Fund of Fund Securitizations

CHARLES A. STONE AND ANNE ZISSU

CHARLES A. STONE
is a visiting professor of finance at Paris-Dauphine University in Paris, France.
zfinance@interserv.com

ANNE ZISSU
is an associate professor of finance at Temple University in Philadelphia, PA.
zissu@sprynet.com

In a collateralized fund obligation (CFO), different types of hedge funds or equity funds are pooled into a fund of funds that is in turn securitized. There are some typical difficulties in securitizing such assets. A case study of the first securitization of a fund of hedge funds, the Diversified Strategies CFO SA launched in June 2002, reveals some of them.

In 2002, a new type of asset was added to a growing list of assets being securitized: the *collateralized fund obligation* (CFO). In this case, different types of hedge funds or equity funds are pooled into a fund of funds that is in turn securitized. This is not an easy type of asset to securitize, as a case study of the first securitization of a fund of hedge funds indicates. We discuss recent developments and the motivations for this new type of securitization in the market.

I. UNDERLYING ASSET

A typical problem for investors is the black box nature of hedge funds. Hedge fund general partners (GPs), who are in charge of the strategic investments, provide very little information to the investors who are the limited partners (LPs). Processes are not transparent, and there is no firm knowledge about future cash flows to be generated by the fund.

The role of the limited partners is to invest a minimum amount, usually high enough that LPs are limited to institutional investors, insurance companies, or pension funds. Investors are required to have a long-term commitment during a lock-up period. This commitment period, when capital is tied up, creates a lack of liquidity for the fund, and there is no secondary market.

LPs typically commit a certain initial amount of capital, from which, during the commitment period of anywhere between 10 and 12 years, the GPs draw down as necessary on an irregular basis. Most drawdowns are made at the beginning of the commitment period. Then, as returns on the investments are achieved, they are distributed to the LPs.

By the end of the commitment period, the GPs should have liquidated the assets of the fund for cash. The GPs' compensation for managing the fund is a percentage of the fund's net asset value, plus a percentage of the fund's return.

The net cash flows generated by a fund are the sum of the drawdowns plus the returns on investment distributed to the LPs over time. These cash flows are not known in advance. The valuation of a fund should be the present value of the drawdowns (negative cash flows) and of the distributions (positive cash flows), discounted at the appropriate rate.

One can already see some of the difficulties in the securitization process. Cash flows of the underlying asset are probably the most important element in structuring a securitization transaction, and uncertainty about them makes evaluating an asset-backed security difficult.

Exhibit 1 comes from "Going Public

EXHIBIT 1

Venture Capital Fund Average Cash Flow Timing Through Year 12

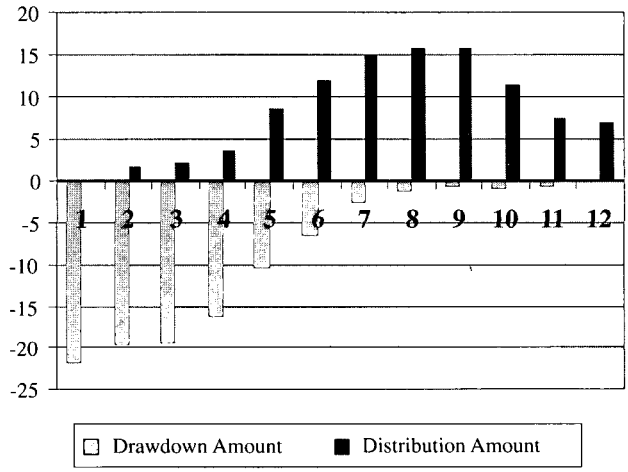
Year of Fund	Drawdown Amount (Percent of Total)	Distribution Amount (Percent of Total)
1	-21.9	0.1
2	-19.7	1.6
3	-19.5	2.1
4	-16.1	3.6
5	-10.2	8.5
6	-6.5	11.8
7	-2.5	14.9
8	-1.1	15.8
9	-0.7	15.6
10	-1.0	11.4
11	-0.7	7.5
12	0	6.9

Fully liquidated venture capital funds, 1985–1992 vintage years. Each vintage year is equal-weighted.

Data Source: VentureXpert/Venture Economics.

EXHIBIT 2

Life Cycle of Average Venture Capital Fund



with Private Equity CFOs," published by Fitch Ratings in November 2002. It shows, on average, the percentage of the total committed capital allocated over time during the commitment period. It also shows the percentage of the total distribution allocated every year.

Exhibit 2 graphs the data in Exhibit 1. It helps us visualize the fact that capital injection is made early on, during the first few years, while distribution starts later on, and peaks around years eight or nine.

Funds of Funds

The first thing achieved in pooling dozens of funds is risk diversification. Each fund is managed by a specific group of GPs, following specific investment strategies. The commitment periods differ across funds, and funds are not all created simultaneously, meaning they have different effective horizons.

Investors and Issuers

Investors find CFO securitizations attractive because a triple-A-rated class will have a yield similar to that of a triple-A collateralized debt obligation, plus a premium. The case is similar for a lower-rated class; its yield will be similar to that of a lower-rated CDO class, plus a premium. Investors can diversify their portfolios by including different types of securitized assets tied to funds of funds.

It is estimated that as of January 1, 2003, North American private equity funds amounted to about $400 billion, with unfunded commitments reaching $150 billion. Securitization is a perfect vehicle to finance the committed unfunded equity funds.

Banks and insurance companies with significant investments in equity funds are motivated to reduce such investments. Banks' regulatory capital requirements for such investments have risen from 6% to 25%. With the absence of a liquid secondary market for equity funds, securitization has been a solution to the need to liquidate some of those investments, and thus reduce regulatory capital constraints.

II. DIVERSIFIED STRATEGIES CFO SA

To securitize a pool of funds, a special-purpose vehicle (SPV) issues notes in the market backed by the pool. The cash flows received from the underlying funds of funds are used to pay investors in the different classes. The CFO structure may provide for sequential notes, some of them subordinated to others, e.g., mezzanine and subordinated classes.

Exhibit 3 is a flow diagram for Diversified Strategies CFO SA (DSCFO1). The boxes at the left labeled F1, F2, ..., FG correspond to the different funds (a total of G funds) that have been pooled into a fund of funds. The cash flows of those funds (distribution – capital injection) are paid to the fund of funds. The fund of funds shifts those cash flows to the SPV, which in turn reallo-

EXHIBIT 3
Diversified Strategies CFO SA DSCFO 1

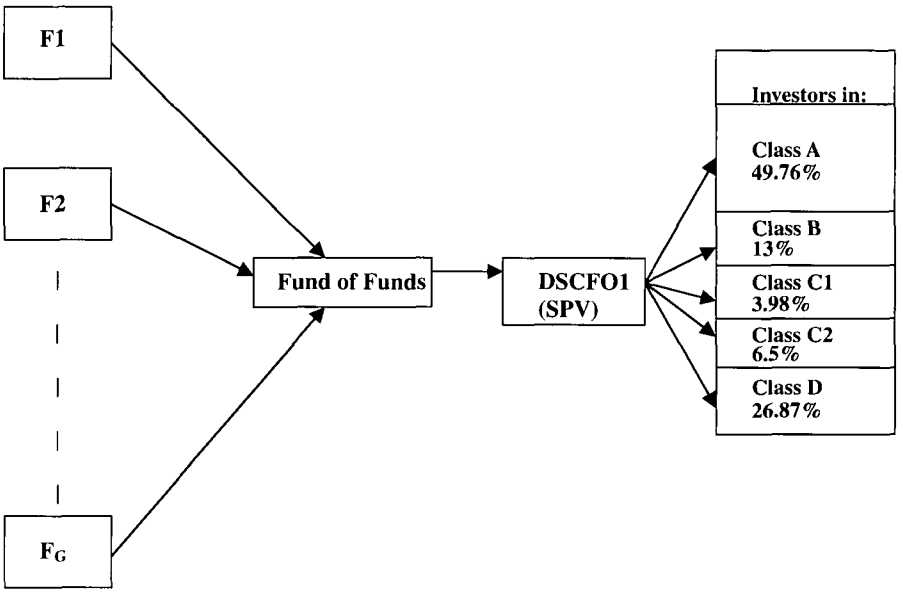


EXHIBIT 4
Coupons

Class	Amount (000s)	Coupon (%)	Original Maturity
A	125,000	1.99	7/15/07
B	32,5000	2.99	7/15/07
C1	10,000	4.19	7/15/07
C2	16,200	5.47	7/15/07
D	67,500	N.A.	7/15/07

Source: Bloomberg.

All classes are in U.S. dollars except class C2, which is in euros.

cates them to the different classes, according to respective coupon agreements.

Diversified Strategies CFO SA (DSCFO1) issued the classes shown in Exhibit 4 for a total of $251,200,000 (for simplicity we assume parity between the euro and the dollar, even though the issuer did enter into a currency swap agreement). The coupons in Exhibit 4 are those observed at the time of the issue.

All classes are floaters. Their coupons are computed as shown in Exhibit 5. The last column in Exhibit 5 shows the weight of each class relative to the entire issue (the weight of Class D is 26.87%).

Contingent Coupon Payment Under Class D Notes

The class D notes contingent amount is equal to: the lesser of: 1) 5% of $NAV_{PORTFOLIO}$ or 2) $NAV_{PORTFOLIO}$ minus 150% of the Class C aggregate amount, according to the Diversified Strategies CFO SA prospectus, dated June 2002. This means that the yearly coupon on Class D is computed as follows:

$$CD = \text{Min}\{[NAV - 150\%(\text{Class A} + \text{Class B} + \text{Class C1} + \text{Class C2})], 5\%(NAV)\} \quad (1)$$

where NAV is the net asset value of the portfolio. Notice that as part of the credit enhancement for the different classes, the rating agencies required overcollateralization, so that the total amount of the classes would not exceed 85% of the underlying fund of funds (the portfolio).

We compute the coupon rate of Class D under different return scenarios in Exhibit 6 and graph the results in Exhibit 7. The coupon is set to zero when a negative rate is obtained.

The net asset value of the underlying fund of funds is computed after deducting all management fees. The fund of funds has a double fee structure. Hedge funds, for example, charge on average an initial 1.5% fee, plus a fee of 20% of profits. Then the manager of the fund of funds, who pays the fees to the different individual fund

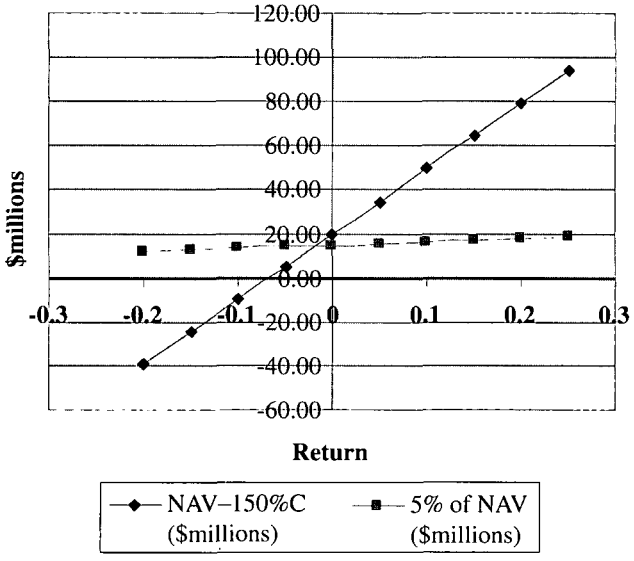
EXHIBIT 5
Coupon Calculations

Class	Floater Formula		Weight
A	1 x LIBOR 6m + 60 bp No Cap	Floor = 0.6%	49.76%
B	1 x LIBOR 6m + 160 bp No Cap	Floor = 1.6%	12.94%
C1	1 x LIBOR 6m + 280 bp No Cap	Floor = 2.8%	3.98%
C2	1 x LIBOR 6m + 270 bp No Cap	Floor = 2.7%	6.50%

EXHIBIT 6
Class D Coupon Rates

Return	NAV ($millions)	NAV–150%C ($millions)	5% of NAV ($millions)	CD (%)
-20%	236.42	-39.13	11.82	-58%
-15%	251.20	-24.35	12.56	-36%
-10%	265.98	-9.57	13.30	-14%
-8%	280.75	5.20	14.04	-5%
-6%	295.53	19.98	14.78	3%
-4%	310.31	34.76	15.52	12%
-2%	325.08	49.53	16.25	21%
0%	339.86	64.31	16.99	22%
5%	354.64	79.09	17.73	23%
10%	369.41	93.86	18.47	24%

EXHIBIT 7
Plot of Class D Coupon Rates



managers, charges a fee on top of that to the investors.

Since its creation in October 1996 through year-end 2001, the underlying portfolio, Diversified Strategies Fund, has generated an annualized return of 9.7%, with an annualized volatility of 4.2%. For a return of 9.7%, the Class D securities would receive a coupon rate close to 24.0%.

Exhibit 8 plots the first and the last column of Exhibit 6. We can see that the Class D coupon is positively related to the performance of the underlying portfolio, that is, to the return of the portfolio. The coupon is thus, according to the formula, negative for a range of negative returns (in reality set equal to zero), but it becomes positive before the returns on the portfolio become positive. This is possible because of the overcollateralization (the classes issued represent 85% of the underlying portfolio).

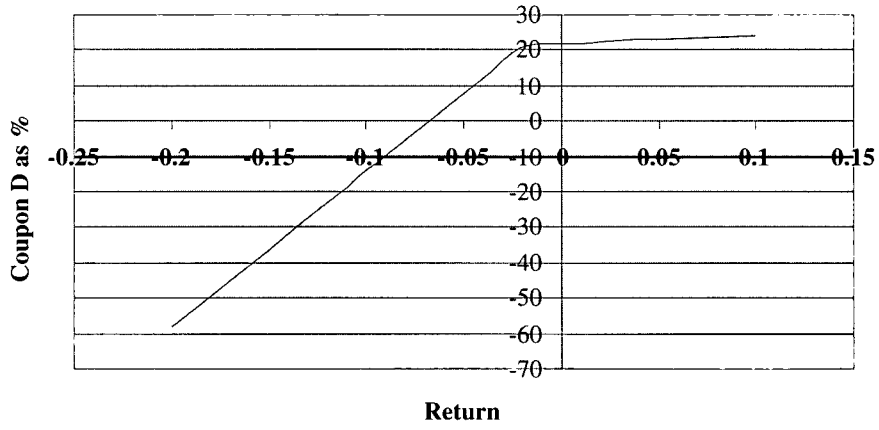
Conditions

The presale documents and the prospectus provide these details as follows:

> If at any time, there is a breach of the liquidity requirement, based on the monthly valuations of the managed accounts, the investment manager must immediately liquidate sufficient underlying investments in the managed accounts and convert them into cash or eligible [liquid] securities that mature before the next coupon payment in order to comply with the liquidity requirement.
>
> ***Restoration of Managed Accounts Liquidated to Meet Shortfall.*** Any amount of the managed accounts drawn to meet the payment due on the coupon date will be restored by redeeming other funds immediately after the coupon [is] paid. The collateral manager will deliver redemption notices to the three most liquid funds managed by three different managers, each by an amount equal to the shortfall to the liquidity requirement. (Presale: Diversified Strategies CFO, Standard & Poor's, April 4, 2002).
>
> ***The Interest Rate Cap.*** The Issuer has entered into the Interest Rate Cap with the Interest Rate Cap Counterparty. Under the Interest Rate Cap the Issuer will pay to the Interest Rate Cap Counterparty US$500,000 on the Effective Date and the Interest Rate Cap Counterparty will pay to the issuer an amount equal to the percentage (if any) by which 6-month U.S. dollar LIBOR (determined at the beginning of the relevant Interest Payment Period in accordance with the terms of the Senior Notes) exceeds 10.37 per cent per annum applied to the aggregate outstanding principal amount of the Senior Notes (provided that the Class C2 Notes aggregate principal amount shall be converted into U.S. dollars using the Constant Currency Rate). . . .

EXHIBIT 8

Relation of Class D Coupon to Fund Performance



The purpose of the Interest Rate Cap is to provide a hedge for the Issuer against rising interest rates so that it has additional resources available to meet its interest obligation under the Notes if 6-month U.S. dollar LIBOR is greater than 10.37 per cent in any Interest Period (Diversified Strategies CFO SA Prospectus, June 2002).

Notice that the DSCFO could have achieved a different hedge approach against rising interest rates by issuing the Class D as an inverse floater rather than entering into an interest rate cap agreement.

In Exhibit 9 we compute the coupons for Classes A, B, C1, and C2 under different LIBOR. The classes receive interest payments every six months and the entire principal amount at maturity as a bullet payment.

Equation (2) computes the issuer's weighted average cost of raising capital from the issue of the four classes:

$$WAC_{cap} = W_A C_{Acap} + W_B C_{Bcap} + W_{C1} C_{C1cap} + W_{C2} C_{C2cap} + 0.00544 \quad (2)$$

In the interest rate cap, the issuer has to pay the counterparty (Credit Suisse First Boston) the amount of $500,000 every six months, which amounts to 54.4 basis points yearly. We can use Equation (2) to compute the WAC_{cap} for different LIBOR (*Exhibit 10*).

The classes were rated as shown in Exhibit 11. Class A is the senior note. All the other classes are subordinated to it and represent its credit enhancement. Class B is the mezzanine note; it is senior to Classes C1, C2, and D. Classes C1 and C2 are *pari passu*, subordinated to Classes A and B and senior to Class D.

EXHIBIT 9

Coupon Rates for Classes A, B, C1, and C2

LIBOR	Coupon A	Coupon B	Coupon C1	Coupon C2
1%	1.60%	2.60%	3.80%	3.70%
2%	2.60%	3.60%	4.80%	4.70%
3%	3.60%	4.60%	5.80%	5.70%
4%	4.60%	5.60%	6.80%	6.70%
5%	5.60%	6.60%	7.80%	7.70%
6%	6.60%	7.60%	8.80%	8.70%
7%	7.60%	8.60%	9.80%	9.70%
8%	8.60%	9.60%	10.80%	10.70%
9%	9.60%	10.60%	11.80%	11.70%
10%	10.60%	11.60%	12.80%	12.70%
11%	11.60%	12.60%	13.80%	13.70%
12%	12.60%	13.60%	14.80%	14.70%
13%	13.60%	14.60%	15.80%	15.70%
14%	14.60%	15.60%	16.80%	16.70%
15%	15.60%	16.60%	17.80%	17.70%

Exhibit 12 shows the distribution of the different types of underlying funds before the Diversified Strategies Fund was securitized.

III. CFO RECENT DEVELOPMENTS

Man Glenwood Alternative Strategies I, the second securitization of funds of hedge funds, made its appearance on June 5, 2002, in an issue of $374 million. The securitization of a pool of private equity funds, Silver Leaf CFO 1, was then launched in March 2003. It had four classes (A, B, C, and D), rated AAA, AA, A, and BBB, and an unrated preferred equity. The deal was for an

EXHIBIT 10

Weighted Average Cost of Capital for Issuer

LIBOR	WAC with Cap
1.00%	2.07%
2.00%	2.80%
3.00%	3.53%
4.00%	4.26%
5.00%	4.99%
6.00%	5.72%
7.00%	6.45%
8.00%	7.19%
9.00%	7.92%
10.00%	8.65%
10.37%	8.92%
11.00%	8.92%
12.00%	8.92%
13.00%	8.92%
14.00%	8.92%

amount of $466 million (see the appendix).

In July 2003, the third securitization of funds of hedge funds, Man Glenwood Alternative Strategies II, was made for a total amount of $350 million. Man Glenwood Alternative Strategies II was structured much like Diversified Strategies CFO and Man Glenwood Alternative Strategies I. All three transactions had a Class A, a Class B, a Class C, and a Class D, some with fixed-rate coupons, others with LIBOR or Euribor plus basis point coupons.

On June 30, 2003, the newsletter *Asset Securitization Report* reported three new hedge fund of funds securitizations in the U.S. pipeline:

- Concordia Funding 1, for an amount of $100 million, led by Salomon Smith Barney, with an Aa3-rated senior $80 million senior tranche.
- UBS Alpha 1, for an amount of $500 million, led by UBS Warburg, with a triple-A-rated senior tranche to be priced at 60 to 70 bp over 12-month LIBOR.
- Société CFO 1, co-led by Deutsche Bank and Société Generale.

By the end of 2003 none of these had been launched, at least as public deals. If rating agencies are asked about these deals, the answer has been that no one can comment on transactions that are not public without issuer consent or on transactions that are in the pipeline. Conversations with rating agencies do indicate several CFO transactions were privately placed in 2003.

It is not straightforward to assess the credit risk of CFOs. In August 2003, Moody's began to use HedgeFund.net data to evaluate the risks of the underlying collateral, in order to develop a more accurate rating model for CFOs. It describes its new rating approach in "Moody's Approach to Rating Collateralized Funds of Hedge Fund Obligations" [2003].

HedgeFund.net tracks about 2,600 hedge funds. The data should allow Moody's to develop a rating approach model based on expected losses for each class, using parameters such as volatilities and correlations.

EXHIBIT 11

Class Ratings

Class	Fitch	Moody's	S&P
A	AAA	Aaa	AAA
B	A	A2	A
C1	BBB	Baa2	BBB
C2	BBB	Baa2	BBB

EXHIBIT 12

Allocation of the Diversified Strategies Fund—December 31, 2001

Strategy Category	% Allocation
Relative Value Strategies	68.1
Directional Strategies	27.6
Cash	4.3
Total	100.0
Distressed	2.1
Risk Arbitrage	14.5
Convertible Arbitrage	19.7
Equity Market-Neutral	16.9
Fixed Income Relative Value	10.9
Hedge Equity (U.S.)	9.6
Hedge Equity (Global)	9.8
Macro Discretionary	2.8
Macro Systematic	3.9
Portfolio Insurance	5.5
Cash	4.3
Total	100.0

Source: Diversified Strategies CFO SA Prospectus June 20, 2002.

IV. CONCLUDING REMARKS

Fund managers may see opportunities in investing in a basket of hedge funds, but raising capital for such investment is costly. Through the securitization of funds of funds, a portfolio manager can raise capital at a lower

cost. The manager often retains the equity tranche and may take greater risks in order to generate a higher return on the equity piece by taking advantage of the leverage effect. Because there may be a conflict of interest between the manager of the portfolio, if invested in the equity tranche, and the senior classes (the senior debt), rating agencies impose some constraints on the structure of a CFO and covenants are put in place.

Many securitizations of funds of hedge funds are thought to be in the process of review and rating by the rating agencies. With Moody's new rating approach put in place, we should expect to see more public CFO transactions at the expense of private placement of CFOs.

APPENDIX

SECURITIZATION DETAILS

Transactions Backed by Hedge Funds of Funds

$374 million Man Glenwood Alternative Strategies I (2002)
- $242 million AAA Class A notes: LIBOR + 70 bp
- $33 million AA Class B notes: LIBOR + 95 bp
- $41.25 million A Class C notes: Fixed
- $57.75 million BBB Class D notes: LIBOR + 185 bp and Fixed

Source: Standard & Poor's.

$251.2 million Diversified Strategies CFO SA (2002)
- $125 million Class A notes: LIBOR + 60 bp
- $32.5 million Class B notes: LIBOR + 160 bp
- $10 million Class C1 notes: LIBOR + 280 bp
- $16.2 million Class C2 notes: LIBOR + 270 bp
- $67.5 million Class D

Source: Bloomberg. Notice that originally the Diversified Strategies CFO was intended to be launched in the amount of $500 million.

$350 million Man Glenwood Alternative Strategies II (2003)
- $250 million AAA Class A notes: LIBOR + 63.8 bp
- $40 million AA Class B notes: LIBOR + 95 bp
- $15 million A Class C notes: LIBOR + 185 bp
- $43.75 million BBB Class D notes: LIBOR + 340 bp

Source: Standard & Poor's.

Transactions Backed by Private Equity Funds of Funds

€150 million Prime Edge Capital Plc (2001)
- €12 million Class A Notes: Euribor + 100 bp
- €5.5 million Class B Notes: Euribor + 100 bp

$450 million Private Equity Partnership Structures I LLC
$1 billion Pine
- $240 million Class A1 and A2: LIBOR + 125 bp
- $10 million Class A-3: 5.15%

$466 million Silver Leaf CFO 1 (2003)
- $76 million Class A1 FL: LIBOR + 125 bp
- €35 million Class A2 FL: Euribor + 125 bp
- $49 million Class B1 FL: LIBOR + 185 bp
- €20 million Class B2 FX: 5.36%
- €6 million Class B2 FL: Euribor + 185 bp
- $20.656 million Class C1 FX: 9.29%
- $10 million Class C1 FL: Libor + 550 bp
- €10 million Class C2 FX: 9.35%
- $25 million Class D: 11.54%
- $17 million Class E: 10.25%

Source: Standard & Poor's.

REFERENCES

"Diversified Strategies CFO SA." *Structured Finance*, April 4, 2002.

"Diversified Strategies CFO SA." *Prospectus*, June 20, 2002.

"Going Public with Private Equity CFOs." *Structured Finance*, November 13, 2002.

"Moody's Approach to Rating Collateralized Funds of Hedge Fund Obligations." Moody's, August 2003.