Incentive Fees, Rewards for Risk or Return ?

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Abstract
This paper attempts to quantify how management fees and performance fees could be setup as a function of the asset (business) returns. Firstly, we establish the expected performance fees under the Brownian random walk with drift. We find that the larger the risk-adjusted returns, the larger the performance fees should be. Secondly, other aspects affecting the performance fees are reviewed, namely frequency of payment, number of managers involved, high-water marks. Finally, we provide an empirical application to the financial markets and investment banking.

Paying a manager proportionally to his performance is common practise in the hedge funds industry and is being discussed for the remuneration of senior executives. Of particular interest for trading and money management are the implied links between compensation and risk taking and the suggested possibility that in some instances risk choices may be driven more by the specific nature of incentive contracts and less by the broad guidelines under which a trader or money manager is supposed to operate. Few but the most feudal of firms will pay a direct percentage of a trader's earnings, says a managing director at a big bank (Shirreff, 1998). He notes that market pressure, particularly from the hedge fund industry, tilts trader compensation to a degree that is tantamount to a "one-way option" on a financial firm. The trader shares the upside but not the downside of a firm's performance. Although anecdotal evidence suggests that financial institutions and other entities occasionally experience undesirable losses because of unscrupulous high-risk trading activities by a trader or financial officer, it is not clear how systematic such incidents are.

A key issue, Duisenberg said in a conference (ACI, 1995), was for management to foster an atmosphere within the institution permitting sound and responsible assessment of risks. If inordinately high bonuses were paid to dealers this would undermine policies aimed at encouraging a risk-averse climate, Duisenberg said. "*Financial institutions have good reason to hold out prospects of fair bonuses for outstanding staff members,*" he added. "*Banking is a 'people business' and superior talent is scarce in the world of money and foreign exchange*.". Duisenberg said banks would be wise to gear bonuses to the development of profits in the longer run. "This would serve to augment dealers' commitment to the longer-term welfare of their employer. Also, methods seeking to involve employees in the downside risks as well should be worked out further," he said. Among the strategies Duisenberg advocates are adjusting remuneration to reflect trading risks, for instance with the aid of value-at-risk models.

In any case however, it seems unlikely that managers would hand back bonuses and as a consequence, certain critics would argue that the incentive scheme is dangerously flawed. Nevertheless, over the past decade, salary survey in investment banking suggests that the relative importance of bonuses versus base salaries has increased by several multiples in the industry. Collins et al. (1995) further show that

total compensation and the ratio of incentive compensation to total compensation increased substantially as financial innovation and de- regulation in the 1980s created growth opportunities for banking organizations. Orphanides (1996) notes that a similar trend towards less reliance towards base salaries and greater reliance towards incentive bonuses has been observed as a consequence in the mutual fund companies given that the latter compete with trading houses for fund management talent. In the United Kingdom, while performance-related fees were only used by less than 30% of pension funds, a survey carried out by Financial News (Pearse, 1998) found that large pension funds wanted performance-related fees. The same year, Barclays Global Investors moved to performance-related fees on its quantitative management of UK equities. BGI has stated that on its quant strategies for UK equities, clients will only pay active management fees if returns outperform the index. Underperformance by BGI means the active UK equity clients just pay the same as index-tracking clients. Where it outperforms, BGI will charge 20% per year of that value or 5% per quarter. Clients will have the option of using the usual flat fee or this new performance-related package.

Whereas trustees are keen to pay only 'active fees' for above benchmark performance, Plager (2000) indicates that with performance fees there is also the disadvantage that the trustees could find themselves overpaying for good results. While leading to improved returns, performance related fees can also remove attention from the funds liability profile and introduce higher risks. Orphanides (1996) finds that managers who have performed badly earlier in the year may decide to increase the riskiness of their portfolio in order to raise the probability of improving their year-end performance. On the other hand, managers who have performed well earlier in the year may decide to engage in less risky behaviour in order "to lock in" their bonuses. Clearly, understanding the behavioural consequences of a shift in compensation practices from fixed to performance-related fees becomes more important.

What is certain is that incentive schemes are being used more and more and are no longer restricted to the financial industry. The UK government seems to be gambling that it can impose a culture of risk-taking, assuming that business and employee attitudes are shaped by law rather than the other way around. Its case is that there is a link between offering shares to employees and improved output. This is intuitively correct, and borne out by research. The Financial Times (1999) reports a study of 94 companies by Bradford University in 1998 which found that equity incentives helped lifted productivity by about a quarter. Gains in the US have been equally tangible. A fifth of workers have equity interests in their companies, according to William M. Mercer, the consultancy. Share schemes have helped resurrect industries thought dead 20 years ago.

Despite their growing acceptance, incentive fees are still badly understood by investors and shareholders. Performance fees mainly depend on two features: the contract or mathematical formulae defining the incentive payments, and the profits and loss distribution. Our goal is to quantify in simple but realistic cases likely performance fees. This article is organised as follows. Section 1 explicits our assumptions within the academic literature. Section 2 establishes likely fees in a single manager, single period context. Sections 3 and 4 respectively extend the results to multi-periods and multi-managers situations. Section 5 addresses the case of high water marks rules. Section 6 provides an empirical application to the Dow Jones. Finally, Section 7 shows how the findings could be used in investment banking.

1) **Assumptions**

One could claim that there are as many ways to establish incentive fees, as they are different managers. However most of the recent research indicates that hedge fund managers typically receive a proportion of the fund return each year in excess of the portfolio's previous high water mark, i.e. the maximum share value since the inception of the fund. In practise, the incentive fee is usually accrued on a monthly basis with the high water marks being reset annually or quarterly. For a mutual fund manager, the principal performance evaluation period is typically the calendar year. The incentive fees generally range from 15% to 25% of the return of new profits each year and managers also charge an additional fixed fee of 1% to 2% of portfolio assets.

Goetzman et al (1998) show that the hedge fund management contract is a potentially perpetual contract with a path-dependent payoff. The payoff at any point in time depends on the high-water mark which is related to the maximum asset value achieved. As such the contract can be valued using option-pricing methods. Then Goetzman et al (1998) investigate the sensitivity of incentive fees towards withdrawal rate and standard deviation of the asset. Here we do not explicitly take into account withdrawal rate but rather express likely incentive fees as a function of the mean of asset, its standard deviation, holding time and frequency of payments (monthly, quarterly, yearly). We also consider the special case of a fund of funds. We start with the simple case corresponding to no high-water marks. This is for instance the case of new investor holding the asset for a single period. In investment banking, this would correspond to a Senior executive not having to pay back the potential losses of his predecessors before triggering his own bonus. Let's now explicit our assumptions in a single annual period context. We use the generic term "Asset" to design an investment in a financial product, fund manager or senior executive. We denote by X the returns after fixed fees or costs and suppose that X follows a normal distribution with annualised mean μ and variance σ^2. The return to risk ratio is denoted $r=\mu/\sigma$. The incentive fees I are calculated as a performance fees p of the profits after fixed costs. That is:

with no high water marks, $I = p\ Max(0,X)$

with high water marks H, $I = p\ Max(0,X-H)$

If the manager is given a benchmark to beat, the annualised mean μ must be interpreted as the returns after fixed fees over benchmark and the variance σ^2 as the tracking error over benchmark.

2) **Single Period**

In a single period context, the manager is not being given any high-water mark. Therefore $I=p\ Max(0,X)$. The expected incentive fees can be worked out easily and are given by:

$$E(I)= p\,\sigma\,[\frac{1}{\sqrt{2\pi}}\exp(-0.5\,(\frac{\mu}{\sigma})^2)+\frac{\mu}{\sigma}(1-\Phi(-\frac{\mu}{\sigma}))] \qquad (1)$$

where Φ is the cumulative function of a normal distribution N(0,1).

In fact one should note that the expected incentive fees per unit of underlying risk is an only function of the performance fees and return to risk ratio $r=\mu/\sigma$.

$$E(I)/\sigma = p\left[\frac{1}{\sqrt{2\pi}}\exp(-0.5\,r^2) + r\,(1-\Phi(-r))\right]$$

Figure 1 illustrates the expected incentive fees using Equation (1) as a function of the asset volatility σ when the annualised mean is μ=6% and the performance fees p=15%. The fact is that volatile traders are more likely to trigger large bonuses one year and collapse the next. We find that incentive fees increase drastically with the asset volatility. When the asset volatility is 30%, expected yearly incentive fees would exceed 2.28% whereas the mean of the asset remains at 6%. Then the effective fees, defined as the incentive fees actually paid out of the mean returns, will reach 38%, exceeding by far the so-called performance fees of 15%. The fact being that traders don't have to pay back losses, the expected cost to shareholders will be much larger than 15%.

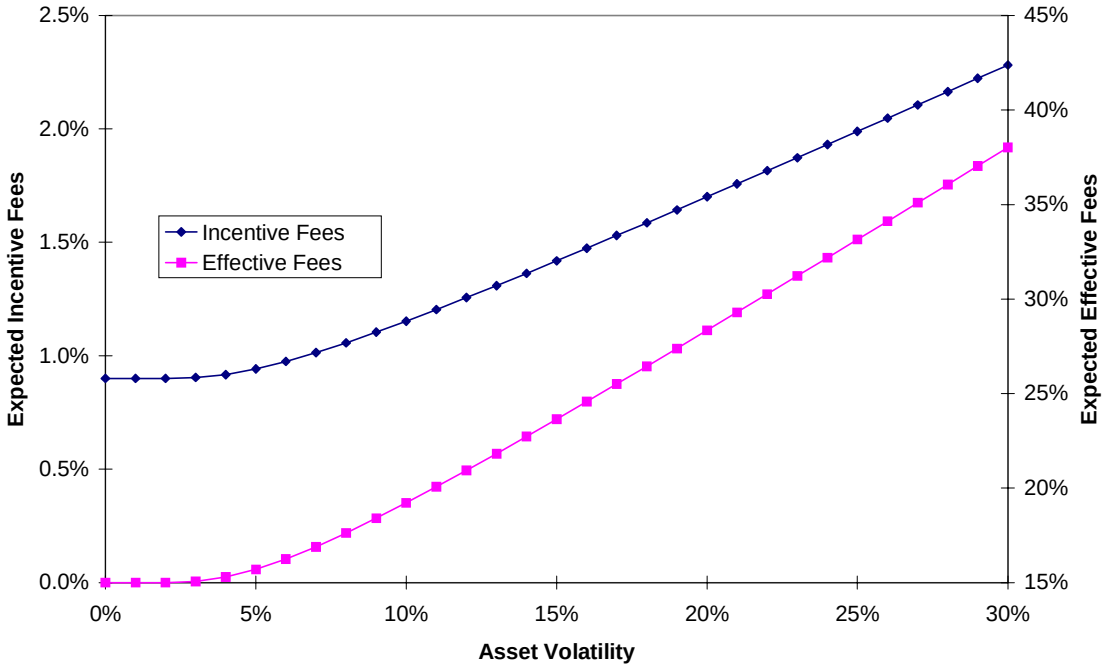

Fig 1: Expected Incentive Fees =F(Asset Volatility)
Returns after fixed fees = 6%; Performance Fees = 15%

3) **Frequency**

We still assume that the manager is not being given any high-water mark and investigate how the frequency of payment affects the final pay-off. For clarity purpose, we use a single yearly payment I(1) as our basis and consider as an alternative N payments equally distributed over the year resulting in total charges I(N) for the period. We note as before μ, σ and r the asset annualised mean, standard deviation and return/risk ratio. The ratio, incentive fees paid out of N payments divided by incentive fees paid out of one single payment is given by:

$$\frac{I(N)}{I(1)} = \frac{\frac{\sqrt{N}}{\sqrt{2\pi}} \exp[-0.5\frac{r^2}{N}] + r[1-\Phi(-\frac{r}{\sqrt{N}})]}{\frac{1}{\sqrt{2\pi}} \exp[-0.5\, r^2] + r[1-\Phi(-r)]} \qquad (2)$$

Figure 3 highlights equation (2) for N=12, 4 and 2 as a function of the risk adjusted ratio of the asset. For instance when r=0, that is the mean of the asset is nil, the investor is likely to pay 3.5 times more in monthly incentive fees than in yearly fees. The relative cost does not depend on the performance fees p, but is an increasing function of the frequency of payment and a decreasing function of the risk-adjusted ratio of the asset. This confirms the intuitive result that the more volatile the fund manager, the lower the frequency of payment should be.

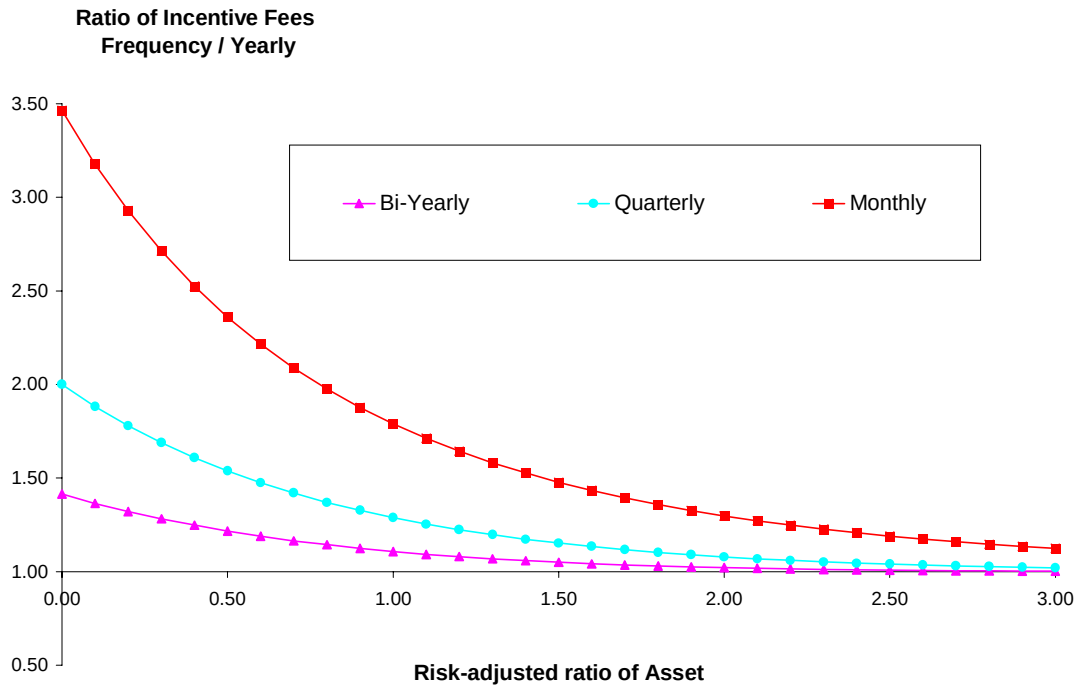

Fig 2: Ratio of Incentive fees as a function of frequency

4) **<u>Number of managers</u>**

The big trading banks have dozens of traders dispersed across the globe, taking interest rate, currency, equity and commodity risk via securities, futures, options, swaps, forward and spot contracts. Similarly a fund of funds is an investment that will allocate capital to more than one investment manager. The allocations made are sometimes focused on one strategy such as relative value, event driven or equity hedge funds, a particular asset class such as futures, equity or fixed income. In all cases, the benefit derived is the reduction of risk via increased exposure to more than one manager, strategy or asset class. It is not unusual to see program use over thirty managers (Billingsley and Chance; 1996). One potential complication in multi-manager funds is the payment of incentive fees. If the fund pays each advisor an incentive fee based on his or her own performance, investors will sometimes pay fees on profits they

have not earned (e.g., when one or more advisors make money, while other advisors lose). Our goal is here to illustrate the fund of funds manager dilemma through a simple but realistic example. More generalised formulae could be established but it is not sure that they would bring further insights to our argumentation.

Let us consider a funds of funds equally distributed between N independent managers exhibiting the same return volatility σ but different means μ_i {I=1,…,N}. All managers charge the same performance fees p once a year. The total charge for the fund is denoted once again I(N) and is given over a single period by:

$$I(N)= p\,\sigma \frac{1}{N}\sum_{i=1}^{N}\left[\frac{1}{\sqrt{2\pi}}\exp\left(-0.5\left(\frac{\mu_i}{\sigma}\right)^2\right)+\frac{\mu_i}{\sigma}\left(1-\Phi\left(-\frac{\mu_i}{\sigma}\right)\right)\right]$$

When all the managers exhibit the same mean $\mu_i = \mu$, the total charges I(N)=I(1) and does not depend on the number of managers and are the same than if we had allocated to a single manager exhibiting the mean return μ and the volatility σ. When the means are different, we may use as a benchmark the investment in a single "average" manager exhibiting mean $\mu = \frac{1}{N}\sum_{i=1}^{N}\mu_i$ and volatility σ. In that case the charges would be:

$$I = p\,\sigma\left[\frac{1}{\sqrt{2\pi}}\exp\left(-0.5\left(\frac{\mu}{\sigma}\right)^2\right)+\frac{\mu}{\sigma}\left(1-\Phi\left(-\frac{\mu}{\sigma}\right)\right)\right]$$

Figure 3 highlights the ratio I(2)/I. For instance, this tells us that when a fund of funds include two managers exhibiting the same volatility, 10%, but different means –2% and 16%, the charges paid by the fund of funds will be 1.16 time the charges paid to an average manager exhibiting a mean of 7% and volatility of 10%.

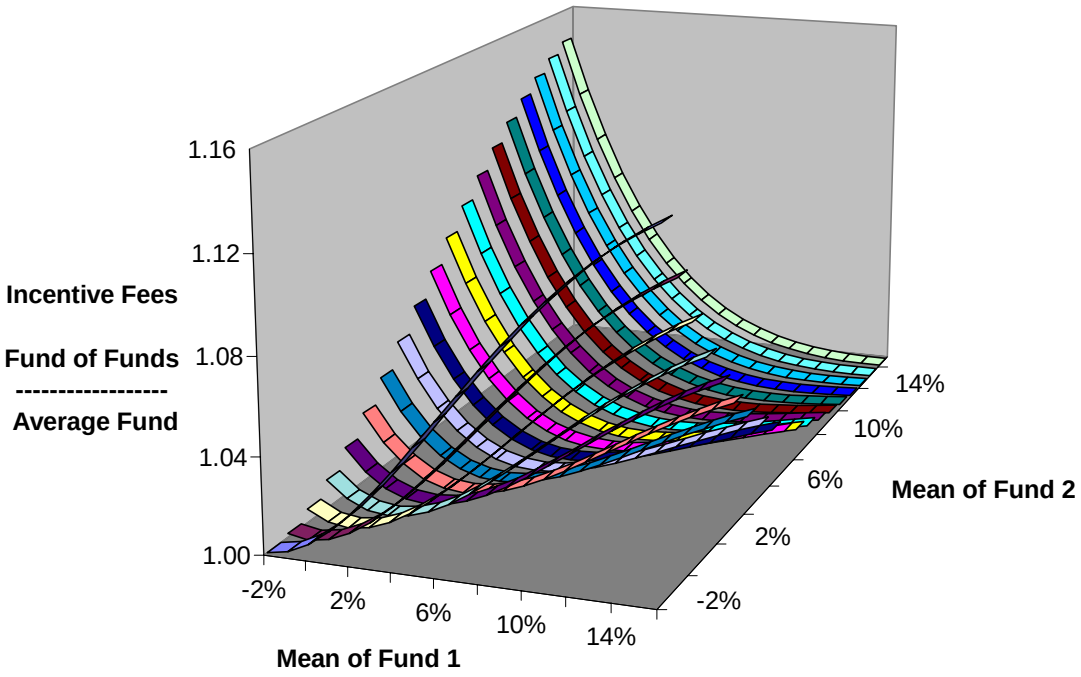

Fig 3: Ratio of Incentive fees, Fund of funds divided by Average Fund
Funds Volatility = 10%, Zero Correlation

Whereas the frequency of payment (monthly, quarterly,…) did not affect the distribution of returns before incentive fees, the number of managers changes the distributional characteristics of the asset. Therefore the question might have been: can we find a single manager exhibiting the same distributional characteristics than our fund of funds? If the latter exists, he will show a mean μ, standard deviation $\frac{\sigma}{\sqrt{N}}$ and risk adjusted ratio $\sqrt{N}\frac{\mu}{\sigma}$. Such an asset would exhibit charges

$$I^* = p\frac{\sigma}{\sqrt{N}}\left[\frac{1}{\sqrt{2\pi}}\exp\left(-0.5\left(\sqrt{N}\frac{\mu}{\sigma}\right)^2\right) + \sqrt{N}\frac{\mu}{\sigma}\left(1-\Phi\left(-\sqrt{N}\frac{\mu}{\sigma}\right)\right)\right]$$

Figure 4 highlights the ratio I(2)/I*. This time, incentive fees charged by a fund of funds exceed by up to 60% the incentive fees paid to a single portfolio manager showing the same returns characteristics than the fund of funds. The reason is fairly simple. Our single portfolio manager has accepted to bear the risk of investing in non-performing products. Losses will be deducted from the gains before charging incentive fees, not after as it would occur with a fund of funds. The question remains if a single manager can develop several profitable and highly diversified trading programs. If the answer is affirmative, it can make theoretical sense to use a single-manager fund instead of a fund of funds. The single company will be ready to charge performance fees on his overall results, not on individual markets or trader's performance.

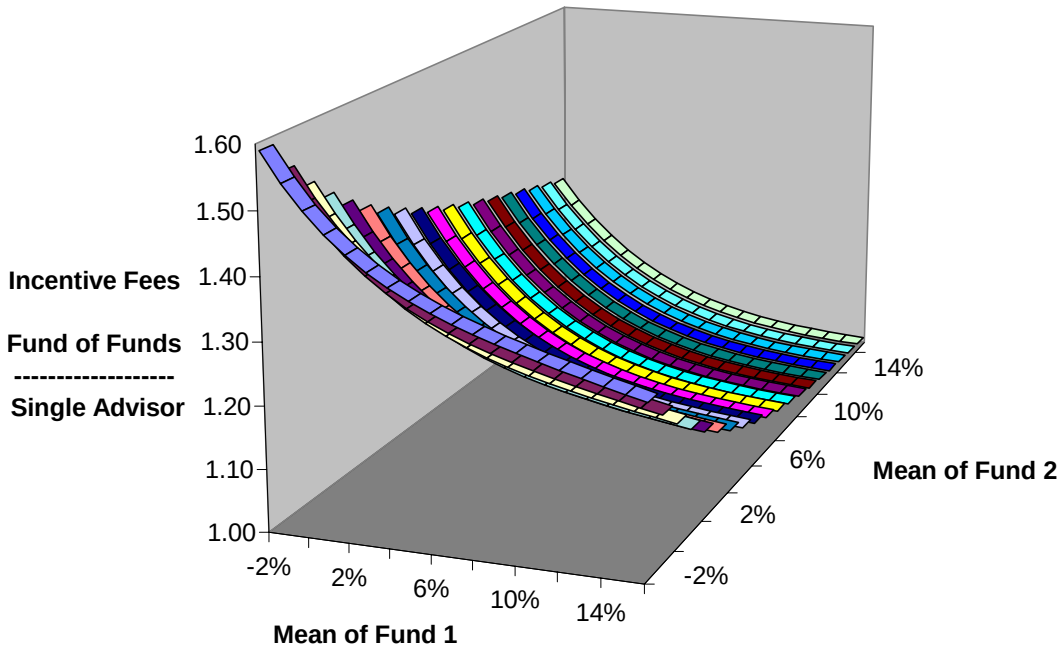

Fig 4: Ratio of Incentive fees, Fund of funds divided by Single Advisor
Funds Volatility = 10%, Zero Correlation

The team bonus concept relies on the assertion that team members are dependent on the performance of others for them to be able to give of their best. Whereas it can be accepted or enforced within a same structure, it is far less conceivable to impose such a framework where the individual is largely independent of other people for the performance of the job. As a consequence, allocating to multiple managers will be more expensive. Hodgson et al (2000) indicates another cost element to poor diversification. If the fund is split between two investment managers, then the individual portfolio sizes will be smaller. Due to sliding investment management fee scales, which are usual for the industry, the fund is likely to attract higher average fees. However, the focus of investors should not be on fees minimisation, but on return optimisation after considering all the costs. One cannot ignore the development of sector-type funds in which specialized traders are added to a portfolio, which become diversified as a result. Barclay (1994) compared of a portfolio based on an index of diversified Commodity Trading Advisors performance with a specialist portfolio and showed that the specialist portfolio exhibited superior returns on a nominal as well as risk adjusted basis.

5) **New High Rule**

Managed futures and Hedge funds carry specific charging structures. Multi-period contracts typically contain a high-water mark provision which sets the strike price of each period's incentive fee equal to the all time high of fund value. Incentive fees are usually paid on a net new high basis and can be anywhere between 10 per cent and 30 per cent. Net new high means that only if an advisor achieves a new high, over the old one, he gets a percentage of that new high profit. The incentive fees issue is made more complicated by high water marks and hurdle rates. Since exact analytical formulae may no longer be available under the normal assumption, one has to use Monte-Carlo simulations. Figure 5 establishes the returns after fees using the net new high principle on a quarterly basis over a nine years period as a function of the asset mean. In this example, the performance fees p, are always 20%. However a more meaningful statistic might be the effective fees defined as the ratio incentive fees actually paid divided by asset mean. This can become astronomical in relative terms when the asset mean is low.

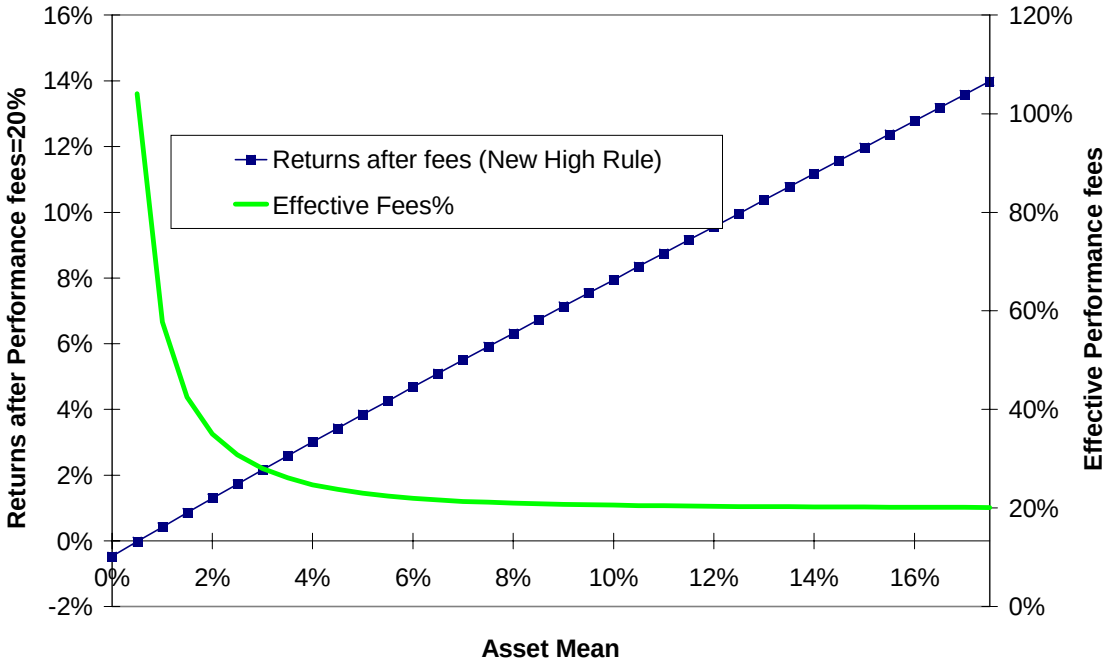

Fig 5: New high Principle out of a Nine Years Period
Quarterly Performance Fees = 20%; Asset volatility = 10%

Figure 6 analyses this part of the curve for different quarters. Over the first quarter, the net new high rule does not apply. This simply corresponds to no additional constraint and refers to results presented in Sections 2 to 4. The charges specifically paid over quarter 2 are now path-dependent and conditional to the fact that a new high has been reached. As expected, effective fees will converge to the performance fees (20%) after a number of years.

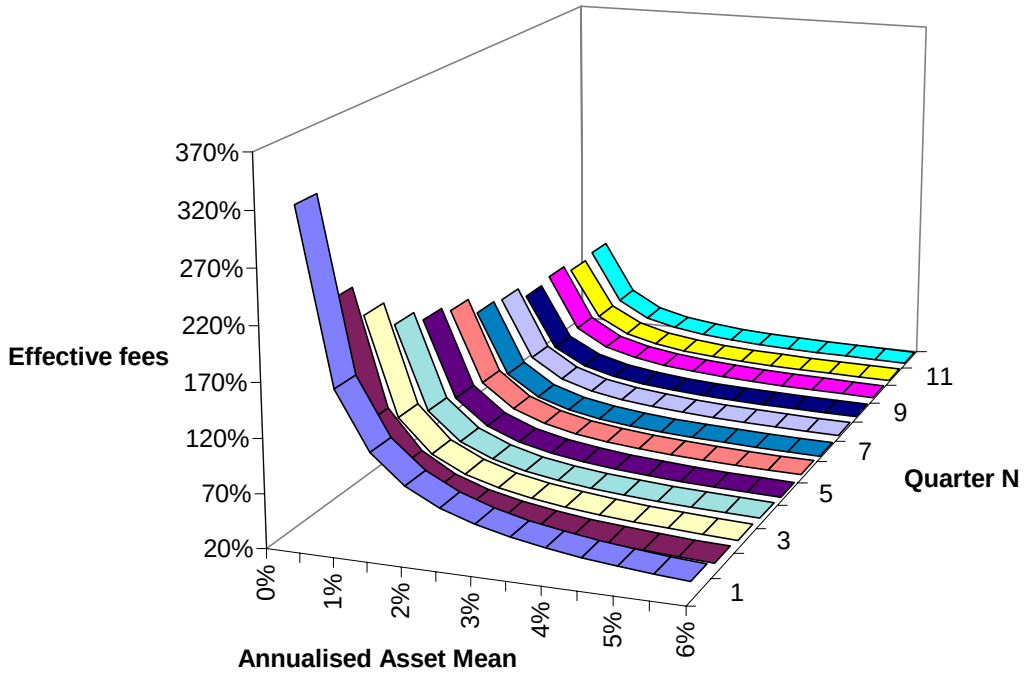

Fig 6: Effective fees (New High Principle)
Quarterly Performance Fees = 20%; Asset Volatility = 10%

6) **Application to the Dow Jones**

So far we have used the normal assumption to determine incentive fees as a function of the mean return. volatility and holding period either analytically or through Monte-Carlo simulations. We have checked the validity of these results by studying monthly returns from the Dow-Jones from January 1915 to December 1998. We have applied monthly incentive fees on a net new high basis on the Dow Jones over a three-year basis. Over the total sample there are 28 periods of non-overlapping three years periods. For each period, we calculated:

*) the annualised return divided by volatility ratio.

*) the annualised incentive fees per unit of annualised volatility

*) the corresponding average (99%, 95%, 5% and 1% quintiles) under the normal assumption.

Overall, empirical fees fall inside their interval confidence and match their normal assumption (Figure 7). The higher the risk adjusted returns the higher the incentive fees per unit of volatility. Nevertheless, a high return to risk ratio is beneficial to the investor since he will pay lesser fees relatively to his wealth. This point can be demonstrated had we assumed a constant volatility over the total period 1915 to 1999. Under that assumption, an increase of return to risk ratio from 0.4 to 1.2 would imply an asset mean being tripled whereas the incentive fees would only been multiplied by two. The widening confidence interval must be interpreted with caution. This doesn't mean that incentive fees become more unpredictable. Indeed for a given mean, the lower the volatility the more predictable the incentive fees. This means the higher the risk-adjusted returns, the more unpredictable the performance fees per unit of volatility. Otherly said, this implies that for given asset volatility, the higher the mean, the more unpredictable the performance fees.

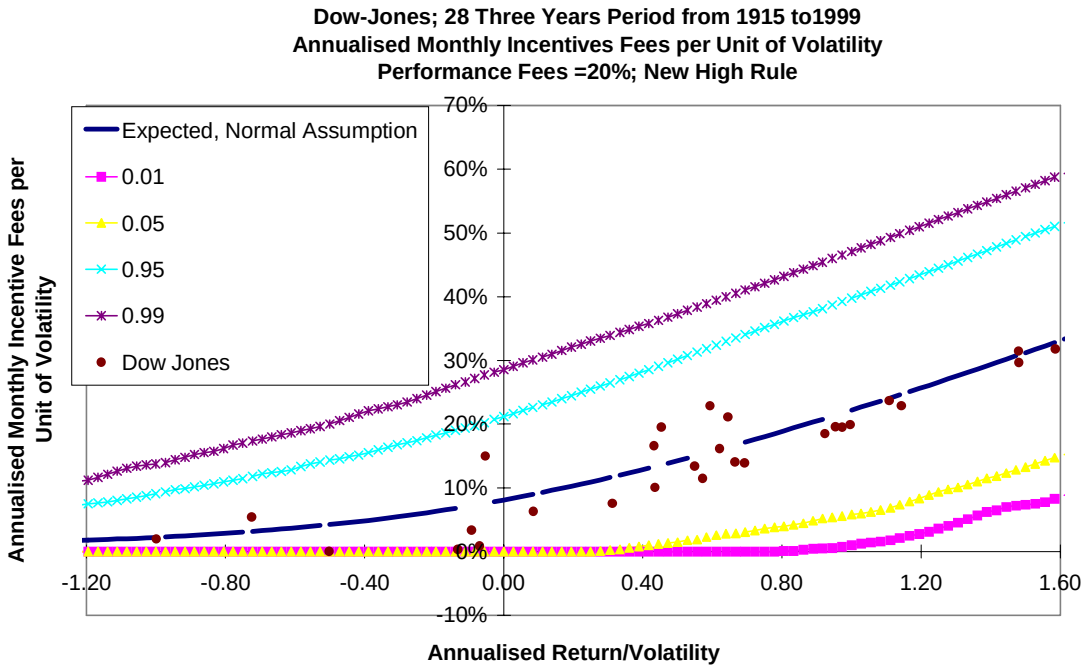

Fig 7: Dow Jones; 28 Three Years Period from 1915 to 1999
Annualised Monthly Incentive Fees per Unit of Volatility
Performance Fees = 20%; New High Rule

7) **Extension to Investment Banking**

For the sake of clarity, we highlight our purpose by discussing two activities within a Foreign Exchange Dealing Room: Sales and Proprietary Trading. The numbers used in this section are purely fictitious and may not be representative of any specific cases. They satisfy however two empirical observations. Firstly, fees-based earnings (sales) should be smoother than trading (DeYoung, R. and K.P. Roland, 1999). Secondly, proprietary traders should exhibit risk-adjusted ratios in line with similar hedge fund managers. A recent report issued by the London Business School (FX Week, 6 March 2000) indicates that traders are irrational, obsessed by their bonuses but--contrary to popular myth -- are not risk takers or gamblers.

A typical performance report will be split between operating income and costs and may look like Table 1. The costs structure may be complex and include items such as salaries (guarantees, pensions,...) operating costs (cost on office spaces, consulting fees,…) and overhead costs (executive management, compliance,…). Now one may interpret the sum of all fixed costs as fixed management fees and performance related bonus as performance fees.

The first Bonus Scheme, (1), concentrates on absolute returns and ignores any franchise value or benchmark which may be inappropriate or difficult to establish. Bonus (1) is simply equal to 15% of the net profits. In the case of trader 1, this amounts to £41,000. Whereas the formula is straightforward, this does not include any risk information. It may well be that the trader's performance was due to luck. In any case, his performance is unlikely to be a risk free rate and one cannot expect the following year's performance to be strictly identical. A more realistic approach, although far from perfect, consists in assuming that the trader's performance will oscillate around the mean and that the profits and losses will follow a normal distribution with given mean, £700,000 before costs but £274,000 after costs, and standard deviation (£2,000,000). Under these assumptions, we should expect to pay the following year much bigger incentive fees to the traders. The expected incentive fees using Equation (1) are £141,000. Is such a bonus justifiable? The effective fees or expected performance bonus as a percentage of profits would suggest the contrary. The trader not paying back the losses may capture 51.6% of the total profits. This is not the case for trader 2 and sales 1 and 2. Expected effective fees stay around 15%, in line with the performance fees. The reason is that their superior risk-adjusted returns, if constant through time, make them less likely to trigger future losses.

Bonus Scheme (2) assumes that relative performance only matters. The question is nowadays: Has the trader made money over its benchmark ? Gross Profits and Loss numbers within a Global Markets environment may be misleading and it can make sense to use some kind of benchmarks to measure the added value of each employee. The capital allocation between Sales and Trading is the responsibility of the Treasurer not of the trader. In that case, a well-defined benchmark should help the employee to value his performance relative to his universe of opportunities. For sales, this may be the value of the franchise. For proprietary traders, one may use the public performance of similar Hedge Funds or

Managed Futures Funds. The performance fee is likely to be higher, here 20%, given that beating a positive benchmark is much harder and that the calculations are made out of a smaller number. Clearly using relative performance will shed a different light on the trader ability. In our case, Sales 1 now triggers a relative loss, not being able to capture the full bid/ask spread. Over time, the expected bonus will still be positive for such a trader since he won't have to pay back the losses.

Management Reporting, Foreign Exchange Markets As Of Dec. 31, 2000				
FX Trading in 000£	***Trader 1***	***Trader 2***	***Sales 1***	***Sales 2***
Total operating income	***700***	***1,746***	***600***	***1,200***
Fixed Costs	***426***	***604***	***365***	***560***
Profit (1) =Total operating income - Fixed costs	274	1,142	235	640
Performance Bonus (1) = 15% Max(0, Profit (1))	41	171	35	96
Risk (1) =Annualised Standard deviation of Profit (1)	2,000	900	200	310
Profit/Risk (1)	0.14	1.27	1.18	2.06
Expected Performance Bonus (1)	141	178	37	96
Expected Performance Bonus as % of Profits (1)	51.6%	15.6%	15.7%	15.1%
Fanchise Value	100	100	245	400
Profit (2) = Profit (1) - Franchise Value	174	1,042	(10)	240
Performance Bonus (2)= 20% Max(0, Profit (2))	35	208	0	48
Risk (2) =Annualised Standard deviation of Profit (2)	1,400	630	140	217
Profit/Risk (2)	0.12	1.65	(0.07)	1.11
Expected Performance Bonus (2)	130	211	10	51
Expected Performance Bonus as % of Profits (2)	74.8%	20.2%	N/A	21.2%

Table 1: Performance Report

Such bonus schemes are simple if not simplistic. However, they have the advantage of showing that risk is not an abstract concept but an economical consideration that translates itself into profits and losses. Typical mistakes would include:

(*) Paying high bonuses to traders exhibiting low risk-adjusted returns

Their likelihood to repeat their profits is inherently low and bonuses might have to be deferred through time to guarantee against potentially higher forthcoming losses. On the other hand, traders displaying high return to risk ratio should get an incentive for not taking unnecessary risks and should not get any deferral of bonuses.

(*) Hiring negatively correlated traders while guaranteeing bonuses

The result will be a fund of funds displaying large fixed fees, large effective fees (The trader making money has still to be paid), low volatility and expected returns.

(*) trading the traders

Figure 6 showed in particular that allocators trading the traders over short-period of time may end-up paying abnormally huge effective fees.

Conclusion

The results shown in this study have been presented in a rather crude and unsophisticated manner. Nevertheless, it is hoped that the strong parallels between fund management and investment banking have been highlighted and the need for risk-adjusted ratios and benchmarks have been demonstrated. On the one hand, traders should be motivated for taking well-defined risk. On the other hand, paying high bonuses to traders exhibiting low risk-adjusted returns cannot be justified. New incentive schemes should also prevent unsupervised traders to understate losses or artificially inflate profits to claim additional bonuses. Whereas losses are part of the game, they should remain transparent and controlled. Incentive fees should have only one purpose i.e. to maximise shareholder value. This can only be done by properly valuing the high [risk-adjusted] performers. Indeed, bonuses need to take into account the risk taken by traders and their inherent benchmarks. Not doing so may lead to wrong allocations buying at the top and selling at the bottom. An additional reason is that risk-adjusted statistics such as the Sharpe ratio (Brorsen, 1998) and the Information ratio (Gupta et al, 1999) are stronger predictor of persistence of manager performance than alpha and tracking error.

The issue is complex and much more research is needed. Non-symmetrical distribution of returns is a key elements to be explored. Surveys (James, 2000) indicate that consumers equate ‘value for money’ in investments with good past performance. Given a choice between a high cost fund with good past performance and a low cost fund, consumers tend to choose the high cost fund. Despite historical evidence to the contrary, consumers believe that if the past performance of a particular fund is good, then future performance will more than compensate for the higher costs. In Shirreff (1998), it is suggested that "the next trick is to ensure that whatever incentives you build are not set in stone but are constantly evolving, so that smart traders don't permanently skew their business to what can only be an imperfect model." Whereas it is true that incentive contracts should be designed for limited period of time such that it can be revised and include the latest research on executive compensation, trust needs to be formally, that is legally, established between traders and investors. Reinforcing the needs for incentive schemes, Paige Fields and Fraser (1999) ask themselves: can commercial banks compete successfully with investment banks unless they have a comparable performance-based compensation system ?

Joint ownership schemes may be one solution. For investment funds, joint ownership requires managers to invest a significant amount of their own wealth in the fund. Recent empirical evidence in the Hedge fund industry (Ackermann et al, 1999) where joint ownership is frequent report that moving from a fund with no incentive fee to a fund with the median incentive fee (20 percent) increases the Sharpe ratio by an average of 0.15 (or 66 percent of the average Sharpe ratio). The fear that incentive fees encourage managers to take on too much risk seems unfounded. One of the reasons they put forward is that the combination of managerial investment and incentive bonus plans may move managerial effort closer to the optimal level, counteracting the non-optimal risk taking of these approaches taken individually.

The problem is not to insure that incentive fees cannot be quantified such that they cannot be skewed, but rather to find a fair and transparent contractual agreement which maximises investor's objectives.

Bibliography

ACI (1995), "Duisenberg urges action on dealer bonuses", EuroForex' 95, Amsterdam, http://www.fxweek.com/aci/95s/oct95euro.htm

Ackermann, C., McEnally, R. and D. Ravenscraft (1999), "The performance of hedge funds: risk, return and incentives", *Journal of Finance*, 54(3), pp 833-874

Barclay (1994), "The Potential Value of Increasing Diversification Enhancing Diversification with Specialists", BMFR 5.4.4

Billingsley, R.S. and D.M. Chance (1996), "Benefits and Limitations of Diversification Among Commodity Trading Advisors", *The Journal of Portfolio Management*, Fall, pp 65-80

Brorsen, B.W. (1997), "Performance Persistence for Managed Futures", Working Paper, Oklahoma State University

Collins, M., Blackwell, D., and J. Sinkey (1995), "The relationship between corporate compensation policies and investment opportunities: Empirical evidence for large bank holding companies.", *Financial Management*, Autumn, pp. 40-53.

DeYoung, R. and K.P. Roland (1999), "Product Mix and Earnings Volatility at Commercial Banks: Evidence from a Degree of Leverage Model", Federal Reserve Bank of Chicago, Working Papers Series, Research Department (WP-99-6)

Financial Times (1999), "Classified Supplement: A risky share venture: There are unresolved concerns over plans to extend employee share ownership", 02-Dec-1999

Goetzmann, W.N., Ingersoll Jr, J. and S.A. Ross (1998), "High Water Marks", NBER Working Paper No 6413

Gupta, F., Prajogi R. and E. Stubbs (1999), " The information ratio and performance", *The Journal of Portfolio Management*, Vol 26 (1), Fall, pp 33-39

Hodgson, T.M., Breban, S., Ford, C.L., Streatfield, M.P. and R.C. Urwin (2000), "The Concept of Investment Efficiency and its Application to Investment Management Structures", Paper Presented to the Institute of Actuaries, 28 February 2000

James, K. (2000), "The Price of Retail Investing in the UK", Financial Services Authority, Occasional Papers

Orphanides, A. (1996), "Compensation Incentives and Risk Taking Behavior: Evidence from Mutual Funds", Working Paper, Federal Reserve Board, Washington, DC

Pearse, J. (1998), “Funds demand Fee change”, *Financial News*, 12-Oct-1998

Plager, A. (2000), “Investment Fees Survey”, *Pension World*, February 29(2), p23

Paige Fields, L. and D.R. Fraser, (1999) "On the compensation implications of commercial bank entry into investment banking", *Journal of Banking & Finance* 23, pp 1261-1276

Shirreff, D. (1998), "UK: Firm-wide risk, The rise and rise of the risk manager", *Euromoney*, February