When setting up a fund, one of the first decisions a manager has to make is the choice of fund structure. Partnership structures are very common in US domestic funds because they offer tax transparency to investors. Accounting calculations for partnership structures are relatively straightforward. Individual capital accounts are maintained for each partner and performance fees are calculated at the capital account level per partner. Therefore, there are no equalisation issues for managers to contend with.

In Europe, a combination of other fund structures is frequently used which requires calculations of per share/unit price. In calculating performance fees in these structures, the overriding concern among managers has been in determining how to fairly reward the manager for positive performance while at the same time ensuring investors are treated equitably. Essentially, this is where the various forms of performance fee equalisation come in.

One of the most common methods of equalisation - certainly among European managers - which we explore in this article, is the ‘Equalisation Credit / Contingent Redemption’ approach. This form of equalisation involves making certain adjustments on an investor’s account.

An equalisation credit is awarded to investors who subscribe in periods when the Gross Asset Value (GAV) per share is greater than the fund High Water Mark (HWM). The amount of equalisation awarded per share is the equivalent to the difference per share between the GAV and the Net Asset Value (NAV). This is to ensure that investors in the fund do not pay a fee to the manager for performance they did not enjoy. This equalisation credit is invested with the other assets of the fund and may depreciate. However, it will never appreciate above the maximum equalisation credit, i.e. that awarded on entry. Assuming an investor has an equalisation credit at a period-end, additional shares in the fund will be awarded to them to the value of the total equalisation credit available at that point in time. If the equalisation credit is not applied in full at the first period-end, additional shares will continue to be allotted at each future period-end until the equalisation credit, allowing for subsequent appreciation or depreciation in the fund, has been fully applied.

If an investor buys into a fund when the GAV/NAV per share is below the HWM, the investor will owe an additional performance fee relating to the fund growth from the share price at which it entered up to the HWM. This amount is referred to as the contingent redemption. This calculation ensures that the investor does not benefit from a “free ride” up to the HWM. A contingent redemption will be applied at each period-end until such a time as the GAV rises above the HWM. The investor will experience a reduction in their number of shares to the value of the contingent redemption. This redemption amount is paid directly to the manager by the fund, by way of a fee.

We provide further explanation below of this Equalisation Credit / Contingent Redemption approach by way of example scenarios.

**Example Scenarios**

Consider a fund with the following criteria:

- **Offer Price:** $100
- **Performance Period:** Yearly
- **Performance Fee Rate:** 20%
- **NAV Frequency:** Quarterly

<table>
<thead>
<tr>
<th>Date</th>
<th>Deal</th>
<th>Investor</th>
<th>Amount</th>
<th>GAV</th>
<th>Shares Issued</th>
</tr>
</thead>
<tbody>
<tr>
<td>January 1st</td>
<td>Subscription</td>
<td>A</td>
<td>$10,000,000</td>
<td>$100</td>
<td>100,000,000</td>
</tr>
<tr>
<td>April 1st</td>
<td>Subscription</td>
<td>B</td>
<td>$10,500,000</td>
<td>$105</td>
<td>100,000,000</td>
</tr>
<tr>
<td>July 1st</td>
<td>Subscription</td>
<td>C</td>
<td>$12,000,000</td>
<td>$120</td>
<td>100,000,000</td>
</tr>
<tr>
<td>October 1st</td>
<td>Subscription</td>
<td>D</td>
<td>$9,000,000</td>
<td>$90</td>
<td>100,000,000</td>
</tr>
</tbody>
</table>

Table 1: Shareholder Dealing

<table>
<thead>
<tr>
<th>Investor</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Threshold</strong></td>
<td>100.00</td>
<td>105.00</td>
<td>120.00</td>
<td>90.00</td>
</tr>
<tr>
<td><strong>GAV per share</strong></td>
<td>110.00</td>
<td>110.00</td>
<td>110.00</td>
<td>110.00</td>
</tr>
<tr>
<td><strong>Performance Fee Payable</strong></td>
<td>2.00</td>
<td>1.00</td>
<td>0.00</td>
<td>2.00</td>
</tr>
<tr>
<td><strong>Equalisation Credit Issued</strong></td>
<td>0.00</td>
<td>1.00</td>
<td>4.00</td>
<td>0.00</td>
</tr>
<tr>
<td><strong>Equalisation Credit Lost</strong></td>
<td>0.00</td>
<td>0.00</td>
<td>2.00</td>
<td>0.00</td>
</tr>
<tr>
<td><strong>Contingent Redemption</strong></td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>2.00</td>
</tr>
<tr>
<td><strong>True Value Per Share</strong></td>
<td>$108</td>
<td>$109</td>
<td>$110</td>
<td>$106</td>
</tr>
</tbody>
</table>

**Note:** True Value Per Share = NAV per share + (Equalisation Credit Issued - Equalisation Credit Lost - Contingent Redemption)

Table 2: Shareholder Accounting

Table 3: Summary
Year-to-date this investor has enjoyed a return of $5 per share on their investment and so "owes" the manager a fee of $1000. At year-end the NAV quoted is $108, thus not a true reflection of the market value on their account. As such, the fund crystallises the $1 per share equalisation factor issued on entry. As of January 1st in the new period, investor B will receive an additional $100,000 worth of shares in the fund. This ensures that the investor's threshold will equal the fund HMW of $108 for the new period, meaning that this investment lot will never again be subjected to an equalisation adjustment.

Investor C: This investor paid $120 per share on entry. Inclusive in this price was a fee accrual of $4 per share payable to the manager for the positive performance over the previous two quarters. As this investor did not participate in this performance they are issued with an equalisation credit of $4 per share as compensation. The NAV of the fund on entry of $116 means that the investor's account is valued at $11,600,000 ($116 * 100,000 shares). The difference of $400,000 equalisation ($4 * 100,000 shares) brings the value of the account up to the investment amount of $12,000,000.

A loss of $10 per share is incurred on this investment at year-end. Although the NAV reported is $108, this investor should not have investment at year-end. Although the NAV of the fund is $108, thus the manager is only earning a fee of 10% of the increase in the value of this investor's account. To ensure this investment D doesn't get a "free ride" between the price they subscribed ($90) and the fund HMW ($100), the manager receives a fee of 20% of this difference in the form of a Contingent Redemption.

Essentially this means that $200,000 (i.e. $2 per share) worth of shares will be redeemed from their account at crystallisation. The proceeds will be paid to the manager and the investor's threshold will increase to equal that of the fund HMW. This is a one-time adjustment on this investment that ensures the performance of these shares will move in line with the performance of the fund.

Investor D: Having enjoyed an increase in the value of their investment of $20 per share, investor D can expect to pay the manager a fee of 20% of this gain. However, the NAV of the fund is $108, thus the manager is only earning a fee of 10% of the increase in the value of this investor's account. To ensure that this investor D doesn't get a "free ride" between the price they subscribed ($90) and the fund HMW ($100), the manager receives a fee of 20% of this difference in the form of a Contingent Redemption.

This essentially means that $200,000 (i.e. $2 per share) worth of shares will be redeemed from their account at crystallisation. The proceeds will be paid to the manager and the investor's threshold will increase to equal that of the fund HMW. This is a one-time adjustment on this investment that ensures the performance of these shares will move in line with the performance of the fund.

Crystalisation

Note: shares issued/redeemed on crystallisation are calculated by dividing the equalisation adjustment by the NAV per share at year-end. Although shares have been issued and redeemed from respective investor accounts, the total account value for each investor has not changed, as the equalisation adjustment amount after crystallisation will then be zero.

Advantages/Disadvantages

The Equalisation Credit/Contingent Redemption approach has both advantages and disadvantages.

Advantages

1. Only shares that have appreciated in value pay a performance fee.
2. All investors have the same amount at risk per share in the fund.
3. Every share in the fund has the same NAV per share.
4. The manager is rewarded fairly for the positive performance of all shares.

Disadvantages

1. Complex calculations may cause confusion among investors.
2. Published NAV per share may not be representative of the actual value on an investor's account, as only investors' statements will reflect the equalisation adjustment.

HOW SOME HEDGE FUND CHARACTERISTICS IMPACT PERFORMANCE

By Clifford D e Souza, Ph.D. and Suleyman Gokcan, Ph.D., Citigroup Alternative Investments

In this article, we investigate how some hedge fund characteristics impact the average performance of a fund.

We analyse the sensitivity of the average performance with respect to assets under management, whether or not there is high water mark provision, incentive fees, management fees, lockup periods, minimum investment, whether or not the fund is open for new investment, the fund's age, the required period for redemption notice, and whether or not there is partner-capital participation in the fund.

The hedge fund data on which this analysis is based is from the Tremont (TASS) database offered by CSFB. TASS has two different databases: one for surviving funds (the "hedge fund" database) and one for funds that have ceased reporting to the database (the "graveyard" database).

There are a number of reasons why TASS might include a fund in the graveyard database: a fund may simply decide it is no longer in its interest to report performance to the database, a fund may have merged into another entity or a fund may have liquidated. In this analysis, we study only those funds from the graveyard database classified as liquidated - these make up about 50% of the database.

Using the two different databases, we have extracted the performance and characteristics data of the liquidated funds and the surviving funds and merged them. Merging these two databases allows us to compare the characteristics of both the surviving and liquidated funds in order to understand how these characteristics might, in general, impact the performance of a fund. The final database contains 2911 funds: 676 liquidated and 2235 surviving funds, as of March 2003. The inclusion of the liquidated funds in this analysis mitigates the notoriously known survivorship bias, making the results more reliable.

Table 1 (overleaf) provides the average, minimum and maximum values for some of the key fund characteristics of these 2911 hedge funds. The average return is 0.82%, the average assets managed is about $75 million with a maximum of $994 million, average age is 61 months with a maximum of 315 months, 46% of these funds apply a high water mark provision, 87% of the funds are open for new investment, 39% have partner-capital participation, the average minimum investment is $837,270, the average management fee is 2.11%, the average incentive fee is 1.43%, the average lockup period is 3.75 months with a maximum of 36 months, and the average required redemption notice period is 27 days.

1 The analyses and conclusions expressed herein are those of the authors and do not necessarily reflect those of Citigroup Alternative Investments and its affiliates. Any conclusions herein are general, and do not take into account any fund's specific circumstances.

2 Survivorship bias is caused by eliminating closed or liquidated hedge funds from an analysis, and retaining only alive or successful ones. As a result returns are overestimated and results are biased, begging the question of whether an analysis represents only the successful hedge funds, or a true representation of the whole hedge funds universe in general.