “small” foundations, we chose a 2% random sample of the 12,134 institutions, resulting in a sample of 244.

The response rates for all categories are shown in the following table.

Response Rates by Category and Population				
	Population			
Category	Pension Funds	College & University Endowments	Foundations	Weighted Response Rate by Category
Large	30.38%	20.41%	21.67%	25.00%
Medium	15.07%	31.58%	16.86%	18.45%
Small	12.12%	23.95%	8.61%	13.86%
Weighted Response Rate by Population	15.75%	26.63%	13.77%	17.45%

A chi-squared test soundly rejects the hypothesis that the response rates are equal to each other and the overall sample response rate (17.45%). Similarly, we reject that the response rates are equal across populations and across size categories. Response rates are substantially higher than the average for large institutions and university endowments, and in particular for medium university endowments (31.6%) and large pension funds (30.4%). The response rate for small foundations (8.6%) was substantially lower than for the overall sample.

Appendix 3

Questionnaire for the

1998 Survey of Derivatives and Risk Management Practices by U.S. Institutional Investors

New York University
Stern School of Business

Survey of Risk Management Practice by Institutional Investors

Explanatory Note: In this survey the word "institution" is used to refer generally to your organization, whether you are a foundation, mutual fund, college or university endowment fund or a defined benefit pension plan sponsor.

I. DESCRIPTIVE DATA (AS OF 12/31/97)*

(*Print date if data validity is newer:_____)

1A. What is the dollar value of assets* in the institution? $ _____

(*For college and university endowments, please exclude the value of campus real estate.)

1B. What percentage of total assets are managed externally? _____%

1C. How many external asset managers are used? _____

1D. What percentage of assets are invested outside the United States? _____%

1E. What percentage of non-US assets are managed externally? _____%

2. What is the notional value of derivatives as a percentage of the assets reported in question 1A?
(Derivatives include forwards, futures, swaps, and options.) _____%

II. RISK MANAGEMENT PRACTICES

3. Does the institution have a risk management committee or designated risk manager?

(Please circle one.)

a. Yes b. No

4. Is there a written risk management policy approved by your institution's investment committee or portfolio fiduciaries?

(Please circle one.)

a. Yes b. No

5. Which of the following statements *best* characterizes your overall attitude toward foreign currency risk management in developed (e.g. OECD) markets?

(Please check the best response.)

- ❑ a. Currency exposure is not explicitly managed
- ❑ b. Currency exposure is desirable for its diversification benefits
- ❑ c. Foreign currency is regarded as an asset class
- ❑ d. Currency exposure is hedged (or managed) to acceptable levels
- ❑ e. Our institution does not have currency exposure

6. Indicate whether you use "value-at-risk" or a similar measure of market risk for assets in the following groups.

(Value-at-risk is a measure of the potential change in market value of a portfolio over a specified time interval, e.g. 1 day, at a specified confidence level, e.g. 95%)

	Yes	No	No Assets In This Group
a. Assets managed internally	❑	❑	❑
b. Assets managed externally	❑	❑	❑
c. Only derivatives	❑	❑	❑

7. If in Question 6 you indicated that you use value-at-risk, please rank in order of importance the following sources for obtaining value-at-risk.

(Please rank using 1=most important source, 2=second most important source, etc. If a source is not used, please leave blank.)

	Rank
a. Calculations performed internally within your institution	_____
b. Calculations provided by external asset managers	_____
c. Calculations provided by consulting firms	_____
d. Calculations provided by custodians	_____
e. Calculations provided by security brokers/dealers with whom you transact	_____
x. We do not use Value-at-Risk	_____

8. What percentage of your external asset managers report Value-at-Risk for all or a portion of the assets under management?

Percentage of external asset managers reporting Value-at-Risk _____%

III. USE OF DERIVATIVES

9A. Is the use of derivatives permitted in the management of any of the institution's assets?

a. Yes (derivatives permitted) b. No (derivatives not permitted)

Please jump to question **10** if you answered **YES** TO QUESTION **9A**

9B. Please indicate the three most important reasons for not permitting derivatives use.

(Please rank: 1 – Most important; 2 – Second most important; 3 – Third most important.)

	Rank
a. Lack of knowledge or experience with derivatives	_____
b. Inability to adequately monitor or control derivatives use by portfolio managers	_____
c. Increased investment risks when derivatives are used	_____
d. Investment objectives can be met without using derivatives	_____
e. Concern about how derivatives are perceived by contributors, regulators, or other parties	_____
f. Other _____	_____

Thank you. Please return your survey in the postage-paid envelope.

10. For which of the following asset classes are managers (either internal or external managers) permitted to invest and use derivatives?

(Check all that apply to each column.)

	Permitted to Make Investments	Permitted to Use Derivatives
a. Cash and cash equivalents	❑	❑
b. Domestic equities	❑	❑
c. Domestic bonds–government	❑	❑
d. Domestic bonds–corporate	❑	❑
e. Foreign equities	❑	❑
f. Foreign bonds–government	❑	❑
g. Foreign bonds–corporate	❑	❑
h. Emerging market equities	❑	❑
i. Emerging market bonds	❑	❑
j. Commodities	❑	❑
k. Foreign exchange	❑	❑
l. Real estate (non-securitized)	❑	❑
m. Real estate (securitized)	❑	❑

11. What is the notional value of derivatives as a percentage of the value of assets in each of the following asset classes:

(Please indicate the appropriate percent under each exposure category.)

	Cash and Cash Equivalents	Domestic Equities	Foreign Equities	Domestic Bonds	Foreign Bonds	Foreign Exchange	Real Estate
Derivatives as a percentage	_____%	_____%	_____%	_____%	_____%	_____%	_____%

12. *Which types of derivatives does your institution tend to use most? For each underlying market (column), please rank your* institution's usage of the derivatives listed in rows (a) through (e).

(1= used the most , 5 = used the least. If a combination is not used at all, please leave a blank.)

	Equity	Currency	Interest Rate	Commodity
a. Forward contracts	_____	_____	_____	_____
b. Futures contracts	_____	_____	_____	_____
c. Exchange traded options	_____	_____	_____	_____
d. Over-the-counter options	_____	_____	_____	_____
e. Swaps	_____	_____	_____	_____

13. Why is the institution using derivatives? Please indicate how often you transact in the derivatives market for each purpose.

(Please check one.)

	Very Often	Often	Infrequently	Never
a. Risk Reduction/Hedging	❑	❑	❑	❑
b. Achieving Incremental Returns (e.g. writing covered calls)	❑	❑	❑	❑
c. Asset Allocation (e.g. using derivatives rather than cash investments in different asset classes or through "currency overlay" programs)	❑	❑	❑	❑
d. Short Term Market Timing (as a substitute for cash market transactions)	❑	❑	❑	❑
e. Minimizing Taxes	❑	❑	❑	❑
f. To access markets in which direct investment is limited	❑	❑	❑	❑
g. To obtain greater leverage in investments	❑	❑	❑	❑
h. Other _____	❑	❑	❑	❑

14. What limits do you place on derivatives activity by both internal and external managers?

(Check all that apply to each column.)

	Internal Managers	External Manager
a. No explicit limits	❑	❑
b. Notional value	❑	❑
c. Notional value as a percentage of assets	❑	❑
d. Value-at-Risk based limits	❑	❑
e. Other market based limits (delta, duration, etc.)	❑	❑
f. Restrictions on the types of derivatives	❑	❑
g. Restrictions on maturity	❑	❑
h. Restrictions on strategies	❑	❑

15. Indicate your degree of concern about the following issues with respect to derivatives.

(Please indicate your degree of concern with each issue.)

	No Concern	Low	Moderate	High
a. Counterparty credit risk	❑	❑	❑	❑
b. Ability to quantify the institution's underlying exposures	❑	❑	❑	❑
c. Measuring the impact of derivatives on underlying exposures	❑	❑	❑	❑
d. Ability to monitor the use of derivatives by asset managers	❑	❑	❑	❑
e. Pricing and valuing derivatives	❑	❑	❑	❑
f. Reaction by plan participants, board members and other parties to the use of derivatives	❑	❑	❑	❑
g. Secondary market liquidity (ability to unwind transactions)	❑	❑	❑	❑
h. Tax or legal issues	❑	❑	❑	❑

16. How frequently is derivatives activity reported to the institution's investment committee or portfolio fiduciaries?

(Please circle the appropriate response.)

a. Monthly b. Quarterly c. Annually d. As needed/No set schedule e. Other _____

17. Do you have a written policy covering the use of derivatives?

(Check the appropriate column or circle NA if no assets are in that category.)

	Yes	No	
a. For internally managed positions	❑	❑	NA (No assets managed internally)
b. For externally managed positions	❑	❑	NA (No assets managed externally)

18. What is the lowest rated counterparty with which you will enter a derivatives transaction?

(Please check appropriate box for each row.)

	AAA	AA	A	BBB	Less than BBB	Policy Set By Asset Manager	No Policy
a. Maturities under 12 months	❑	❑	❑	❑	❑	❑	❑
b. Maturities between 1 yr and 5 yrs	❑	❑	❑	❑	❑	❑	❑
c. Maturities over 5 years	❑	❑	❑	❑	❑	❑	❑

19. Do you calculate, or have reported to you, a measure of the counterparty credit risk for derivatives transactions?

(Check the appropriate column or circle NA if no assets are in that category.)

	Yes	No	
a. For internally managed positions	❑	❑	NA (No assets managed internally)
b. For externally managed positions	❑	❑	NA (No assets managed externally)

20. If in Question 19 you indicated that you calculated or have reported to you a measure of counterparty credit risk, please rank in order of importance the following sources for obtaining your measures of counterparty credit risk.

(Please rank using 1=most important source, 2=second most important source, etc. If a source is not used, please leave blank.)

	Rank
a. Calculations performed internally within your institution	_____
b. Calculations provided by external asset managers	_____
c. Calculations provided by consulting firms	_____
d. Calculations provided by custodians	_____
e. Calculations provided by security brokers/dealers with whom you transact	_____
x. We do not use measures of counterparty credit risk	_____

21. Which of the following credit risk related products has the institution used?

	Use	Do Not Use
a. Total return swaps	❑	❑
b. Credit default swaps	❑	❑
c. Credit linked notes	❑	❑
d. Collateralized loan obligations (CLOs)	❑	❑
e. Collateralized bond obligations (CBOs)	❑	❑

22. How satisfied are you with the overall reporting on derivatives activity by your *external* asset managers?

(Please circle one.)

	Satisfied				Unsatisfied	
Degree of satisfaction with derivatives reporting	1	2	3	4	5	NA (No external manager)

23. How satisfied are you that your use of derivatives is achieving its intended purpose?

(Please circle one.)

	Satisfied				Unsatisfied
Degree of satisfaction with use of derivatives	1	2	3	4	5

24. How do you expect your derivatives usage to change over the next year?

Decrease a lot	Decrease some	No change	Increase some	Increase a lot
❑	❑	❑	❑	❑

Thank you for completing the survey.
Please mail it today in the enclosed postage-paid envelope.

If you have further questions or comments, please contact:

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