



# **DEVELOPING PENSION FUND INVESTMENT STRATEGY**

**ADDING VALUE AND DIVERSITY THROUGH IRISH VENTURE CAPITAL**

This document reviews the current issues surrounding Irish pension fund asset allocation. It presents Private Equity as a viable alternative asset class and outlines the investment opportunities available in Ireland.

A key aspect of the long-term strategic response to the task of funding pension liabilities is to incorporate much greater diversity into the typical asset mix. This necessarily implies lower equity weightings, and if prospective returns are to be maintained, increased weightings in alternative assets. Such assets include property, private equity, hedge funds and commodities. The role that Private Equity can play is examined in detail with particular emphasis on the Irish dimension.

The vibrant Irish economy has a large technology sector that consists of global multinationals (mainly American) and a growing band of young and fast growing domestic companies. Ireland exhibits some of the characteristics of the 'Silicon Valley' type clusters of innovation. The Irish venture capital industry has evolved to exploit the flow of opportunities created by focussing on early stage companies in the technology sector. The American venture capital industry has delivered superior returns compared with the European industry, which has adopted a broad industry sector approach. The more focussed sector approach adopted in America would appear to be a key reason for this superior investment performance.

The Irish venture capital model is more closely aligned to the successful American model and it has now built up the crucial specialist skills to successfully execute an investment strategy that can deliver high long-term investment returns.

Brian O'Loughlin and Frank O'Brien established Investment Faculty Ireland Limited (IFI) in 2002 to address the needs of the market for specialist investment training and education services. IFI has delivered training programmes to a wide range of companies in the financial sector, the public sector and the professional bodies. IFI also publishes research publications that provide in-depth analysis and discussion of investment topics.

The Irish Venture Capital Association (IVCA) is the representative body of Irish based Venture Capital Funds. The Association has 20 full members and 35 Associate members. Its primary function is to provide technical and educational support to the members and to the wider business arena.

# Contents

## **EXECUTIVE SUMMARY**

### **SECTION I IRISH PENSION FUNDS**

- 1.1 Market Size and Structure
- 1.2 Historical Investment Returns
- 1.3 Irish Pension Funds: Asset Allocation Trends
- 1.4 Funding Pensions: A Global Debate
- 1.5 Alternative Assets
- 1.6 The Investment Debate in Ireland
- 1.7 Should Pension Trustees Target Lower Quoted Equity Weightings?

### **SECTION II PRIVATE EQUITY**

- 2.1 Private Equity Defined
- 2.2 Private Equity: The Investment Case
- 2.3 Investment Returns
- 2.4 Venture Capital in Ireland
- 2.5 Liquidity
- 2.6 Exit Mechanisms
- 2.7 Risk
- 2.8 Management Fees
- 2.9 Portfolio Construction
- 2.10 Accessing Private Equity

### **SECTION III THE IRELAND 1994 FUND: A CASE STUDY**

## **APPENDICES**

### **A TECHNICAL APPENDIX**

- 1. Valuation
- 2. Performance Measurement
- 3. Reporting Standards

### **B PROSPECTIVE RETURNS ON BONDS AND EQUITIES**

# Executive Summary

## IRISH PENSION FUND INDUSTRY

At end-2005 assets under management amounted to €77.9b according to the annual Asset Allocation Survey of the Irish Association of Pension Funds. Equities accounted for 65% of total assets; bonds accounted for 21.5% and the property content was 8%.

In terms of investment performance Irish pension funds have delivered on the key goal of high real long-term rates of return. For the period 1989-2005 Irish pension funds achieved an annual real rate of return of 7.3%. However the pattern of returns has been volatile, reflecting the high equity weightings maintained over this period. Annual returns have ranged from 42.9% in 1993 to -18.9% in 2002. Returns over five year sub-periods also reveal considerable volatility – the five years to end 1998 produced an average annual return of 15.7% compared with the 1.7% in the five years to end 2003. Over the period reviewed there were four years of negative returns and an additional two years where returns failed to match inflation.

The under-performance of the recent period relative to the previous decade is clear. In fact for pension trustees the impact of this downturn in asset values is even worse than the aggregate performance data shows for two reasons:

1. In recent years portfolio returns have been boosted by strong gains in property and fixed interest. It is doubtful if such returns from these asset categories will persist into the future.
2. The discount rate, used by actuaries and regulators to value pension liabilities, has fallen sharply in recent years leading to a huge uplift in the present value of pension fund liabilities.

This deterioration in the solvency strength of defined benefit pension schemes has impacted negatively on the balance sheets of the sponsoring employers. Increased contributions, closure of schemes to new entrants and limiting member benefits are just some of the responses to funding shortfalls.

## ASSET ALLOCATION TRENDS

### Asset Allocation Pre 2000

Our analysis of data regarding the average asset allocation of Irish pension funds shows that three major shifts in asset allocation have occurred:

- Reduction in the property weighting post 1983
- Reduction in the bond weighting post 1988
- Increase in the equity weighting post 1988 and a further increase post 1997

The abolition of Exchange Controls on 1st January 1989 and the introduction of the Euro at the start of 1999 have clearly impacted on the timing of these asset mix changes. Although these major changes influenced Irish pension trustees, analysis of asset mix developments in the UK pension fund industry reveals broadly similar trends, at least up until the late 1990's.

## Asset Allocation Post 2000

Over the past five years there has been a marked change in the UK asset mix that has not been replicated in Ireland. Comparing the 2005 asset allocation with that of 2000 we find a 5% reduction in the equity content of UK funds, with increases in the conventional bond, property and index-linked weightings.

In contrast Irish pension funds have not yet significantly altered their asset mix. It could however be argued that UK funds relative to their liabilities had become far too exposed to equities by the late 1990's and that the reduction in equity investment was sensible. The age profile of the members of an Irish scheme would typically be much younger than in the UK. Therefore, other things being equal, the maintenance of a high equity content by Irish schemes may be an appropriate strategy.

## FUNDING PENSIONS: A GLOBAL DEBATE

We consider the current debate internationally and in Ireland in terms of three key (interrelated) issues:

- Prospective returns from equities and bonds – the two 'core' asset categories
- What is the appropriate bond/equity mix for pension funds?
- What role can alternative assets play in improving the risk/reward characteristics of long-term investment portfolios?

### Prospective Returns

Our analysis of current bond and equity valuations (based on UK markets) reveals that the current expectation for long-run inflation is much lower than the long-run historical experience. Prospective real bond returns are quite high in an historical context but nominal bond yields are low. Investors appear to be allowing very little margin for error with inflation. In the context of the historical experience it is difficult to avoid the conclusion that bond investors at current valuations are exposing themselves to a high degree of risk. Even if these risks do not materialise, nominal bond returns going forward will be low.

Prospective real returns on equities face an easier comparison. The UK equity risk premium implied by current market levels of approximately 4% is just below the long term historic average of 4.1% (1900-2004) but is well behind the 5.9% annual average generated during 1950-2004.

### Bond/Equity Mix

In the UK there has been a significant shift in the bond/equity mix with some actuaries arguing that over the next decade there should be a dramatic increase in bond weightings at the expense of equity weightings. As noted earlier there has been a discernible shift in UK asset allocation out of equities.

However, the counterpart to the reduction in this equity allocation has been a small increase in bond weightings and a more significant increase in the weighting of alternative assets (including property). Clearly, the cost implications of much higher bond allocations due to lower prospective returns is weighing heavily on strategic long term investment policies.

## ALTERNATIVE ASSETS

The focus of many trustees and their advisors has shifted to alternative assets that may have the potential to improve alpha\* and/or to reduce volatility. Increasingly, mainstream investors are now seeking alternative investment strategies that score highly on the following three key attributes:

1. High expected returns
2. Acceptable level of risk (volatility)
3. Low correlation with equity returns

This has led to increased interest in property, which accounted for approximately 18% of pension portfolios in Ireland and the UK in the late seventies and early eighties. Hedge funds, structured products and asset-liability modelling are now on the radar screen of advisors and trustees when it comes to framing long-term investment strategy. Private equity is also gaining attention and there has been substantial investment by some institutions in buy-out funds in particular.

Issues such as the liquidity of the various asset classes/investment strategies and the expected timing of cash flows are also relevant.

### Alternative Assets: International Trends

A 2003 study by UBS Global asset management applied a statistical simulation model and suggested that an appropriate allocation of up to 20% to alternative assets (including property) may be reasonable. A 2005-2006 Russell Survey on Alternative Investing gives a global overview of the allocations to alternatives of large tax-exempt investors, whilst a picture for the UK can be found in the JPMorgan Fleming Alternative Investment Strategies survey 2005 that covers 350 UK pension schemes. While these surveys are by no means comprehensive, they do cast some light on an area where there is very little hard data. Taking the results of these surveys at face value, we can make the following observations:

*\*The return generated by an asset (or portfolio) should be commensurate with its risk – higher risk equates to higher returns. If an asset or portfolio generates returns that are consistently in excess of its own risk level, that excess return is referred to as alpha*

- In Europe and North America up to two-thirds of respondents utilise private equity and about one-third utilise hedge funds
- Of those European funds utilising private equity the mean allocation was 5.3% in 2005
- Approximately one-third of UK funds utilise private equity where the mean percentage allocation is 2.3%

## INVESTMENT DEBATE IN IRELAND

The international debate is mirrored in Ireland amongst investment and actuarial professionals. The Irish pensions industry is changing rapidly and in a way that requires a more sophisticated approach to handling market volatility. A key theme that emerges from the actuarial literature is the need for greater diversity in the asset mix decision. Given the historical dominance of equities in the asset mix, greater diversity will necessarily imply a downward adjustment in equity weightings. The scale of such a realignment, and the asset categories that receive higher weightings will depend on decision makers' assessment of the risk/reward characteristics of the alternatives available. The table below sets out our assessment of how the various alternative assets compare with quoted equities.

### Alternative Assets Compared to Quoted Equities

	Private Equity	Commodities	Hedge Funds - Absolute return strategies	Hedge Funds - High return strategies	Property
<b>Expected long-term returns</b>	Higher	Similar	Lower	Higher	Lower
<b>Volatility/Risk</b>	Higher	Higher	Lower	Higher	Lower
<b>Correlation with quoted equities</b>	Medium	Low	Low	Medium to high	Low
<b>Liquidity</b>	Much lower	Similar	Lower	Lower	Much Lower
<b>Transactions costs and management fees</b>	Much higher	Similar	Much higher	Much higher	Much higher
<b>Cash flows</b>	Less predictable	No cash flows	More predictable	Less predictable	More predictable

## PRIVATE EQUITY

Private Equity investment, and Venture Capital in particular, is concerned with the commitment of monies to unquoted, developing and immature companies. Private Equity may be divided into Venture Capital and Buyouts.

Venture Capital refers to the provision of capital for growth and expansion to companies with underdeveloped or developing products and revenues at an early stage of their corporate life cycle. Typically, investee companies are unquoted, small to medium sized enterprises.

Buyouts refer to the investment, through the use of leverage, in mature cash generative companies with established business models, to finance expansion, consolidation, turnaround and disposal.

Private Equity is an extension of equity investment. It represents a drilling down of equity exposure into the dynamic, faster growth component of the total corporate universe.

Because of its nature Private Equity is expected to generate returns that are higher than those available from the quoted equity markets.

Buyouts generate relatively high returns by gearing up returns on equity through the use of leverage (debt), while Venture Capital generates relatively high returns by accessing the superior growth rates of smaller, unquoted, immature, developing companies. By providing access to unquoted companies private equity enhances the diversification of the overall equity portfolio.

### High Investment Returns

Performance over time of private equity funds is typically measured as an internal rate of return (IRR). Our review of the international data shows that the private equity industry over long run periods has generated returns which are high in absolute terms and which for most periods examined are significantly ahead of the quoted equity markets.

Within Private Equity, particularly over the three and five year periods since the implosion of the technology bubble, returns have been extremely disparate. Over the longer run ten and twenty year periods however this disparity is much less pronounced. These patterns of returns illustrate both the long term nature of private equity investment and the different cyclical influences driving Buyout and Venture Capital returns.

Returns across managers are also widely dispersed. The variation in performance between upper and lower quartile managers in the private equity market is substantially more diverse than in listed equity and bond markets. Managers of quoted equity and bond portfolios typically construct portfolios with reference to a benchmark or index. Portfolios may replicate, closely track or actively diverge from the benchmark or index. Sophisticated risk control is utilised to minimise and manage divergence from the benchmark or index. In sharp contrast private equity investment is highly stock-specific, highly concentrated and highly active and is not subject to benchmark constraints. Returns across managers therefore vary widely.

## Acceptable (Manageable) Level of Risk

Quoted equity markets, particularly the larger markets, are considered to be efficient. In this context efficiency describes a situation where the current market prices of securities reflect all known price sensitive information. This has led to enormous growth in passive investing where institutions invest in an index rather than expend large resources on picking individual stocks. The key advantages of this approach are much lower management costs and the virtual elimination of the risk of under-performance versus the chosen index.

Active investing, involving various strategies to outperform benchmark indices, remains a core approach of institutional managers. In devising long-term investment strategies, pension trustees will often embrace both passive and active investment strategies.

Volatility – the spread of returns on an asset around their average – has become the standard measure of investment risk. Oliver Burgel of the London Business School in his report “UK Venture Capital and Private Equity as an Asset Class for Institutional Investors” (January 2000) examined the spread of returns for 134 mature UK private equity funds from 1984 to 1999. He found that returns were normally distributed, Mean Return was 11.3% and the Standard Deviation of Returns was 13.1%. Whilst these numbers are not directly comparable with returns generated by listed UK equities it is fair to say that the spread of returns, as measured by standard deviation, is broadly consistent with the spread of returns of listed equities.

The investment institutions are comfortable with the concept of risk. They know how to manage, shape and engineer it so that returns are maximised for any given level of risk. They know how to blend low-risk assets, e.g. bonds, with high-risk assets, e.g. equities, so that the risk/return trade-off is optimised and efficient portfolios created. Within their equity portfolios they understand that through diversification the high volatility of individual stocks may be dampened at the sector, regional and overall portfolio levels.

Private Equity fits seamlessly into this approach. Volatility at the individual fund level may be controlled by investing over a number of funds, perhaps with different sectoral or regional specialisations. Volatility at the individual investee company level will be reduced by the fund manager’s construction of a balanced diversified portfolio.

Private Equity is a relatively high-risk asset, though arguably less risky than the general perception. Managing this level of risk presents no particular difficulty for investment institutions.

The following factors are relevant in assessing the risk of potential private equity investments:

1. Stage of development of individual investee companies – Buy-Out v. Venture Capital
2. Investment policy of private equity fund – number of investments, diversification policy
3. Exit strategies
4. Investment time horizon

Its riskiness should not constrain Private Equity from playing its appropriate role in a well constructed, prudently diversified investment portfolio.

## Degree of Correlation with Equity Returns

Within a balanced portfolio Private Equity can improve diversification. However, the correlation of returns between Private Equity and the public market classes remains a hotly debated topic. The table below summarises consensus views on potential returns, diversification benefit, liquidity and risk inherent in each asset class as assessed by UBS.

## Alternative Investments Compared

	Potential returns	Liquidity	Diversification benefit	Risk	Holding/management costs
<b>Private equity-venture capital</b>	very high	Low	Moderate	very high	High
<b>Private equity – buy ins/buy outs</b>	High	Low	Moderate	High	High
<b>Hedge funds</b>	Various	Low	Various	Various	High
<b>Gold</b>	Low	High	very high	Low	Low
<b>Commodities</b>	Volatile	High	High	High	Low
<b>Art &amp; collectibles</b>	Medium	very low	High	High	High

Source: UBS Pension Fund Indicators 2006

The diversification benefit of Private Equity is rated ‘moderate’ compared with ‘high’ for commodities and ‘various’ for hedge funds.

## Liquidity

By comparison with quoted stock market investment, the investor approaching private equity investment must adopt longer time horizons and expect relatively poor liquidity. However, liquidity is perhaps less constrained than is generally supposed. Liquidity is facilitated by the cash flow characteristics of the private equity fund and by the generally improving availability of exit mechanisms.

Private equity funds typically have a ten-year life. The amount committed by the institutional investor is normally a maximum commitment that is rarely drawn down in full. The investor is typically required to fund only a small proportion of the total commitment at the outset. This initial funding will be followed by subsequent drawdowns as underlying investments are made.

As investee companies mature and exits occur the fund distributes proceeds to investors. Net cash flows typically turn positive by Year 5 with full payback of monies committed achieved by Year 8, with subsequent distributions generating profits, according to research undertaken by the London Business School. This pattern of cash flows is referred to as the “J-Curve” in the industry and means that the effective life of the investment in the fund is significantly shorter than the ten-year life span of the fund itself.

A key skill of the general partner is the ability to identify, price and conclude exit strategies for each of the underlying investments within the required time frame. Exit mechanisms include trade sales; opportunities due to merger and acquisition activity; initial public offerings; venture capital funds buying out other venture capital funds. Initial public offering of venture capital funded companies have been facilitated by the development of stock markets that are designed to accommodate smaller, less well developed companies without imposing undue requirements for information and regulation, notably AIM in London and IEX in Ireland.

A market has developed in interests in existing private equity funds, referred to as “secondaries”. However, investors should expect to suffer a discount to net asset value if they decide to exit by this route.

In summary, developments in the public and private markets have significantly enhanced the ability of private equity managers to realise value in the underlying portfolios of company investments.

### Accessing Private Equity

The institutional investor may adopt one or more of the following approaches to private equity investment.

- Direct Investment
- Pooled Investment in Fixed Term Funds: Typically these funds are constituted as limited partnerships, usually for fixed periods of ten years. The institutional investors are limited or passive partners. The private equity specialist, as general (or managing) partner will select investments, structure deals, monitor progress and devise exit strategies.
- Fund of Funds: A fund of funds is a pooled vehicle, which invests in private equity funds selected by a specialist fund of funds manager. Diversification is high with perhaps up to 20 funds selected, but there is a cost due to the extra layer of fees.
- Publicly Quoted Private Equity Funds: These are listed companies whose core business is private equity and specially structured investment vehicles. These vehicles are typically “evergreen” funds where capital is raised from the public markets and proceeds from exits are reinvested in the fund rather than distributed to shareholders

## THE IRISH DIMENSION

Private equity investment in Ireland is largely concentrated on Venture Capital.

While the overall level of merger and acquisition activity in the Irish business sector has markedly increased in the last decade, it has not resulted in the emergence of indigenous Irish buyout funds. The number of buyout opportunities is low because of the underlying structural formation of the Irish industrial base.

However since 1994 a venture capital industry has been established, based primarily on investment in the growing number of Irish based technology companies. The development of this technology-based industry in the last decade has copied the American model that began 60 years ago, post the Second World War, and was subsequently a major driving force in the creation of global technology corporations such as Intel, Microsoft, Google etc.

## Venture Capital in Ireland – Current Position

Venture Capital now plays an important role in Irish economic development.

- as a provider of capital, through the injection of equity finance into small and medium sized enterprises for whom availability of bank debt is limited,
- as a driver in the development of a knowledge based industrial sector through investment in high technology businesses,
- and as a supplier of well managed, soundly structured entrants to the Irish and overseas stock markets through initial public offerings.

A high proportion of venture capital investment in Ireland is in the high technology sector (86% in 2004). This sector focus places the Irish venture capital sector closer to the American venture capital industry rather than other European countries where technology investing comprises only 17%. The US venture capital industry provided the equity capital in the past to finance new technological developments and reflecting this the US industry has produced superior investment returns over the longer term.

The Irish venture capital industry now comprises 20 active Irish based funds that have invested approximately €1bn in Irish technology SMEs since 1994. The international community has invested an additional €900 million, primarily as later stage investors in Irish backed companies.

## Venture Capital in Ireland - Future Prospects

Positive features of the Irish venture capital industry include:

- Technology emphasis
- Supportive economic environment
- The business friendly Irish corporate tax regime of low corporation and capital gains tax.
- Entrepreneurial talent generating investment opportunities
- Critical mass of Irish venture capital fund managers
- The skill set of Irish venture capitalists has deepened considerably over the past fifteen years and the international dimension has evolved to enable Irish venture capitalists to help their investee companies to scale internationally
- Improved exit conditions
- Realistic pricing post 2000
- Government support for business

## THE IRELAND 1994 FUND: A CASE STUDY

Published data from the Irish venture capital industry is not available and surveys of pension fund performance do not have a separate private equity category. Given that venture capital funds have a 10-year life and that a real measure of performance can only be made when the capital invested has been fully returned to investors, the authors carried out a study of the 12 year old 1994 vintage of venture capital funds in Ireland. This study was carried out with the cooperation of the IVCA, and comprises the aggregated data from the three larger funds that raised capital as part of the Pension Fund Initiative of 1994.

In this exercise we combined the three main Irish venture capital funds launched in 1994 – The ACT 1994 Development Capital Limited Partnership, The Delta Equity Fund Limited Partnership and The ICC Venture Capital Fund (ICC Venture Capital Fund is managed by Bank of Scotland (Ireland) Venture Capital following the merger between Bank of Scotland (Ireland) and ICC Bank in 2001). We aggregated their drawdown, repayment and residual value data to create the “Ireland 1994 Fund” (The Fund) and to generate a real life illustration of the Irish experience in venture capital investment over the period 1994 to 2005.

The evolution of the Fund’s investment strategy reflected

- the different focuses of the three fund managers,
- the incipient recovery, at the time of the Fund’s launch, and subsequent high growth phase of the domestic economy and
- the emergence in more recent years of a dynamic, indigenous technology sector.

The fund managers grasped the opportunity presented by the Irish economic boom in the earlier years by ensuring the Fund was significantly exposed to the construction, retail, media, energy and transport sectors. More recently, the focus of the fund managers shifted to an intensive involvement in the development of an indigenous Irish technology sector. As the economy developed significant investments were made in the software, ICT and biopharmaceutical sectors.

The fund managers demonstrated an ability to balance the short-term opportunities arising in the booming Irish economy with the longer term potential of the emerging, dynamic and externally focused Irish technology sector.

The annual Internal Rate of Return on the Fund, net of all management fees and carry to managers, is 15.7% over the period December 1994 to December 2005.

This compares to Irish inflation in the period of 3% p.a. Returns on Irish Government bonds in the period amounted to 9.1% p.a. This may be regarded as the “risk free rate”. The real return on bonds in the period of 6.1% p.a. compares to the historical long term real return on Irish bonds of 1.1% p.a. Bond returns therefore constituted an exceptionally high hurdle rate. The Fund comfortably exceeded this hurdle rate.

The Internal Rate of Return of 15.7% generated by the Fund compares extremely well with the returns generated by comparable European funds over the same period.

## European Private Equity : 1994 Funds Cumulative IRR to 31st Dec. 2005

	Pooled Average	Cap Weighted Average
<b>Early Stage</b>	5.4%	4.8%
<b>Development</b>	18.1%	15.2%
<b>Balanced</b>	4.6%	5.8%
<b>All Venture</b>	9.4%	8.5%

*Source: Thomson Venture Economics*

Overall Private Equity returns in Europe were boosted by strong returns from Buy-outs, in which the Irish industry for structural domestic reasons is not involved.

The Fund's return also compares well with quoted equity market returns in the period. Not surprisingly, the Irish equity market presents the most difficult comparison with a return of 16.4% p.a., or 13.4% in real terms, well ahead of the historical average of 4.8% p.a. in real terms generated over the period 1900-2005. The Fund's return of 15.7% compares remarkably well with this extraordinarily difficult comparator.

The quoted European equity market, as measured by the MSCI-Europe index, generated a capital return of 8.3% p.a. over the period in local currency terms. The European small capitalisation quoted sector generated a capital return in US dollar terms of 8.4% p.a. The "Ireland 1994 Fund" performed well against these comparators.

## ROLE OF PRIVATE EQUITY IN PENSION FUNDS

Our review of international trends highlights the growing role that alternative investments (including property) are playing in the long term strategic asset mix decision. Private Equity is a particular focus of attention given its high return characteristics. For those institutions that have decided to make allocations to private equity, survey data indicates that European funds have a weighting of approximately 5%, whilst UK pension funds' weighting is 2.3%. No data is available for Irish funds.

The National Pensions Reserve Fund, managed by the National Treasury Management Agency (NTMA) on behalf of the National Pensions Reserve Fund Commission, has targeted a private equity weighting of 8% to be achieved on a phased basis by end 2009. It is expected that achieving this allocation will involve investments in the region of €2 billion by that time. The factors leading to the allocation include the Fund's long-term investment horizon (it will have no drawdowns before 2025) and its strong cash flow (it receives an Exchequer contribution equal to 1% of GNP each year). These factors mean that the Fund is ideally positioned to exploit the additional return available from investing in less liquid assets such as Private Equity.

The Fund's private equity investment programme is targeting investments in Europe and the US on a broad 50/50 basis. While the main investment focus will be in the buyout area, it is also planned to allocate funds to venture capital. A key element of the Fund's investment strategy is to use the Fund's long-term investment horizon and strong cash flow to build long-term relationships with the higher calibre private equity funds.

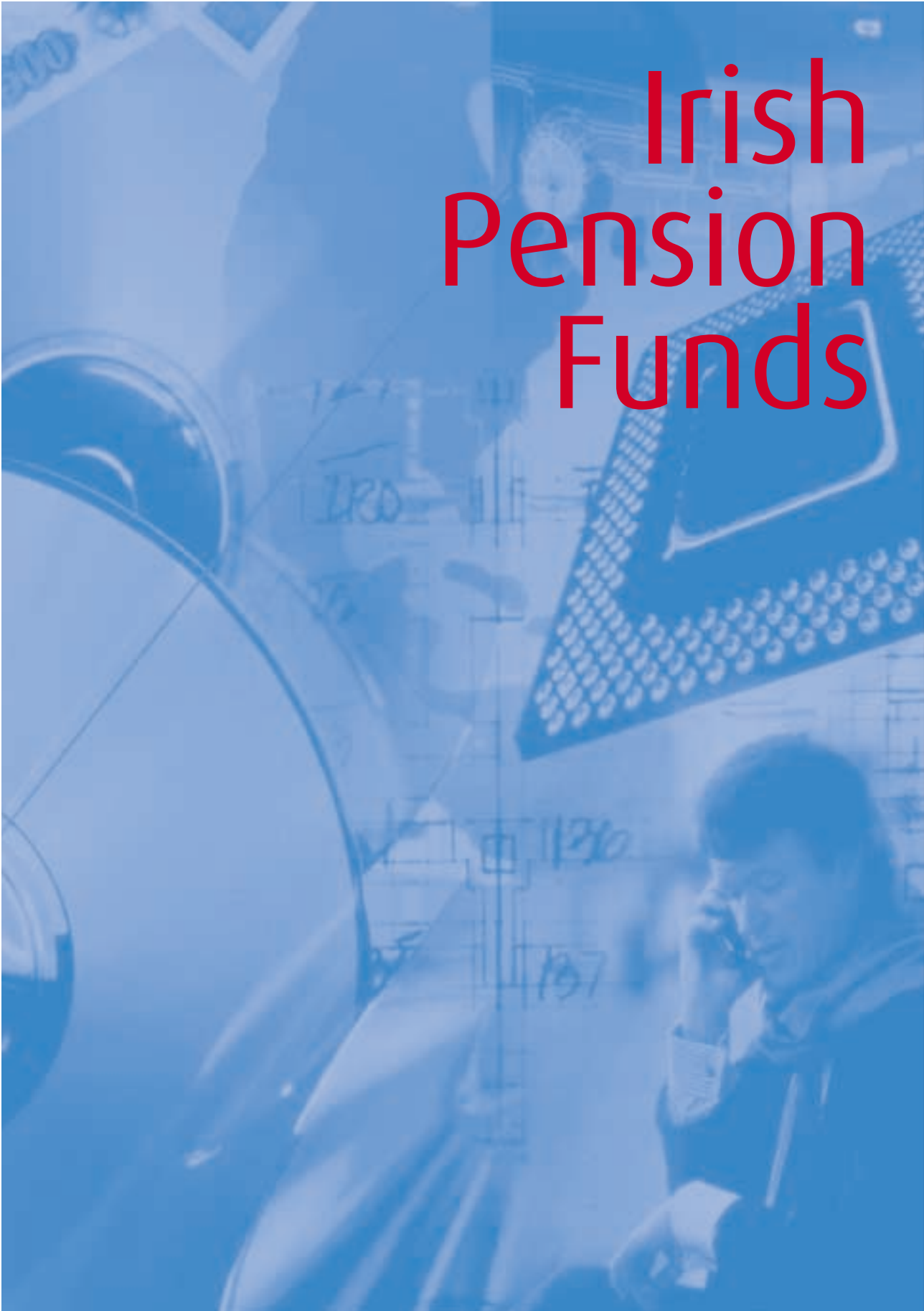
## CONCLUSIONS

A key conclusion of this report is that over the medium to long term there will be a steady rise in the proportion of pension funds, here and abroad, that decide to make an allocation to alternative assets. The proportions allocated to each type of alternative asset will vary widely and will be a function of the liability profile and the risk/reward preferences of individual funds. Nevertheless, Private Equity is likely to be the recipient of an increased flow of funds over the medium to long-term.

The Irish private equity industry is primarily focussed on Venture Capital and has evolved to exploit the flow of opportunities created by focussing on early stage companies in the technology sector. The Irish venture capital model is more closely aligned to the successful American model and has now built up the crucial specialist skills to successfully execute an investment strategy that can deliver high long-term investment returns.

Investment in Ireland's venture capitalists is therefore an allocation to Europe's most rapidly growing economy, which has particular strengths in the high-growth ICT and healthcare sectors.

# Irish Pension Funds



## IRISH PENSION FUNDS

### 1.1 MARKET SIZE AND STRUCTURE

At end-2005 assets under management amounted to €77.9b according to the annual Asset Allocation Survey of the Irish Association of Pension Funds. The Survey is comprehensive and includes funds managed under segregated, unitised and insured arrangements. The bulk of assets are managed under segregated or unitised arrangements with insured assets accounting for 10% of the total.

At year-end equities accounted for 65% of total assets; bonds accounted for 21.5%; the property content was 8%. One trend evident in recent years is the shift towards investing on a passive basis. By end-2005, the proportion of assets under passive management was 27.8%.

### 1.2 HISTORICAL INVESTMENT RETURNS

Investment returns for the 17 years to end-December 2005 are shown in Table 1 which show that the industry has delivered strong real rates of return over this period.

Table 1 Irish Pension Fund Returns 1989 – 2005

<b>Cumulative Return 17 years to end December 2005</b>	10.5% pa
<b>Cumulative Inflation</b>	3.0% pa
<b>Real Annual Return</b>	7.3% pa

*Source: Irish Pension Funds, Whelan (2001); Mercer; Central Statistics Office*

*Note: Performance data from 1989 to 2000 is sourced in Whelan (2001) who takes the CPMS median pension fund performance; for 2001 to 2005 performance data is sourced from 'Mercer Market Insight', 2006 which publishes performance data for pension managed funds. The cumulative return figure chain links the available data. Although the two periods refer to different subsets of the pensions market, the performance of the CPMS universe and the managed funds universe are generally similar.*

Target returns for pension funds are typically framed in a long run context and the overriding objective is to deliver a long run return significantly ahead of salary inflation. This is sometimes approximated as consumer price inflation plus circa 4%. Viewed in this context the real rate of return from Irish pension funds over the period under consideration has been satisfactory.

However, returns have varied considerably from year to year with the best return of 42.9% occurring in 1993 and the worst return of -18.9% occurring in 2002. Table 2 presents the performance outcome over five-yearly intervals and for the two years to end December 2005.

**Table 2** Irish Pension Fund Returns 1989 – 2005

Sub-Periods		Average Annual Return*	Number of Negative Years
1st January	31st December	%	
1989	– 1993	13.3	1
1994	– 1998	15.7	1
1999	– 2003	1.7	2
2004	– 2005	15.8	0
<b>Full Period</b>			
1989	– 2005	10.2	4

*\*Arithmetic Average*

The severe impact on returns of the equity bear market in the 2000 – 2003 period is clear with an average annual return of only 1.7% in the five years to end-December 2003. This contrasts with the 13.3% achieved in the 1989 – 1993 period and the even higher 15.7% reached from 1994 – 1998. Each of these earlier sub-periods had one negative year whereas the later sub-period had two negative years. In fact while there were four negative years over the entire period there were also two other years when returns failed to match inflation. In 1992 the average return was only 0.3% and in 2000 the average return was 2.7%. In fact over the seventeen years analysed returns failed to meet minimum requirements in as many as six years, listed below, with the worst year ranked first.

### Under Performing Years

Rank	Return %	Year
1	-18.9	2002
2	-10.7	1990
3	-5.7	2001
4	-4.7	1994
5	0.3	1992
6	2.7	2000

Of these six years no fewer than three occurred in the 5 years to end-December 2003. Equity markets bottomed in early 2003 and began a sustained recovery right up to May of this year. This created the conditions for a strong recovery in portfolio values in 2004 and 2005. In fact, the return of 21.7% achieved in 2005 is the third best calendar year return over the entire period.

### Top Performing Years

Rank	Return %	Year
1	42.9	1993
2	32.2	1997
3	21.7	2005
4	20.2	1989

However, because three poor return years have occurred in the more recent period the rolling five year annualised returns are still poor. In the five years to end-December 2005 the average pension managed fund produced an annualised return of only 2.8% per annum.

Several observations can be made from this analysis of pension fund returns:

- The data highlights the fact that returns have been very volatile with a wide range of annual returns from +42.9% to -18.9%
- Returns were negative or close to negative in almost one third of years
- Over the entire period returns have been satisfactory but on a rolling five year basis returns have not yet recovered sufficiently to meet required returns.

The under-performance of the recent period relative to the previous decade is clear, and it is not surprising that this has generated heated debate regarding the appropriate investment strategy of pension funds. In fact for pension trustees the impact of this downturn in asset values is even worse than the aggregate performance data shows for two reasons:

1. In recent years portfolio returns have been boosted by strong gains in property and fixed interest. It is doubtful if such returns from these asset categories will persist into the future.
2. The uplift in fixed interest values is a double-edged sword for pension funds because a key input into the valuation of the liabilities of pension schemes is the yield on long-term bonds. Falling yields lower the discount rate used by actuaries, and regulators, to value pension liabilities. This discount rate has fallen sharply in recent years leading to a huge uplift in the present value of pension fund liabilities.

**Table 3 Irish Pension Managed Funds**

	<b>5 Years to End-December 2005 annualised % return</b>
<b>Property</b>	10.8
<b>Fixed Interest</b>	7.8
<b>Average Managed Fund</b>	2.8

*Source: Mercer*

Even with a low 5% portfolio weight, property's excess return of 8% p.a. over the average managed fund return adds 0.4% p.a. to the overall average return. Fixed interest weightings also lifted average returns over the period. However, the negative impact of falling bond yields on pension fund solvency is far more relevant. The present value of defined benefit pension schemes has risen sharply in recent years for two key reasons:

1. Actuaries have revised their mortality tables to take account of the evidence that people are now living much longer than earlier generations. Therefore, cash outflows to fund pensions in payment are expected to continue for much longer than previously thought.
2. The discount rate used to estimate the present value of such future cash outflows is determined by the yield on long-term government bonds. Lower bond yields have consequently pushed up the value of such pension scheme liabilities.

A sense of the magnitude of the impact of the latter point can be gleaned from the performance of bonds in recent years.

**Table 4** Bond Market Returns

	<b>5 Years to End-December 2005 annualised % return</b>
<b>Merrill Lynch (M-L) 10 year Bond Index</b>	10.0%
<b>Average Managed Fund</b>	2.8%

A bond portfolio that invested in the M-L Bond Index would have grown by 10% p.a. over the past five years. By the same token, a pension scheme whose liabilities exhibited similar characteristics to this index (in terms of maturity and cash flows) would find that the value of its liabilities had risen by 10% p.a. over the past five years. This shortfall in pension returns against bond returns has led to the well documented deterioration in the solvency of virtually all defined benefit schemes over this period, with many weaker schemes moving into deficit. The strong recovery in equity markets since March 2003 has only partially reduced these deficits due to the headwind created by historically low bond yields.

The key issues dominating the current pensions debate include:

- The appropriate investment strategy for pension schemes, both defined benefit and defined contribution
- In the case of defined benefit schemes the role of the sponsoring company
- Should equities be the dominant asset (to meet high real return requirements) or should bonds be the dominant asset (to meet ongoing solvency requirements)?
- What role should alternative assets such as private equity and hedge funds play in increasing portfolio alpha\* and/or reducing portfolio volatility?

*\*The return generated by an asset (or portfolio) should be commensurate with its risk – higher risk equates to higher returns. If an asset or portfolio generates returns that are consistently in excess of its own risk level, that excess return is referred to as alpha*

## 1.3 IRISH PENSION FUNDS – ASSET ALLOCATION TRENDS

### Historical Perspective

Analysis of asset allocation over the 1983-2000 period shows that several major shifts in asset allocation have occurred over the past two and a half decades.

**Table 5** Asset Mix of Irish Pension Funds 1983 – 2000 (%) -Various Years

	1983	1988	1993	1997	2000
<b>Equities</b>	37.0	47.1	56.5	58.6	64.3
<b>Property (including Forestry)</b>	18.8	5.8	5.4	6.0	6.6
<b>Bonds (including index linked)</b>	33.7	41.0	34.8	27.1	22.2
<b>Cash and Other</b>	10.4	6.1	3.3	8.3	6.8

*Source: 'Irish Pension Funds: Size, Growth and Composition of Assets' (Whelan 2001)*

We can identify three major asset allocation shifts over this time period:

1. Reduction in the property weighting post 1983
2. Reduction in the bond weighting post 1988
3. Increase in the equity weighting post 1988 and a further increase post 1997

The abolition of Exchange Controls on 1st January 1989 and the introduction of the Euro at the start of 1999 has clearly impacted on the timing of these asset mix changes. However, by 2000 Irish pension funds had no effective constraints on their investment policies. Although the abolition of exchange controls and the launch of the Euro undoubtedly influenced Irish pension trustees, analysis of asset mix developments in the UK pension fund industry reveals broadly similar trends, at least up until the late 1990's.

Data for the UK is available back as far as 1963 and Table 6 provides asset mix data for UK pension funds for selected years from 1979 to 2005.

**Table 6** Asset Mix of UK Pension Funds (%) – Selected Years 1979-2005

	1979	1983	1988	1993	1997	2000	2003	2005
<b>Equities</b>	50	60	68	81	73	71	67	66
<b>Property</b>	17	13	10	5	5	5	6	7
<b>Bonds</b>	26	20	13	7	10	14	15	16
<b>Cash</b>	7	4	6	5	5	4	3	2

*Source: UBS Pension Fund Indicators 2006*

### 1. Reduction in Property Weighting

In late 1979 the average UK pension fund had a 17% weighting in property, which had declined to 10% by 1987 and had declined further to 5% by the early 1990's. This is remarkably similar to the Irish experience.

### 2. Reduction in Bond Weighting Post 1988

In the UK bond weightings declined earlier and to a greater extent than the Irish experience and by 1988 the UK bond weighting had fallen to 16% (including index-linked). In Ireland the reduction in bond weightings was delayed until after the 1989 abolition of Exchange Controls.

### 3. Increase in Equity Weightings Post 1988

In the UK there was a step increase in equity weightings in the late eighties and early nineties whereas the timing of the uplift in Irish equity weightings seems to have been influenced by exchange control abolition and the launch of the Euro.

## Asset Allocation Post 2000 – Irish Pension Funds

The data in Table 7 sets out the broad asset mix of Irish pension funds in 2000 and 2005. The data refers to Segregated and Unitised assets and excludes Insured assets. The latter have to maintain a very high bond content because of the nature of the contracts written, and therefore excluding this category gives a better indication of evolving trends in investment strategies. In 2005 insured assets accounted for just 10% of total pension fund assets.

The most striking feature of this data is how little has changed since 2000 at the broad asset allocation level. This is in stark contrast to the UK experience post 2000.

**Table 7** Asset Mix of Irish Pension Funds - 2000 and 2005

	End 2005 €m	%	End 2000 €m	%
<b>Equities</b>	48,372	69%	31,944	67%
<b>Property</b>	6,084	9%	3,601	8%
<b>Bonds</b>	11,893	17%	8,672	18%
<b>Cash</b>	3,750	5%	3,350	7%
<b>TOTAL</b>	<b>70,089</b>		<b>47,565</b>	

*Source: IAPF, Asset Allocation Surveys*

## Asset Allocation Post 2000 – The UK Experience

Over the past five years there has been a marked change in UK asset mix, which has not been replicated in Ireland. The table below reproduces the data for the UK in 2000 and 2005 and it is

apparent that UK funds have broadened the spread of their investments. Key changes are:

- A drop in the equity weighting of 5%
- An increase of 2% in the property weighting
- A 2% rise in the bond weighting and a 3% rise in the index-linked weighting, and a 2% fall in cash

**Table 8 Asset Mix of UK Pension Funds (%) 2000 and 2005**

	2005	2000
<b>Equities</b>	66	71
<b>Property</b>	7	5
<b>Bonds</b>	16	14
<b>Index Linked</b>	9	6
<b>Cash</b>	2	4

*Source: UBS Pension Fund Indicators 2006*

This contrasts starkly with the behaviour of Irish pension funds since 2000. It could however be argued that UK funds relative to their liabilities had become far too exposed to equities by the late 1990's. The age profile of the members of an Irish scheme would typically be much younger than in the UK. Therefore, other things being equal, one would expect the average Irish scheme to have a higher equity weighting than the average UK scheme.

### Domestic versus International Mix

Greater international diversification has been a feature of investment trends in most countries including Ireland over the past ten years. Even US pension funds have embraced international diversification raising the overseas content of portfolios from 8% in 1995 to 16% in 2005.

Table 9 presents data for several European countries for 2005.

**Table 9 Domestic/International Mix of Pension Funds (%) 2005**

	Ireland	UK	Netherlands	Sweden	Switzerland
<b>Domestic</b>	37	65	37	68	70
<b>International</b>	63	35	63	32	30

*Sources: UBS Pension Fund Indicators 2006; Mercer 2006*

*Notes: Aggregate figures above based on the assumption that cash, real estate, other categories are all domestic; in addition for Irish data assumption is that 80% of Eurozone Bond category is Irish government bonds.*

These figures highlight how the trustees and managers of Irish schemes have embraced international diversification, with only the Netherlands adopting as global an approach.

Membership of the Euro is clearly of major significance in this regard. It is notable however, that domestic assets plus Eurozone assets add to a combined 56% weighting for Irish funds. This suggests that the trustees and managers of Irish schemes now view Eurozone investments as 'quasi-domestic' investments.

## 1.4 FUNDING PENSIONS: A GLOBAL DEBATE

We consider the current debate internationally and in Ireland in terms of three key (interrelated) issues:

- Prospective returns from equities and bonds – the two ‘core’ asset categories
- What is the appropriate bond/equity mix for pension funds?
- What role can alternative assets play in improving the risk/reward characteristics of long-term investment portfolios?

### Prospective Returns on Bonds and Equities

Appendix B sets out in detail our analysis of prospective long-term returns based on current UK bond and equity market valuations, with the main points summarised below. The first column in Table 10 presents the results of this analysis and columns two and three place it in the long-term historical context.

**Table 10** Prospective Returns – UK Market

	Current Projection	Historical Returns	
	14.07.2006	1900-2004	1950 – 2004
	% p.a.	% p.a.	% p.a.
<b>Inflation</b>	2.38	4.0	5.9
<b>Real Bond Return</b>	2.03	1.3	1.7
<b>Real Equity Return</b>	5.94	5.4	7.6
<b>Equity Risk Premium</b>	3.91	4.1	5.9

*Note: The ERP is defined as the real equity return less the real bond return*

It is clear from the above that the market’s current expectation for long run inflation is much lower than the long run historical experience. The current expectation indeed is less than half the level experienced in the period 1950 – 2004 and well below the long term, 1900 - 2004, level of 4% p.a. Warren Buffet argues that investors, instead of looking forward, look into the rear view mirror at recent experience. This, however, is rarely a reliable guide to the long term future. The UK’s recent experience with inflation is good. However, investors appear to be allowing very little margin for error with inflation. Investors conditioned by the high real returns generated by bond markets over the past two decades typically consider the real yields currently available in bond markets to be very low. The comparison above however, indicates that expected real returns on bonds are actually quite high by historical standards. The 2.03% p.a. currently implied compares to the 1.3% p.a. and 1.7% p.a. generated in the periods 1900 - 2004 and 1950 - 2004 respectively. However, when the markets’ apparent optimism concerning the course of long term inflation is taken into account the attraction of long term real yields of 2.03% is less than compelling. In the context of the historical experience it is difficult to avoid the conclusion that bond investors at current valuations are exposing themselves to a high degree of risk. Even if these risks do not materialise, bond returns going forward will be low.

Real returns on equities face an easier comparison. The projected return at 5.94% p.a. is ahead of the long-run, 1900-2004, level of 5.4% p.a. though well below the 7.6% p.a. generated during 1950 – 2004. These equity returns, because of the ability of equities over time to better cope with inflation, are arguably less exposed than bonds to any acceleration in inflation.

The Equity Risk Premium (ERP) projected at 3.91% p.a. is just below the long term historical experience of 4.1% p.a. but again well behind the 5.9% p.a. generated during 1950 – 2004.

The following conclusion may be drawn from this discussion of projected returns:

1. Despite strong global growth and an uptrend in energy prices investors' expectations for long term inflation have been remarkably stable over the past two years. However, an examination of the historical patterns suggests that investors may be somewhat complacent in their view of long term inflation.
2. Expected real returns from bonds have narrowed significantly over the past two years but are still ahead of the historical experience. Whether this implied premium over the historical numbers fully accounts for the risks investors are running with inflation is not clear. The value in bond markets is not compelling. Prospective bond returns are low.
3. Expected real returns from equities are little changed over the past two years. Expected real equity returns compare well with the long run, 1900 – 2004 experience. They are well below the high real returns generated during 1950-2004.
4. There has been a significant improvement in the Equity Risk Premium when compared to the situation in September 2004. The ERP currently available is not far below the long run level but again is well behind the high relative returns generated by equities during 1950 – 2004.
5. Against the picture two years ago, and when compared to the historical experience, the balance of advantage has swung to equities. In so far as equity type vehicles such as hedge funds and private equity, key off quoted equity returns, these also appear relatively attractive when compared to bonds.

### The Bond/Equity Mix

In the UK there have been several high profile shifts amongst pension funds from equities to bonds, the Boots Pension scheme being an early mover in this regard. Some actuaries are arguing that over the next decade there should be a dramatic increase in bond weightings at the expense of equity weightings. As noted earlier there has been a discernible shift in UK asset allocation out of equities. However, the counterpart to the reduction in this equity allocation has been a small increase in bond weightings and a more significant increase in the weighting of alternative assets (including property). Clearly, the cost implications of much higher bond allocations due to lower prospective returns is weighing heavily on strategic long term investment policies.

## 1.5 ALTERNATIVE ASSETS

The focus of many trustees and their advisors has shifted to alternative assets in order to improve alpha and/or to reduce volatility. Interestingly, this has led to increased interest in property which as we saw earlier accounted for as much as 17% of pension portfolios in the late seventies and early eighties. Private Equity is also gaining attention and there has been substantial investment by some institutions in buy-out funds in particular. Hedge funds, structured products and asset-liability modelling are now on the radar screen of advisors and trustees when it comes to framing long-term investment strategy. In assessing alternative assets the following characteristics are vital:

1. Expected returns
2. Volatility
3. Correlation with equity returns

Issues such as the liquidity of the various asset classes/investment strategies and the expected timing of cash flows are also relevant.

The catalyst for the seismic shift in the perception of investment risk amongst investment professionals and their clients was the equity bear market of 2000-2003. However, nothing has fundamentally changed in the behaviour of volatile securities markets. Rather, after two decades of supernormal returns investors had become complacent by 2000. That complacency was cruelly shattered and it is the greater awareness of the risk inherent in securities markets that is colouring the current investment debate.

### Alternative Assets – International Trends

(The information presented in this section is drawn from ‘Pension Fund Indicators 2006’ UBS pp61 – 62)

A 2003 study by UBS Global asset management applied a statistical simulation model and suggested that an appropriate allocation of up to 20% to alternative assets (including property) may be reasonable. A 2005-2006 Russell Survey on Alternative Investing gives a global overview of the allocations to alternatives of large tax-exempt investors. Some key data from this survey are shown in Table 11.

Table 11A Global use of alternative investments – Private Equity

	Europe	North America	Japan	Australia
<b>Percentage of respondents currently utilising</b>	63	57	14	73
<b>Mean allocation 2005 %</b>	4.5	7.0	2.4	4.7
<b>Mean forecast allocation 2007 %</b>	6.1	7.6	4.5	6.9

**Table 11B Global use of alternative investments – Hedge Funds**

	Europe	North America	Japan	Australia
<b>Percentage of respondents currently utilising</b>	35	27	59	32
<b>Mean allocation 2005 %</b>	5.3	7.7	8.1	6.2
<b>Mean forecast allocation 2007 %</b>	7.2	9.1	11.4	6.6

*Source: 2005–2006 Russell Survey on Alternative Investing (Survey covers just over 300 institutions worldwide)*

A picture for the UK can be found in the JPMorgan Fleming Alternative Investment Strategies survey 2005 that covers 350 UK pension schemes. Table 12 summarises some key data from this survey.

**Table 12 UK pension funds' appetite for private equity and hedge funds**

	Private Equity	Hedge Funds
<b>Percentage of schemes that currently invest</b>	31	12
<b>Of those that currently invest, percentage allocation</b>	2.3	5.5
<b>Percentage of schemes considering investment</b>	26	40

*Source: JP Morgan Fleming Asset Management*

While these surveys are by no means comprehensive they do cast some light on an area where there is very little hard data. Taking the results of these surveys at face value, we can make some observations:

- In Europe and North America up to two-thirds of respondents utilise Private Equity and about one-third utilise hedge funds
- Of those European funds utilising Private Equity the mean allocation was 5.3% in 2005
- Approximately one-third of UK funds utilise Private Equity where the mean percentage allocation is 2.3%

## 1.6 THE INVESTMENT DEBATE IN IRELAND

As noted earlier the asset allocation strategies of Irish investment managers have been constant in recent years. Nevertheless, the international debate is mirrored amongst Irish investment and actuarial professionals. The actuarial profession in particular has published a number of studies. 'It's the Outcome, Stupid' a paper by Kevin Murphy delivered to The Society of Actuaries in Ireland, 24th May 2005 cogently argues that there is a need for much greater diversity in asset allocation. This is because investing in markets and getting the average outcome is a tough job. The market is very rarely at the average price, and spends most of its time either above or below the average. This means that investors who are entering or leaving the market are likely to get too high or too low a price from the market at any particular point in time. This ultimately causes significant variation in the experience of investors in the markets.

Broadly, there are three investor types:

1. Single premium investors, who put money in at a single point in time and also wish to extract it at a single point in time. Typically these investors invest for 7 years onwards.
2. Regular premium investors, who invest regularly over a long period of time (from 10-40 years) and then extract all their money at a single point in time in the future. Defined contribution arrangements and endowment policies are examples.
3. Defined benefit investors, who systematically put their money into the market over a long period of time and then extract the money over a long period of time.

Single premium investors have a high risk of a variable outcome due to their purchasing and selling patterns. Regular premium investors have a somewhat lower outcome risk than single premium investors, although having to exit all their money at once does generate considerable outcome risk. Defined benefit investors have the least outcome risk of all categories and therefore are most likely to get the underlying rational value of the market. However, the pensions industry is changing rapidly and in a way that requires a more sophisticated approach to handling market volatility.

For the pensions industry the key changes are:

- Solvency issues facing defined benefit schemes that include the regulatory solvency of schemes themselves as well as issues regarding the financial strength of the corporate sponsor.
- A major shift away from defined benefit schemes towards defined contribution schemes.

Balanced managed funds for both pension and non-pension investors account for a high proportion of total invested assets and the asset allocation strategy inherent in balanced managed funds is reflective of the approach that the investment management industry has adopted to meet client objectives. The dominant asset for balanced managed funds has not altered over the past decade, and in fact the weighting of this dominant asset has in fact increased.

### Need for Diversity

The key conclusion of the analysis in Kevin Murphy's paper is that an asset allocation strategy closer to one third in each of equities, bonds and alternatives (property, private equity, hedge funds) will provide investors with an investment risk profile that more closely matches their individual outcome risk profiles, than will the current typical balanced fund mix.

In 'Hedge Funds', a paper delivered by J.J. Caslin to The Faculty of Actuaries, 16th February 2004, the ability of apparently high risk hedge funds to reduce overall portfolio risk is explored. The analysis in this paper shows that a portfolio weighted 39% in a Currency Fund and 61% in a Balanced Fund delivered higher returns and lower risk than the Balanced Fund on its own. The analysis is based on monthly performance data over 130 months and the author concludes:

“So, by combining assets that have their positive and negative months of return at different times, we have reduced the risk of the pension scheme assets and increased their return.

What are the implications of being able to do this? On the face of it, we have:

1. brought up the percentage of months with positive returns;
2. reduced the spread of returns especially on the downside;
3. increased the average monthly return; and
4. reduced the standard deviation of returns.”

What is happening here is that the good and bad outcomes of the Balanced Fund and the Currency Fund tend to occur at different times so that there is a significant reduction in the spread of returns and in the monthly standard deviation. Pension trustees who adopt this strategy will reduce portfolio risk and increase portfolio return because of the very low correlation of returns between the Balanced Fund and the Currency Fund.

More generally, it is performance statistics such as the above that are being used to support investing a portion of assets in hedge funds. It is therefore quite possible to find that a high risk hedge fund as measured by its own standard deviation could have the effect of reducing the volatility of the overall portfolio.

## **1.7 SHOULD PENSION TRUSTEES TARGET LOWER QUOTED EQUITY WEIGHTINGS?**

To many this debate regarding investment strategy may well seem academic and difficult to translate into practical applications. However, given the ascendancy of the ‘cult of the equity’ in framing investment strategy over the past two decades, the nub of the matter can be more simply put in terms of :

- A. Whether current equity weightings should be lowered; and
- B. If the answer is yes, by how much and what other assets should receive increased allocations?

For mature pension funds their liability profile will determine an asset allocation that is heavily weighted towards bonds. On the other hand those funds that do not face such constraints will have a liability profile that at least in principle allows the scheme to live with higher volatility in order to achieve higher expected returns. The issue for such schemes is one of optimisation – is there a more diversified asset mix that can maintain high expected returns but with lower levels of volatility? Or, can higher returns be achieved whilst maintaining risk levels? Framed in this context trustees and their managers may be viewed as being faced with the following ‘menu’ of choices as alternatives to quoted equities:

#### Quoted Securities:

Fixed Interest Bonds

Index Linked Bonds

#### Unquoted Securities:

Private Equity

Property

Hedge Funds

Commodities

There are essentially three trade-offs that have to be made in assessing a target weighting for these asset categories, namely: expected return; risk of the asset; correlation with equities (and with each other).

#### Expected Real Returns

A possible ranking is (highest first):

- 1 Private Equity
- 2 Property
- 3 Commodities
- 4 Hedge Funds
- 5 Fixed Interest Bonds
- 6 Index Linked Bonds

#### Risk of the Asset

A possible ranking is (highest first):

- 1 Commodities
- 2 Hedge Funds
- 3 Private Equity
- 4 Property
- 5 Fixed Interest Bonds
- 6 Index Linked Bonds

*Note: Volatility is the accepted measure of risk but it does have weaknesses and may be an imperfect measure of risk particularly for alternative asset categories.*

### Correlation with Quoted Equities

A possible ranking is (low correlation first):

- 1 Property
- 2 Commodities
- 3 Hedge Funds
- 4 Fixed Interest Bonds
- 5 Index Linked Bonds
- 6 Private Equity

*Note: The comment regarding volatility as a measure of risk also applies*

Table 13 summarises our views on how the various alternative assets compare relative to equities on selected key yardsticks.

**Table 13** Alternative Assets Compared to Quoted Equities

	Private Equity	Commodities	Hedge Funds – Absolute return strategies	Hedge Funds – High return strategies	Property
<b>Expected long-term returns</b>	Higher	Similar	Lower	Higher	Lower
<b>Volatility/Risk</b>	Higher	Higher	Lower	Higher	Lower
<b>Correlation with quoted equities</b>	Medium	Low	Low	Medium to high	Low
<b>Liquidity</b>	Much lower	Similar	Lower	Lower	Much Lower
<b>Transactions costs and management fees</b>	Much higher	Similar	Much higher	Much higher	Much higher
<b>Cash flows</b>	Less predictable	No cash flows	More predictable	Less predictable	More predictable

### Potential Alternative Assets Weightings

Tables 11 and 12 above set out some survey data regarding private equity weightings. While the average weighting for a particular universe usually is low, it is often the case that a minority but significant number of funds make quite large allocations to private equity. The UK's largest pension fund, BTPS\* with assets of £36bn, is planning to switch about one third of its UK equity holdings - £3b – into alternative assets. Overall, the fund is planning to increase its holdings in private equity, hedge funds, infrastructure projects and commodities from 7% to 15%. The weighting in private equity is planned to double to 4% from 2%.

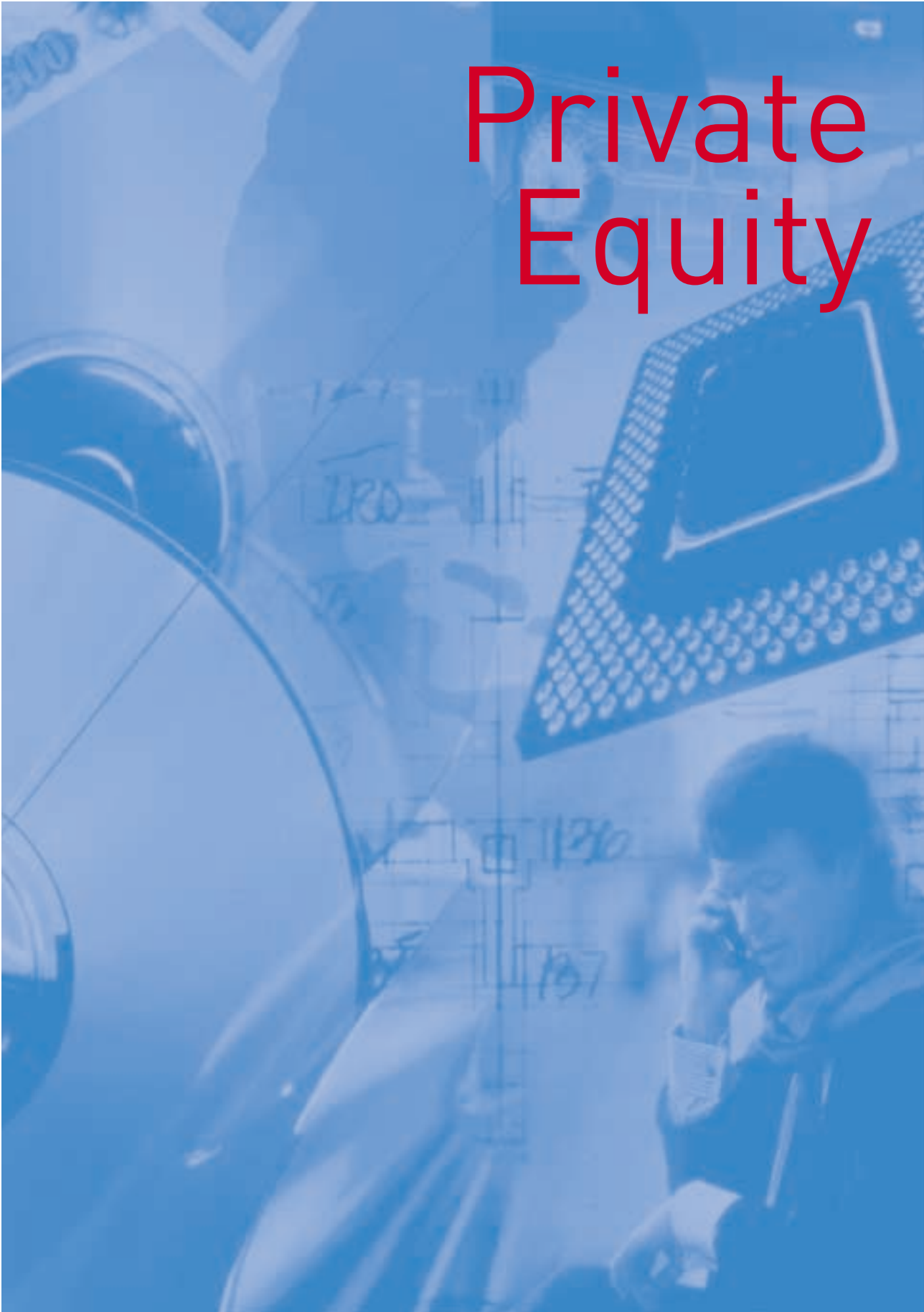
*\*The British Telecom Pension Fund (BTPS) is managed by Hermes, which in turn is owned by the Fund.*

The National Pensions Reserve Fund, managed by the National Treasury Management Agency (NTMA) on behalf of the National Pensions Reserve Fund Commission, has targeted a private equity weighting of 8% to be achieved on a phased basis by end 2009. It is expected that achieving this allocation will involve investments in the region of €2 billion by that time. The factors leading to the allocation include the Fund's long-term investment horizon (it will have no drawdowns before 2025) and its strong cash flow (it receives an Exchequer contribution equal to 1% of GNP each year). These factors mean that the Fund is ideally positioned to exploit the additional return available from investing in less liquid assets such as Private Equity.

The Fund's private equity investment programme is targeting investments in Europe and the US on a broad 50/50 basis. While the main investment focus will be in the buyout area, it is also planned to allocate funds to venture capital. A key element of the Fund's investment strategy is to use the Fund's long-term investment horizon and strong cash flow to build long-term relationships with the higher calibre private equity funds.

In this Section we have reviewed the investment climate in Ireland with the emphasis on the pension fund industry and the role that alternative assets may play in the future. Section II now focuses on one category of alternatives, namely, Private Equity.

# Private Equity



## PRIVATE EQUITY

### 2.1 PRIVATE EQUITY DEFINED

Private equity investment, and venture capital investment in particular, is concerned with the commitment of monies to unquoted, developing and immature companies. Private Equity may be divided into Venture Capital and Buyouts.

Venture Capital refers to the provision of capital for growth and expansion to companies with underdeveloped or developing products and revenues at an early stage of their corporate life cycle. Typically, investee companies are unquoted, small to medium sized enterprises.

Buyouts refer to the investment, through the use of leverage, in mature cash generative companies with established business models, to finance expansion, consolidation, turnaround and disposal.

Private Equity is an extension of equity investment. It represents a drilling down of equity exposure into the dynamic, faster growth component of the total corporate universe. Because of its nature Private Equity is expected to generate returns that are higher than those available from the quoted equity markets.

Buyouts generate relatively high returns by gearing up returns on equity through the use of leverage (debt), while Venture Capital generates relatively high returns by accessing the superior growth rates of smaller, unquoted, immature, developing companies. By providing access to unquoted companies Private Equity enhances the diversification of the overall equity portfolio.

In Ireland, the focus of ongoing Private Equity activity is predominantly on Venture Capital and particularly on investment in high technology early stage companies in the information and computer technology and the life sciences sectors. For example, high technology companies accounted for 86% of all Venture Capital investment in Ireland in 2004. This is the highest technology weighting in Europe, where the average is 17%. Almost half of this capital was invested in start up and early stage companies, again well ahead of the European average of 23%.

While the overall level of merger and acquisition activity in the Irish business sector has markedly increased in the last decade, it has not resulted in the emergence of indigenous Irish buyout funds. The number of buyout opportunities is low relative to larger and more mature markets because of the underlying structural formation of the Irish industrial base.

However, over the past ten years several large Irish businesses have been subject to buy-out ranging from market leader Jefferson Smurfit Group through well managed and highly regarded mid-capitalisation companies such as Green Properties, Clondalkin Group and Jurys Doyle to a diverse selection of smaller capitalisation stocks including Arnotts, James Crean and Sherry Fitzgerald. In the aftermath of the technology bubble a number of technology businesses were subject to buy-outs during 2003, notably Riverdeep, Conduit and Alphyra. Eircom, the telecommunications utility, has been the subject of a number of buy-outs.

Typically in an environment of low interest rates and strong economic growth the rewards available to the highly geared buy-out vehicles have been dramatic. In many cases the entrepreneurs involved have generated substantial returns.

Arguably, the key losers in this situation have been the Irish investment institutions who, with the benefit of hindsight, sold their stakes in these companies far too cheaply and failed to participate in the upside because of their low involvement with Private Equity.

While buy-outs in the Irish market will continue to emerge on a case by case basis, Venture Capital has the potential to play a very important role in Irish economic development:

- as a provider of capital, through the injection of equity finance into small and medium sized enterprises for whom availability of bank debt is limited,
- as a driver in the development of a knowledge based industrial sector through investment in high technology businesses,
- and, as a supplier of well managed, soundly structured entrants to the Irish and overseas stockmarkets through initial public offerings.

Over €1bn has been invested by the Irish venture capital industry over the past ten years. Nevertheless investment in Venture Capital in Ireland is relatively low by international standards. Venture capital investment as a percentage of GDP lags well behind the US and European experience:

**Table 14**      **Venture Capital Investment % GDP 2004**

Ireland	0.042%
UK	0.2%
Europe	0.1%

*Source: EVCA 2005 Yearbook*

The historical under-development of venture capital investment in Ireland was perhaps understandable in the context both of the difficult and highly-taxed Irish economy of the nineteen seventies and eighties and of Ireland's relatively late industrialisation. However, this continuing apparent lack of enthusiasm is anomalous given the buoyant economic background of the past ten years, Ireland's emergence as a favoured base for high technology investment and the emergence of a generation of ambitious, risk taking entrepreneurs. The comparison with Europe is notable given the dramatic out-performance in recent years of the Irish economy relative to its European peers. Moreover, Venture Capital might be expected to play a larger role in Ireland's Anglo Saxon model of business finance than in the bank-financed European model.

In Europe, the main providers of private equity capital in recent years were the investment institutions with the banks also playing a prominent role.

**Table 15 Private Equity Raised in Europe**

5 years to end 2005		
	€bn	%
<b>Banks</b>	44	26
<b>Pensions Funds</b>	39	23
<b>Insurance Companies</b>	20	12
<b>Fund of Funds</b>	19	11
<b>Corporate Investors</b>	11	6
<b>Private Individuals</b>	9	5
<b>Government Agencies*</b>	10	6
<b>Other</b>	18	11
<b>Total Funds Raised</b>	€170bn	100%

Source : EVCA

*\*However, within European venture capital, as distinct from PE as a whole, government support is 23%*

A broadly similar pattern, in terms of contributors, was evident in Ireland during the last period of fund-raising, 1999/2003.

**Table 16 Venture Capital Raised in Ireland – 1999/2003**

5 years to end 2005		
	€m	%
<b>Banks</b>	216	22
<b>Pensions Funds</b>	204	21
<b>Insurance Companies</b>	53	5
<b>Fund of Funds</b>	210	22
<b>Corporate Investors</b>	37	4
<b>Private Individuals</b>	83	9
<b>Government Agencies</b>	117	12
<b>Other</b>	52	6
<b>Total Funds Raised</b>	€972m	100%

Source : EVCA

## 2.2 PRIVATE EQUITY: THE INVESTMENT CASE

### The Strategic Consideration

The projected investment environment discussed in Section I envisages a future of relatively low returns. Institutional investors will be obliged to search more widely and dig more deeply in the pursuit of enhanced, risk adjusted returns.

Private Equity is an extension of equity investment. It represents a drilling down of equity exposure into the dynamic, faster growth component of the total corporate universe. The role of Private Equity is to generate returns that are higher than those available from the quoted equity markets. Meanwhile, by providing access to unquoted, leveraged and small but growing companies it enhances the diversification of the overall equity portfolio.

Buyouts generate relatively high returns by gearing up returns on equity through the use of leverage (debt).

Venture Capital generates relatively high returns by accessing the superior growth rates of smaller, unquoted, immature, developing companies.

### Tactical Considerations

#### i) A Supportive Environment

The current investment background is particularly supportive of private equity investment. The economic environment of strong growth, low inflation and low interest rates is extremely business friendly. The Irish corporate tax regime of low corporation and capital gains tax rates encourages entrepreneurial activity.

#### ii) Realistic Pricing

The technology bubble of 1997 – 2000 drove equity markets generally into high ground. In particular, valuations in the most affected sectors, technology, media and telecommunications reached absurd levels. A positive impact of the implosion of the technology bubble is that equity valuations currently are more realistic, particularly in the light of the low inflation, low interest rate environment now prevailing.

Table 17 Equity Market Valuations

	Price Earnings Ratio	
	October 2006	March 2000
S+P 500	15.5	28.0
Nasdaq	25.0	147.0
Iseq	14.5	18.0

### iii) Government Support for Business

The encouragement of inward investment continues to be a key priority for Government. Ireland offers prospective corporate investors a highly competitive package of grants and incentives. These grants and incentives have combined with the low tax regime and the availability of a well-educated workforce to foster the development of a sophisticated, modern industrial base. Particular focus has been placed on attracting high performance, high value added activities in the chemicals and pharmaceuticals, e-commerce, information and communications technology, software, medical devices and internationally traded services sectors.

Attention has now shifted to encourage Research and Development in Ireland. In order to satisfy the EU's Lisbon R&D goals, the Irish Government has already spent €2.5bn, through the Strategy for Science Technology and Innovation, on building R&D infrastructure. This investment was funded from the 2000-2006 National Development Plan (NDP). The Government has committed a further €3.8bn to this programme from the NDP 2007-2012. This investment further emphasises the Government's intention to build on the high level of technology expertise already in evidence in Ireland.

Enterprise Ireland is dedicated to accelerating the development of world-class Irish companies to achieve strong positions in global markets. In particular, its current strategy is to double to 1050 the number of firms engaged in meaningful R and D. (i.e. in excess of €100,000 p.a.) by 2010 and to support the creation of 210 new high potential start-up companies by end 2007. As part of this process Enterprise Ireland recently allocated up to €175m into new venture capital funds in partnership with the private sector, dedicated to start up and early development stage businesses. This strategy will maintain a growing pipeline of new companies seeking venture capital.

### iv) Entrepreneurial Talent

As discussed above Foreign Direct Investment has been a key driver of Ireland's economic transformation. Central to this development have been the pharmaceutical, medical technology, internationally-traded services and the information and computer technology sectors. The success of these businesses has created an ambitious, experienced and technologically literate generation of Irish business managers. This phenomenon was first evidenced, somewhat contrarily, by the demise of Digital Equipment (DEC) in 1992 which spawned a number of successful Irish technology companies. More recently, the success of "first generation" high tech companies has encouraged the development of "second generation" start-ups that are now seeking financial support.

## 2.3 INVESTMENT RETURNS

Definitive returns on private equity funds become available only when the last investment is finally sold. In the interim, the fund manager (general partner) provides an estimate of the intermediate value of the investments. Performance over time of private equity funds is typically measured as an internal rate of return (IRR). The IRR may be defined as the rate of return that equates the discounted value of the cash flows (distributions) out of the fund with the value of payments into the fund. IRR is different from the time-weighted rate of return (TWR) calculation that is typically utilised for performance measurement purposes in institutional investment. Whilst short-run

comparisons between private equity IRR and quoted portfolio TWR are unreliable, over longer run periods the two approaches provide a broadly acceptable basis for comparison. The topics of valuation and performance measurement are discussed in more detail in Appendix A below.

The private equity industry over long run periods has generated returns which are high in absolute terms and which for most periods examined are significantly ahead of the quoted equity markets. Private Equity investment returns in the US and UK have been significantly ahead of returns from the European industry.

**Table 18 Local Currency Investment Returns – Private Equity**

% per annum	3 Years	5 Years	10 years	20 years
<b>United States</b>				
Private Equity	13.1	(2.2)	12.3	14.2
S & P 500	10.1	(1.1)	7.3	11.0
<b>United Kingdom</b>				
Private Equity	21.1	11.9	16.4	
FTSE All Share	18.5	2.2	7.9	
<b>Europe</b>				
Private Equity	6.3	2.0	11.4	10.4
FTSE Europe*	20.2	(0.5)		

\* FTSE Developed Europe ex UK

To end December 2005

Sources: United States (NVCA); United Kingdom (BVCA); Europe (EVCA)

Within Private Equity, particularly over the three and five year periods since the implosion of the technology bubble, returns have been extremely disparate. Over the shorter 3 and 5 year periods buyout funds have significantly out-performed venture capital funds. Over 10 and 20 year periods Venture Capital comes out on top in the US while Buyouts remain ahead of Venture Capital in the UK and Europe. These patterns of returns illustrate both the long-term nature of private equity investment and the different cyclical influences driving buyout and venture capital returns.

**Table 19 Investment Returns – Venture Capital and Buyouts**

% per annum	3 Years	5 Years	10 years	20 years
<b>United States</b>				
Venture Capital	7.5	(6.8)	23.7	16.5
Buyouts	16.3	5.2	9.2	13.3
<b>United Kingdom</b>				
Venture				
Early Stage	(0.9)	(5.8)	17.6	
Development	3.2	(3.6)	22.0	
MBO				
Mid	15.8	10.3	20.2	
Large	14.0	5.6	28.1	
<b>Europe</b>				
Venture Capital	1.7	(3.0)	6.4	6.4
Buyouts	9.1	6.1	14.3	13.7

To end December 2005

Note: The UK data refers to funds launched before 1996 and compares venture and development capital returns with those generated by mid-sized and large MBO funds.

Sources: United States (NVCA); United Kingdom (BVCA); Europe (EVCA)

Returns across managers are also widely dispersed. The variation in performance between upper and lower quartile managers in the private equity market is substantially more diverse than in listed equity and bond markets. Managers of quoted equity and bond portfolios typically construct portfolios with reference to a benchmark or index. Portfolios may replicate, closely track or actively diverge from the benchmark or index. Sophisticated risk control is utilised to minimise and manage divergence from the benchmark or index. In sharp contrast private equity investment is highly stock-specific, highly concentrated and highly active and is not subject to benchmark constraints. Returns across managers therefore vary widely.

## **2.4 VENTURE CAPITAL IN IRELAND**

Private equity investment in Ireland is largely concentrated on Venture Capital.

While the overall level of merger and acquisition activity in the Irish business sector has markedly increased in the last decade, it has not resulted in the emergence of indigenous Irish buyout funds. The number of buyout opportunities is low because of the underlying structural formation of the Irish industrial base.

However since 1994 a venture capital industry has been established, based primarily on investment in the growing number of Irish based technology companies. The development of this technology-based industry in the last decade has mimicked the American model that began 60 years ago, post the Second World War, and was subsequently a major driving force in the creation of global technology corporations such as Intel, Microsoft, Google etc.

Because of this emphasis on technology, Ireland is recognised as a major force in technological development. Although the Irish venture capital industry is smaller than the US and Europe as measured relative to overall GDP, the Irish venture capital industry now comprises up to 20 active Irish based funds. These institutions have invested approximately €1bn in Irish technology SMEs since 1994. While it is too early to assess the performance of the more recent funds and their investments, the fact that the international community has invested an additional €900 million, primarily as later stage investors in Irish backed companies, is a strong positive indicator of the underlying asset value of the investee companies in the Irish venture capital portfolios.

Anecdotal evidence would suggest that Irish fund managers have in general managed their portfolios successfully through the post 2000 technology downturn and are building value in their portfolios with a view to exiting investments in the recovering technology markets.

The original managers in 1994 have raised subsequent capital from Irish and International Pension Funds and from International venture capital Fund of Funds.

## Venture Capital in Ireland - Future Prospects

The following factors underpin the attractions of the Irish venture capital market:

- **Emphasis on Technology**  
Technology based investment should produce superior returns supported by the continuing penetration of technology into all levels of economic activity.
- **A Supportive Economic Environment**  
The current investment background of strong growth, low inflation and low interest rates is extremely business friendly and is particularly supportive of private equity investment. The Irish corporate tax regime of low corporation and capital gains tax rates encourages entrepreneurial activity.
- **Entrepreneurial Talent Generating Investment Opportunities**  
Foreign Direct Investment has been a key driver of Ireland's economic transformation. Central to this development have been the pharmaceutical, medical technology, internationally traded services and the information and computer technology sectors.  
  
The success of these businesses has created an ambitious, experienced and technologically literate generation of Irish business managers available to drive forward and internationalise indigenous SMEs. "First generation" high tech companies have encouraged the development of "second generation" start-ups that are now receiving venture capital support e.g. Aldiscon (14 spin offs), Elan (8 spin offs), Iona, Parthus, Mentec, Ericsson etc. Somewhat contrarily, the process was accelerated by the demise of Digital Equipment in 1992.
- **Critical Mass of Irish Venture Capital Fund Managers**  
Irish fund managers have gained valuable venture capital experience and through their international relationships and experience they are able to help their investee companies to build scale internationally.
- **Improved Exit Conditions**  
Having weathered the post 2000 technology depression, US corporations are profitable, cash rich and have been very active in the acquisition of technology companies in Ireland and in Europe generally.  
  
The rapid growth of AIM in London and the existence of the IEX market in Dublin are increasingly facilitating public offerings by Irish technology companies.
- **Realistic Pricing**  
Equity market valuations post the bear market of 2000-2003 remain reasonable. The recovery in share prices since the market bottomed in early 2003 has been primarily driven by growth in corporate profits and hence current valuations remain reasonable in the context of historically low inflation rates and interest rates.

- Government Support for Business

The encouragement of inward investment continues to be a key priority for Government. Ireland offers prospective corporate investors a highly competitive package of grants and incentives. These grants and incentives have combined with the low tax regime and the availability of a well-educated workforce to foster the development of a sophisticated, modern industrial base. In addition the Government has made an unprecedented commitment of €3.8bn to R & D from the NDP 2007 – 2012.

## 2.5 LIQUIDITY

Private equity investment, and Venture Capital in particular, is concerned with the commitment of monies to unquoted, developing and immature companies. Clearly by comparison with quoted stockmarket investment, the investor approaching private equity investment must adopt longer time horizons and expect relatively poor liquidity. However, liquidity is perhaps less constrained than is generally supposed. Liquidity is facilitated by the cash flow characteristics of the Private Equity fund and by the generally improving availability of exit mechanisms.

### Cash Flow Characteristics

Private equity funds typically have a ten year life. The amount committed by the institutional investor is normally a maximum commitment which is rarely drawn down in full.

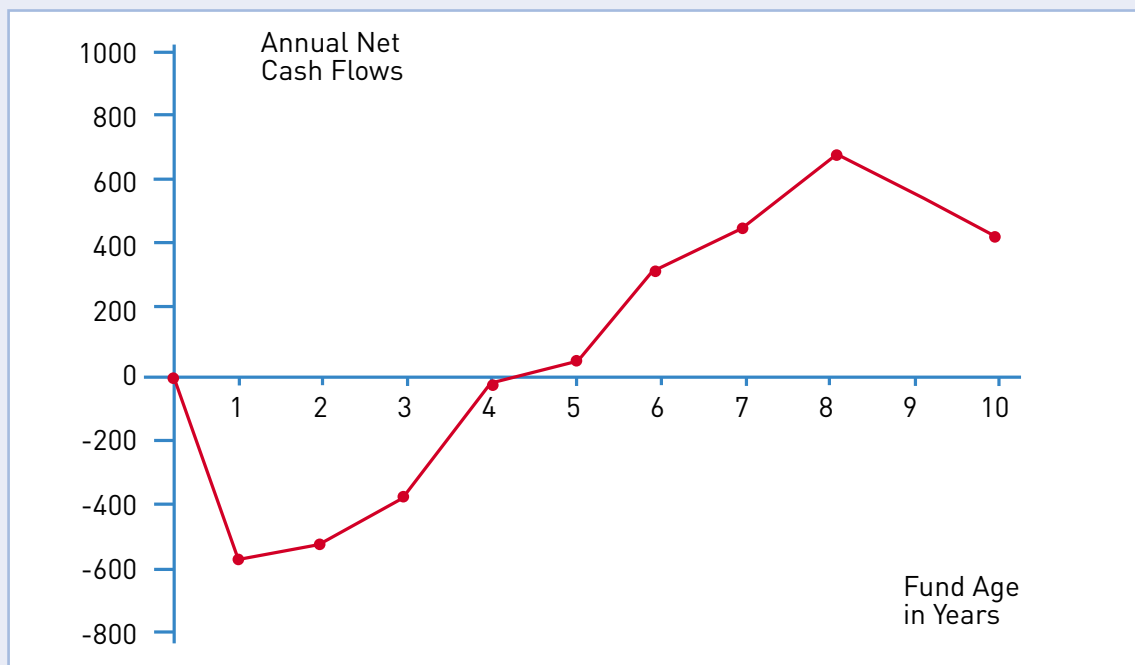
The investor is typically required to fund only a small proportion of the total commitment at the outset. This initial funding will be followed by subsequent drawdowns as underlying investments are made. Normally, all of the funds to be drawn down are invested by the general partner in underlying investments by the end of Year 4. In the fund's early years investors should expect low or negative returns due to establishment costs, management fees and running expenses.

As investee companies mature and exits occur the fund distributes proceeds to investors. Net cash flows typically turn positive by Year 5 with payback of monies committed achieved by Year 8, according to research undertaken by the London Business School.

Inflows then continue up to Year 10 and typically for longer because a small number of investments may not be exited within the intended ten year life of the fund. When all investments are fully divested the fund is terminated.

This pattern of cash flows results in a "J-Curve" as illustrated in the chart below. As distributions normally commence before the total committed capital has been drawn, it is unusual for the investor ever to have the full commitment, on a net basis, actually managed by the manager.

## Annual Cash Flows to Investor



Source: London Business School, Oliver Burgel

This pattern of cash flows means that the effective life of the investment in the fund is significantly shorter than the ten year life span of the fund itself.

## 2.6 EXIT MECHANISMS

A key skill of the general partner is the ability to identify, price and conclude exit strategies for each of the underlying investments within the required time frame. Exit strategy options include initial public offerings, strategic or trade sales and disposals to operating management.

### (a) Strategic or Trade Sales

These are the most common form of exit and result in a 100% exit in contrast to the partial exit that results from IPO's. Balance sheet strength and strong corporate cash-flows underpin demand for such trade sales.

### (b) Development of New Stock Markets

Initial public offerings have been facilitated by the development of stockmarkets which are designed to accommodate smaller, less developed companies without imposing undue requirements for information and regulation, notably AIM in London and IEX in Dublin. AIM in particular has been a notable success. Since it opened in 1995 more than 2200 companies have been admitted and more than Stg£24 billion has been raised collectively. In a complementary development the Irish Stock Exchange launched IEX in April 2005 to allow smaller and mid sized Irish companies admission to both AIM and IEX using the same timetable and essentially the same admission document. Companies listing on IEX must have a minimum market capitalisation of €5m.

### (c) Development of a Secondary Market

A market has developed in interests in existing private equity funds, referred to as “secondaries”. Buyers may include specialist purchasers of secondaries or Private Equity funds wishing to construct a diversified fund of funds portfolio. For large secondary portfolios an auction process may be used. For smaller transactions the general partner may agree to match the seller with a buyer. However, whilst there has been significant progress in the development of a secondary market in recent years investors should expect to suffer a discount to net asset value if they decide to exit by this route.

## 2.7 RISK

### i) Incremental Risk

Because of its focus on smaller, less developed companies there exists a perception amongst investors that Private Equity is a high risk investment asset.

The key elements of the incremental risk, over equity market risk, associated with Private Equity include:

- Its relatively long horizons,
  - Its illiquidity, ie. the absence of a market determined instantly available exit price,
  - The “J-curve” effect, the likelihood of negative cash flows in the early years,
- and
- The relatively high risk of absolute loss at the individual investee company level.

However, whilst these risk elements certainly are present it may be that from the perspective of the institutional investor they are overstated.

Private Equity is a long term investment asset. Nevertheless, the effective life of an investment in Private Equity is shorter than the typical ten-year life span of a Private Equity fund. A long term asset does not present a difficulty for the institutional investor provided its role in the institutional portfolio is aligned with the investment requirements and objectives of the client.

Private Equity is a relatively illiquid asset but as discussed above its strong cash flows – cash flow positive after four years and full pay-back by Year 8 – mean that investor concerns over liquidity may be overstated. Institutional investors are not uncomfortable with illiquid investments. Allocations of new money to Property have increased significantly. In the context of the long term institutional portfolio an allocation to an illiquid asset is sensible where incremental returns account for illiquidity and where required liquidity is available from the other components of the portfolio.

The “J-curve” effect is partly a reflection of the private equity sector’s valuation convention. Investments are valued at cost during the early years. Because management fees and start up costs are financed out of the initial, partial drawdowns of investment commitments there is little creation of book value in the early years. Furthermore, losses due to unsuccessful investments tend to occur before realisations of successful investments. The early years of negative return should not present an insurmountable difficulty for the investor who is aware both of the long term nature of the investment and of this pattern of cash flows.

There is considerable evidence that at the level of the individual investee company risk is high. For example, the UK experience indicates that it is not uncommon that 20-35% of seed and early stage companies have to be written off within two to three years. Write-offs are lower for later stage deals. However, where the investment institution commits monies to a private equity fund, the intra-fund deal specific risk is managed by the general partner who will construct a diversified portfolio of investee companies. In addition, the general partner will control risk at the investee company level by committing funds on a staged basis.

#### ii) Volatility

Volatility – the spread of returns on an asset around their average – has become the standard measure of investment risk. However, as discussed above, there are a number of difficulties in calculating returns from private equity investments. There is no availability of an ongoing market-determined price. There is inevitably a subjective element to periodic valuations. The general partner may exercise discretion over the timing of inflows and outflows. Fluctuations in individual fund values, therefore, may be impacted by factors other than the intrinsic variability of returns, i.e. risk.

Oliver Burgel of the London Business School in his report “UK Venture Capital and Private Equity as an Asset Class for Institutional Investors” (January 2000) examined the spread of returns for 134 mature UK Private Equity Funds from 1984 to 1999. He found that returns were normally distributed, Mean Return was 11.3% and the Standard Deviation of Returns was 13.1%.

Whilst these numbers are not directly comparable with returns generated by listed UK equities it is fair to say that the spread of returns, as measured by standard deviation, is broadly consistent with the spread of returns of listed equities.

#### iii) Risk in Context

The investment institutions are comfortable with the concept of risk. They know how to manage, shape and engineer it so that returns are maximised for any given level of risk. They know how to blend low risk assets such as bonds, with high risk assets such as equities, so that the risk/return trade-off is optimised and efficient portfolios created. Within their equity portfolios they understand that through diversification the high volatility of individual stocks may be dampened at the sector, regional and overall portfolio levels.

Private Equity fits seamlessly into this approach. Its attractions and perceived limitations may be accommodated by blending private equity exposure into the overall portfolio. Within such private equity exposure, volatility at the individual fund level may be controlled by investing over a number of funds, perhaps with different sectoral (Buy-out, Venture Capital) or regional specialisations. Volatility at the individual investee company level will be reduced by the fund manager’s construction of a balanced diversified portfolio.

Private Equity is a relatively high risk asset, though arguably less risky than the general perception. Managing this level of risk presents no particular difficulty for investment institutions. Its riskiness should not constrain Private Equity from playing its appropriate role in a well constructed, prudently diversified investment portfolio.

## 2.8 MANAGEMENT FEES

Management fees arising on a private equity fund typically include:

- i) an annual management fee of 1.5% to 2.5% of committed capital and
- ii) a “carried interest” (or participation) of 20% of total gains. This carried interest may be subject to the fund exceeding a certain hurdle rate on drawn down monies.

Private equity fees are significantly higher than those arising for fund management of quoted equity portfolios. Private equity fees are much more closely aligned with those arising on hedge funds, international property funds and other specialised investment products.

By comparison with management of quoted equity portfolios, private equity investment is a hands-on and intensively active process.

The unique characteristics of Private Equity discussed earlier demand a distinct skill set on the part of the general partner and one that is quite different from that of the fund manager or research analyst involved with quoted equities.

The skills set of the General Partner include:

- The ability to access a high level of deal flow.
- A high degree of selectivity in determining which deals to participate in.
- An ability to exploit the unique access to information flows enjoyed by the investor in unquoted companies
  - through in depth industrial sector knowledge,
  - through accessing independent expert advice,
  - through rigorous due diligence.
- An ability to develop strong shareholders agreements
  - aligning management and ownership,
  - accelerating company development,
  - allowing strategic and operational intervention, if necessary.
- An ability to contribute to strategy formation with an emphasis on shareholder value creation
- A portfolio construction skill
  - providing necessary diversification,
  - managing and controlling cash flows.
- A critically important ability to devise exit strategies.

The general partner is the driver of the outturn of the private equity fund. The identification and selection of investee companies, the manner in which they are blended into a balanced and diversified portfolio and their future development accelerated and critically, the ability to identify and implement remunerative exit strategies are the key determinants of successful outcomes.

## 2.9 PORTFOLIO CONSTRUCTION

### Asset Allocation

Asset allocation has been discussed in some detail above. In determining exposure to each asset type the institutional investor matches the requirements of the fund against the characteristics of each asset type. These asset characteristics are then blended together to generate an appropriately balanced and diversified portfolio. In this manner an exposure or exposure parameters are determined for bonds, equities, property, cash and alternative assets within the overall portfolio. In determining exposure to Private Equity within the alternative investments content of the portfolio the investor will focus particularly on the relatively high returns, equity - like volatility and constrained liquidity associated with private equity investments.

### Diversification

Diversification is a core value of institutional portfolio construction and is embedded in the institutional portfolio at each stage of the decision making process, at the asset, currency, country, sector and stock levels.

Similarly, within the portfolio's private equity content, institutional investors are likely to be comfortable with a diversified exposure across private equity managers, private equity type, i.e. buyout and venture capital, and region. In determining this mix the investor will consider the different cyclical patterns of the buyout and venture capital segments.

### Stock Selection

In making selection decisions at the fund level the investor will focus particularly on the skills discussed earlier in ensuring that selected fund managers have the expertise, experience and skills required. Clearly, historical performance is an important factor in this judgement, though performance must be measured and assessed in the context of the prevailing investment environment.

Stock selection at the level of the investee company is the responsibility of the general partner (or fund manager). Portfolio construction for Private Equity is a significantly more active and concentrated activity than for quoted equity investment. Passive portfolios of quoted equities, which set out to replicate index or benchmark returns, will often be comprised of hundreds of individual stocks. Active equity portfolios may vary from hundreds of stocks to perhaps thirty or forty. Private Equity by comparison is extremely concentrated. A large private equity fund with assets say of \$1bn might typically have only some fifteen holdings, whereas quoted equity portfolios will be diversified across industrial sectors. Private equity portfolios again are inevitably more concentrated. Buyout funds are biased towards established companies where cash flows are predictable, capital expenditure needs are limited and large amounts of debt can be serviced.

Venture capital funds, in contrast, tend to focus on developing, immature technology companies with high growth potential.

## 2.10 ACCESSING PRIVATE EQUITY

The institutional investor may adopt one or more of the following approaches to private equity investment.

### i) Direct Investment

The investment institutions may invest directly in individual unquoted companies and projects. However, experience in Ireland and elsewhere suggests that this is a difficult and high risk approach. Attrition at the individual investee company level is high and without the benefit of diversification, risk is unacceptably high. The investment institutions, accustomed to the flexibility of the quoted markets, typically do not have the specialist skill set critical to success in private equity investment, in particular the skills of hands-on intervention at underperforming investments and of arranging and implementing exit strategies. The negative “folk-memory” attaching to direct investment in Ireland because of unsatisfactory experiences in the 1960’s and seventies was compounded by the effective collapse of GPA in the nineteen-nineties.

### ii) Pooled Investment in Fixed Term Funds

Typically these funds are constituted as limited partnerships, usually for fixed periods of ten years. The institutional investors are limited or passive partners. The private equity specialist, as general (or managing) partner will select investments, structure deals, monitor progress and devise exit strategies. The fund will typically invest in 15/30 portfolio companies, ensuring diversification and risk control. The pooled fund structure offers the institutional investor access to the private equity investors’ deal flow and skill set. The institution may further diversify its risk by investing in a number of funds, perhaps with different sectoral (buy-out or venture capital) or regional specialisations.

### iii) Fund of Funds

A fund of funds is a pooled vehicle which invests in private equity funds selected by a specialist fund of funds manager. Diversification is high with perhaps up to 20 funds selected. Access to deal flow and specialist skill set is offered with the benefit of enhanced diversification. These advantages must be weighed against the additional layer of fees and costs payable to the fund of funds manager.

### iv) Publicly Quoted Private Equity Funds

These are listed companies whose core business is private equity and specially structured investment vehicles. These vehicles are typically “evergreen” funds where capital is raised from the public markets and proceeds from exits are reinvested in the fund rather than distributed to shareholders. A key attraction is the liquidity or marketability of a quoted vehicle, though typically they trade at a discount to net asset value. Perhaps best known of these companies is 3i in the UK. More recently a number of publicly traded investment vehicles specialising in buy-outs have been floated in Amsterdam.

# The Ireland 1994 Fund: A Case Study

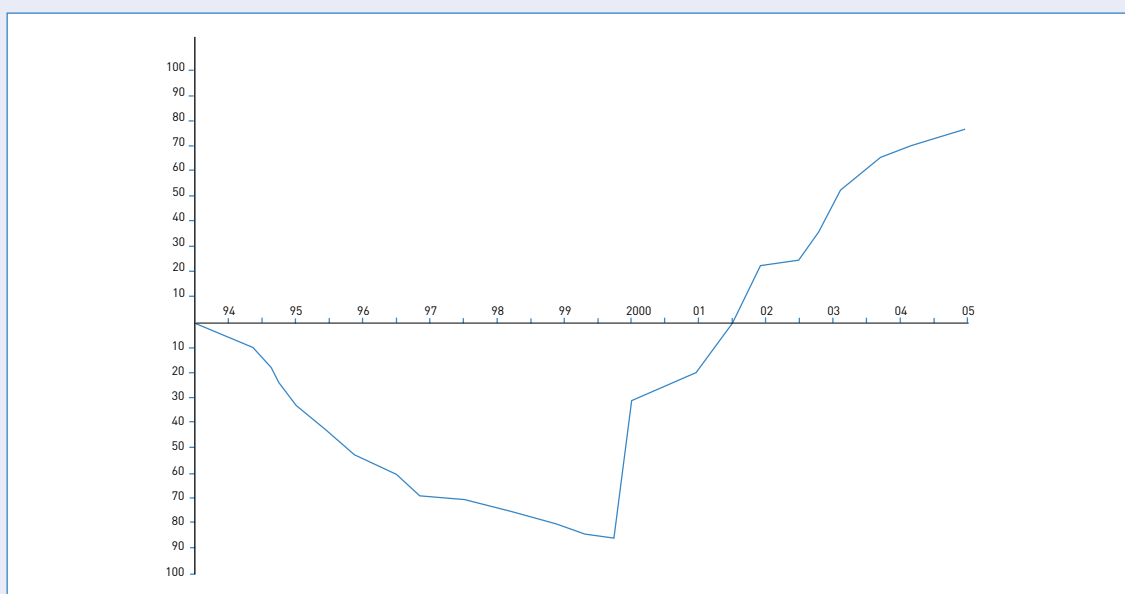
## THE IRELAND 1994 FUND: A CASE STUDY

In this exercise we combined the three main Irish venture capital funds launched in 1994 – The ACT 1994 Development Capital Limited Partnership, The Delta Equity Fund Limited Partnership and The ICC Venture Capital Fund. (ICC Venture Capital Fund is managed by Bank of Scotland (Ireland) Venture Capital following the merger between Bank of Scotland (Ireland) and ICC Bank in 2001). We aggregated their drawdown, repayment and residual value data to generate a real life illustration of the Irish experience in venture capital investment over the period 1994 to 2005.

The “Ireland 1994 Fund” (the Fund) was launched in 1993 and total commitments of €118m were received from investors. Drawdowns commenced in the second half of calendar 1994 and by end 1996 amounted to over €55m, exclusive of repayments. By end 1999 Drawdowns had amounted to almost €100m. Drawdowns totalled €110m in all.

The first repayment was made as early as the second half of 1995. Repayments continued, albeit at relatively low levels, during 1996 – 1999 before accelerating dramatically during 2000-2003. Over these four years Repayments amounted to over €148m. Total Repayments by end 2005 amounted to €177m.

These patterns of Drawdowns and Repayments are amalgamated to produce the “J-Curve” below.



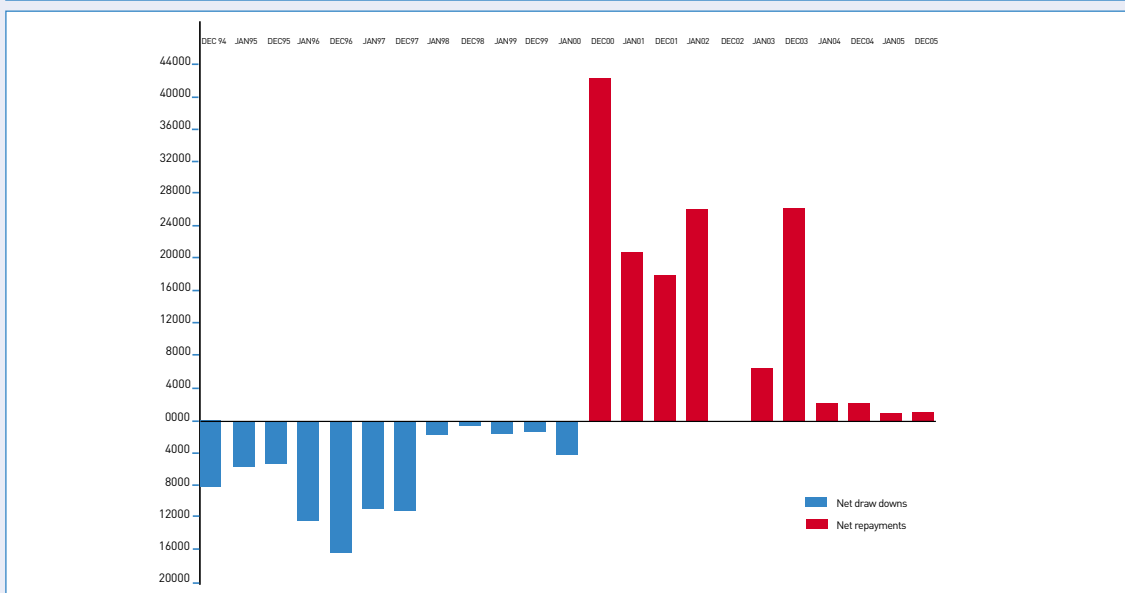
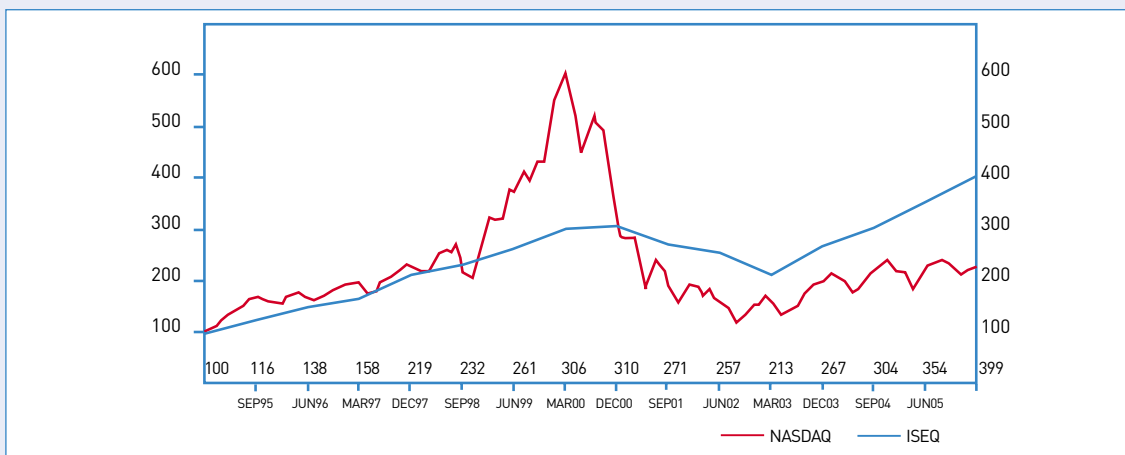
The J-Curve shows:

1. Net Drawdown peaked at €85m at end June 2000. This compares to Commitments originally received of €118m.
2. Net Repayments began in the second half of 2000. Substantial repayments were made in each of the four half year periods ending in the half year to June 2002. By end June 2002 Net Repayments had exceeded Net Drawdowns i.e. investors had already received back more than their original investments.

3. Net Repayments by end December 2005 amounted to €67m. Residual Value at that date amounted to €53m. Total values generated therefore amount to €120m after repayment of all monies drawn down.
4. Experience since end December 2005 is positive with planned realisations expected to comfortably exceed residual values.
5. The sharp upward leg of the J-Curve during 2000-2002 demonstrates the success of the fund managers in exploiting the high market valuations which prevailed for much of that period.

In fact, the high net repayments during this period illustrate a systemic advantage enjoyed by venture capital managers over mainstream asset managers. Venture capital fund managers are in effect, forced out of their investee companies by the high level of initial public offerings and merger and acquisition activity which usually accompany bull market peaks. Realisations therefore take place at high prices.

### Market Indices and Cash Flows



## Investment Strategy

The evolution of the Fund's investment strategy reflected

- the different focuses of the three fund managers, ACT, Delta and ICC,
- the incipient recovery, at the time of the Fund's launch, and subsequent high growth phase of the domestic economy and
- the emergence in more recent years of a dynamic indigenous technology sector as software, ICT and biopharmaceutical companies sought start up and development capital.

The main beneficiary in sectoral terms of the Irish economic boom has, of course, been the construction sector. The fund managers exploited this opportunity with significant investments by way of restructuring or management buy-out, in McNerney, Senator Windows, Geith International and Whelan Group.

Strong consumer demand has also been a feature of the Irish economy as employment and real incomes grew. Investments in O'Leary's Pharmacy, Lifestyle Sports and Lets Talk Phones ensured the Fund was exposed to this opportunity. Strong consumer spending also presented a buoyant background for the media sector. The Fund participated in the liberalisation and the consolidation of this sector with investments in TV3, County Media and Today FM.

The Transport and Energy sector were obvious "old economy" beneficiaries of the economic background and the Fund was represented here through investments in Estuary Fuels, Irish Car Rentals, Imari and Belfast International Airport.

In more recent years the focus of the fund managers shifted to an intensive involvement in the development of an indigenous Irish technology sector. Significant investments were made, and in some cases already successfully exited, in the software, ICT and biopharmaceutical segments. In particular, highly remunerative investments were realised in Aldiscon, BCO Technologies, Massana, Rogers Group and Datalex. Investee companies such as Qumas and Acra Control continue to perform well. In the biopharmaceutical area important realisations included the now publicly – quoted AGI Therapeutics.

In summary, the fund managers followed a diversified strategy balancing the cyclical sectoral opportunities created by the booming domestic economy with emerging, high growth and technology-driven business models.

## Returns

We have calculated the annual Internal Rate of Return on the Fund for the period December 1994 to December 2005 at 15.7%. Thomson Financial confirm this return, based on the cash flow assumptions outlined above. Thomson Financial's annual "Investment Benchmarks Report: European Private Equity" is the standard for measurement of European private equity returns.

Clearly an Internal Rate of Return of 15.7% is a high return in absolute or nominal terms. It compares with Irish inflation in the period (1995 to 2005 inclusive) of 3.0% p.a. In real terms therefore, it presents a very positive out-turn.

Returns on ten-year Irish Government bonds in the period amounted to 9.1% per annum. This may be regarded as the risk-free rate. Again, the Fund has generated a return significantly in excess of the risk-free rate.

The returns generated by Irish Government bonds in this period were extraordinarily high as they benefited from falling inflation. Ten year bond yields which had been as high as 8.8% at end 1994 had fallen to 3.3% at end 2005. The bond return in the period at 9.1% p.a. compares to inflation of 3.0% p.a. Real returns on bonds in the period therefore were 6.1%. This compares to the historical long term real return on bonds, over the period 1990-2005, of 1.1% p.a. Bond returns in the period therefore constituted an exceptionally high hurdle rate for Irish private equity returns. Nevertheless, the return generated by the Fund comfortably exceeded the bond return hurdle.

The Fund, as discussed above, had a clear focus on early stage, development and venture investments. Its Internal Rate of Return of 15.7% compares extremely well with the returns generated in comparable European funds in the period as measured by Thomson Financial. Venture Funds in Europe generated a pooled average return of 9.4% in the period.

**Table 20** European Private Equity: 1994 Funds

Cumulative IRR to 31st Dec. 2005			
	Average	Cap. Weighted Average	Pooled Average
<b>Early Stage</b>	3.5%	4.8%	5.4%
<b>Development</b>	12.4%	15.2%	18.1%
<b>Balanced</b>	1.9%	5.8%	4.6%
<b>All Venture</b>	6.1%	8.5%	9.4%
<b>Buyouts</b>	27.4%	42.5%	42.4%
<b>Generalist</b>	36.6%	14.7%	14.3%
<b>All PE</b>	16.9%	34.1%	30.9%

*Source: Thomson Financial*

The boom sector within Private Equity in recent years has been Buyouts which boosted overall European Private Equity returns for the period to 16.9% on average and 30.9% on pooled average.

The Fund's Internal Rate of Return also compares well with quoted equity market returns in the period.

Over the eleven year period 1995 – 2005 inclusive the Irish equity market generated a total return of 16.4% per annum. Over this period, as the market benefited from falling inflation, falling interest rates and dynamic economic growth, Ireland significantly out-performed both its international peer group and its own long term historic returns. The ABN Amro “Global Investment Returns Yearbook 2006” (Dimson, Marsh and Staunton) calculates Irish historic returns for the period 1900 to 2005 at 9.4% per annum in nominal terms or 4.8% per annum in real terms. The 16.4% nominal, 13.4% in real terms returned by Irish equities during 1995/2005 inclusive is therefore an extraordinarily difficult comparator for the Fund. Yet its Internal Rate of Return of 15.7% compares remarkably well.

Comparisons with European quoted markets are somewhat complicated by the unavailability of comprehensive indices over the period since 1994 and the introduction of the Euro. The quoted European equity market, as represented by the MSCI – Europe index, generated a capital return of 8.3% per annum over the period 1995/2005 inclusive in local currency terms. Over the same period the European small capitalisation quoted sector generated a capital return in US dollar terms of 8.4% per annum as measured by the HSBC Smaller European Companies index. Even allowing for the somewhat unsatisfactory comparator data the “Ireland 1994 Fund” performed relatively well.

In summary therefore, the Fund has generated highly satisfactory returns whether measured in absolute or real terms or competitively against the risk-free rate, as measured by bond yields, comparable European funds and quoted European equity markets.

# Appendices

## APPENDIX A – TECHNICAL ISSUES

### A.1 VALUATION

The true valuation of a Private Equity investment becomes available only on realisation. In the period between investment and realisation the general partner provides an estimate of the intermediate value of the investments.

“International Private Equity and Venture Capital Valuation Guidelines” have been developed by industry umbrella bodies including the European Venture Capital Association and the British Venture Capital Association setting out best practice for valuations. These guidelines provide a framework for consistently determining valuations for investments held by Private Equity entities. The concept of “Fair Value” is now firmly embedded in International Financial Reporting Standards and has been adopted in the guidelines to provide a basis which is consistent with accounting principles.

Fair Value is the amount for which an asset could be exchanged between knowledgeable, willing parties in an arm’s length transaction. The objective is to estimate the exchange price at which hypothetical market participants would agree to transact.

In Private Equity, value is generally crystallised through a sale or flotation of the entire business rather than a sale of an individual stake. Accordingly the value of the business as a whole (Enterprise Value) will provide a base for estimating the Fair Value of an investment in the business.

Where Fair Value cannot be reliably measured the investment should be reported at the carrying value of the previous reporting date as the best estimate of Fair Value unless there is evidence that the investment has since been impaired. In such a case the carrying value should be reduced to reflect the estimated extent of impairment.

A number of valuation methodologies that may be considered for use in estimating Fair Value are set out in the guidelines. As discussed earlier, Enterprise Value is used as the first step in a number of these methodologies. In determining Fair Value the valuer should consider the substance of the investment which takes preference over strict legal form.

The valuer should exercise judgement in selecting the valuation methodology that is most appropriate for a particular investment. The methodology selected should be appropriate in light of the nature, facts and circumstances of the investment and its materiality in the context of the total investment portfolio. Methodologies should be applied consistently from period to period, except where a change would result in better estimates of Fair Value. Any changes in valuation methodologies should be clearly stated.

A number of the most widely used methodologies are identified in the table below. In assessing whether a methodology is appropriate, the valuer should be predisposed towards those methodologies that are generally accepted and those that draw on market-based measures of risk and return. Methodologies utilising discounted cash flows and industry benchmarks should rarely be used in isolation of the market based measures.

Valuation Methodologies
Price of Recent Investment
Earnings Multiple
Net Assets
Discounted Cash Flows or Earnings (of Underlying Business)
Discounted Cash Flow (from the investment)
Industry Valuation Benchmarks
Available Market Prices

The guidelines describe in detail the circumstances in which a particular methodology may be appropriate and the factors to be considered in the determination of Fair Value. Guidance on the practical application of the principles of valuations to specific cases is also provided.

## A.2 PERFORMANCE MEASUREMENT

### i) Measurement of Returns : Internal Rate of Returns

The Association of Investment Management and Research has defined performance measurement standards for venture capital investments. The standards endorse the internal rate of return (IRR) as the appropriate measure and the vintage year approach as the appropriate basis for inter-fund comparisons. The IRR may be defined as the rate of return, which equates the discounted value of the cash flows (distributions) out of the fund with the value of the payments into the fund.

Institutional investors are more familiar with time-weighted returns (TWR). For the TWR the fund is revalued whenever there is an inflow or an outflow and the return for each sub-period is calculated. These sub-period returns are compounded to produce the TWR.

Venture capital investment does not lend itself to the TWR basis of calculation.

- Valuations are not available when inflows or outflows occur.
- In the early years, venture capital returns are negative – the J-Curve effect – as management fees (usually calculated on total funds committed rather than on the proportion of funds invested) and other charges are deducted. TWR returns are normally shown gross i.e. before management charges.

Short-run comparisons between venture capital IRR and quoted equity TWR are unreliable and unsound. Over longer run periods, however, the two approaches provide a broadly acceptable basis for comparison.

#### ii) Measurement of Returns : Multiple

Internal Rates of Return (IRR) may be an unreliable guide to investment out-turn particularly when measured over short-run periods. For example, a high IRR over a short period may be based upon a small absolute gain. It is not uncommon also for unsustainable IRRs to be produced by uplifts in valuations or by realisations achieved early in a fund's life.

This difficulty is typically avoided by employing a second measure of return, the multiple, which expresses absolute gains as a multiple of original cost.

By employing both the IRR and the multiple a more complete picture of returns emerges.

#### iii) Peer Group Benchmarking

In comparing one Fund's returns with those of its peers it is important.

i) to compare like with like, – a comparison of a venture capital fund with a buy-out fund would not be meaningful and

ii) to compare funds established during the same vintage year, – a comparison between one fund in its early years and another in a later stage of development would not be meaningful.

#### iv) Dispersion of Returns

Private Equity portfolios are both highly active and highly concentrated. Unlike quoted equity managers private equity managers do not have the facility of tracking or closely replicating the weights of individual stocks in a benchmark or index. By comparison with the returns of quoted equity managers, returns on private equity funds are extremely disparate. The return of the average, mean or median fund therefore is significantly less reflective of the overall outcome of the universe of funds than with quoted equity funds.

Comparisons of average returns on private equity investments with those of quoted equity indices or quoted equity funds should be treated with caution both because of the diversity of private equity returns and because of the different calculation methodologies applied.

## A.3 REPORTING STANDARDS

EVCA have developed presentation and reporting Standards for the entire European private equity industry. The Standards are designed both to complement the legal requirements of statutory accounts and to deliver to investors a comprehensive and detailed overview of the management and development of the private equity funds in which they have invested. The Standards incorporate mandatory requirements which all firms claiming compliance must apply. Recommendations for additional disclosures which may be included at the discretion of the manager are also presented.

The key elements of the Standards are set out below

### 1. Reporting

The principles upon which the Standards are based are

- Relevance,
- Transparency,
- Consistency.

### 2. Timing

The Standards require that reporting should be undertaken

- semi-annually, within 60 calendar days of the end of the half year
- annually, within 90 calendar days of the end of the full year.

### 3. Fund Reporting

The statements to be presented at the Fund Reporting level are

1. A Fund Overview: incorporating first closing date and vintage year, total commitment, term and investment period, fund domicile, legal form and structure, investment focus by stage and geography.
2. An Executive Summary: incorporating details of existing and new investments and realisations, changes to portfolio or fund strategy and material risks to the performance of the fund.
3. A Fund Summary: details include: amounts committed, drawn down, and repaid; fair value of the portfolio, total asset value and NAV; gross and net IRR and multiples of returns; amounts invested, committed and reserved for follow on investments in portfolio companies; details of any leverage of the fund.
4. A Cash Flow Schedule and net IRR Calculation Table (net of management fees and carried interest).

### 4. Portfolio Reporting

The Portfolio Reporting Standard requires the following statements to be presented incorporating detailed information on each individual portfolio investment:

1. A Realisation Summary.
2. A Current Portfolio Summary.
3. General Information on Portfolio Companies.
4. Specific Information on Portfolio Companies.
5. Significant Events and Issues.
6. Historic Profit Record.

## 5. Capital Account

Each individual investor is required to be given a statement of his own capital account together with a statement for the fund as whole. This statement will include the following information both for the current reporting period and from inception:

1. contributions, distributions and total commitment,
2. realised portfolio gains/losses,
3. unrealised portfolio gains/losses,
4. allocation to the carried interest partner,
5. operating income and expenses,
6. capital account at fair value at end of the current period.

## 6. Fees and Carried Interest

The Standards require that detailed information be presented over related party transactions, benefits, fees and net management fees. A Statement is also required showing carried interest earned and paid both during the current reporting period and since inception.

## APPENDIX B PROSPECTIVE RETURNS ON BONDS AND EQUITIES

In our October 2004 Review “Pension Fund Investment Strategy in the Post Bubble World” we discussed the long term expectations for inflation, bond returns and equity returns implied by the valuations then prevailing in the UK markets.

The exercise is replicated in the table below, which is based on market valuations prevailing on the 14th July 2006. The projections are largely driven by market valuations. The key assumption made by us is that the long term rate of GDP growth in real terms in the UK will be 2.75% per annum.

<b>Implied Long Term Returns based on current UK market valuations (14.07.06)</b>		
i) UK Govt. 2.5% Index Linked 2024	Real Yield	1.44%
ii) UK Govt. 5% Treasury 2025	Redemption Yield	4.41%
iii) Difference (ii) – (i)		2.97%
	of which Expected Inflation	2.38%
	Inflation Risk Premium	0.59%
		2.97%
iv) Implied Real Return on Bonds:		
	Redemption Yield – Expected Inflation	
	4.41% – 2.38%	<b>2.03%</b>
v) Expected Real Return on Equities:		
	Current Equity Dividend Yield (FTSE All Share)	3.19%
	add Long Run Dividend Growth:	
	Expected Inflation	2.38%
	Real Growth	2.75%
	Nominal Long Run Equity Return	<b>8.32%</b>
	Real Long Run Equity Return	<b>5.94%</b>

Projected long run inflation in 2.38% p.a. Real long term bond returns are projected at 2.03% p.a. whilst real long term equity returns are projected at 5.94% p.a.

The comparison with the result of the exercise carried out in September 2004 is interesting

	<b>Current Projection (14.07.06)</b>	<b>Previous Projection (21.09.04)</b>
	% p.a.	% p.a.
<b>Expected Inflation</b>	2.38	2.34
<b>Expected Real Bond Returns</b>	2.03	2.40
<b>Expected Real Equity Returns</b>	5.94	5.89

Despite the surge in oil prices and widespread concern, particularly amongst central bankers, that inflationary pressures are currently building market expectations for long term inflation have moved hardly at all, from 2.34% p.a. two years ago to 2.38% p.a. currently.

The stability of their expectations for inflation is presumably central to the willingness of investors to accept a significant reduction in their expected real return from bonds, down from 2.40% p.a. to 2.03% p.a.

Expected real returns from equities, on the other hand, have hardly budged. Current expectations are for a real return of 5.94% p.a. against the 5.89% p.a. projected in the original exercise.

The net effect of these changes in expected bond and equity returns is a significant increase in the attractions of equities relative to bonds vis a vis the position two years ago:

<b>Projected Equity Risk Premium</b>		
		% p.a.
	<b>Current Projection</b> (14.07.06)	<b>Previous Projection</b> (21.09.04)
<b>Expected Inflation</b>	5.94	5.89
<b>Expected Real Bond Returns</b>	2.03	2.40
<b>Expected Real Equity Returns</b>	3.91	3.49

This represents dramatic shift of long term advantage to equities and indeed, in so far as expected returns from private equity and hedge funds key off quoted market returns, to equity-type investments.

In Chapter 14 of our book “Fundamentals of Investment – an Irish Perspective” (Gill and MacMillan 2006) we discuss at some length historic and prospective investment returns using data prepared by Dimson, Marsh and Staunton (2005).

We can therefore place the projections above, based on current UK market valuations, in their historical context as follows:

	<b>Current Projection</b> <b>14.07.2006</b>	<b>Historical Returns</b>	
	% p.a.	<b>1900-2004</b> % p.a.	<b>1950 – 2004</b> % p.a.
<b>Inflation</b>	2.38	4.0	5.9
<b>Real Bond Return</b>	2.03	1.3	1.7
<b>Real Equity Return</b>	5.94	5.4	7.6
<b>Equity Risk Premium</b>	3.91	4.1	5.9

It is clear from the above that the market’s current expectation for long run inflation is much lower than the long run historic experience. The current expectation indeed is less than half the level experienced in the period 1950 – 2004 and well below the long term, 1900 - 2004, level of 4% p.a. Warren Buffet argues that investors, instead of looking forward, look into the rear view mirror at recent experience. This, however, is rarely a reliable guide to the long term future. The UK’s recent experience with inflation is good. However, investors appear to be allowing very little margin for error with inflation. Investors conditioned by the high real returns generated by bond markets over the past two decades typically consider the real yields currently available in bond markets to be very low. The comparison above however, indicates that expected real returns on bonds are actually quite high by historic standards. The 2.03% p.a. currently implied compares to the 1.3% p.a. and 1.7% p.a.

generated in the periods 1900 – 2004 and 1950 – 2004 respectively. However, when the market's apparent optimism concerning the course of long term inflation is taken into account the attraction of long term real yields of 2.03% is less than compelling. In the context of the historical experience it is difficult to avoid the conclusion that bond investors at current valuations are exposing themselves to a high degree of risk. Even if these risks do not materialise, bond returns going forward will be low.

Real returns on equities face an easier comparison. The projected return at 5.94% p.a. is ahead of the long-run, 1900 – 2004, level of 5.4% p.a. though well below the 7.6% p.a. generated during 1950 – 2004. These equity returns, because of the ability of equities over time to better cope with inflation, are arguably less exposed than bonds to any acceleration in inflation.

The Equity Risk Premium projected at 3.91% p.a. is just below the long term historic experience of 4.1% p.a. but again well behind the 5.9% p.a. generated during 1950 – 2004.

The following conclusions may be drawn from this discussion of projected returns:

1. Despite strong global growth and high and rising energy prices investors expectations for long term inflation have been remarkably stable over the past two years. However, an examination of the historical patterns suggests that investors may be somewhat complacent in their view of long term inflation.
2. Expected real returns from bonds have narrowed significantly over the past two years but are still ahead of the historical experience. Whether this implied premium over the historical numbers fully accounts for the risks investors are running with inflation is not clear. The value in bond markets is not compelling. Prospective bond returns are low.
3. Expected real returns from equities are little changed over the past two years. Expected real equity returns compare well with the long run, 1900-2004 experience. They are well below the high real returns generated during 1950-2004.
4. There has been a significant improvement in the Equity Risk Premium when compared to the situation in September 2004. The E.R.P. currently available is not far below the long run level but again is well behind the high relative returns generated by equities during 1950-2004.
5. Against the picture two years ago, and when compared to the historical experience, the balance of advantage has swung to equities. In so far as equity type vehicles, hedge funds and private equity, key off quoted equity returns, these also appear relatively attractive when compared to bonds.

#### **Important Note**

This publication is designed to provide information regarding the Pension Fund Industry and the Private Equity Industry. It is a discussion document and it is intended to be used in an educational and training context. It does not purport to be comprehensive or to render legal advice. No responsibility can be accepted for loss occasioned to any person acting or refraining from acting as a result of any statement in this publication.

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