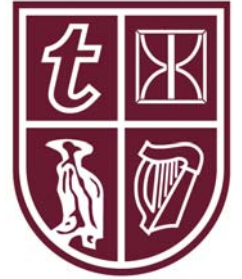


$$p(y) = \exp \left\{ \frac{y \cdot 0, -b(0)}{a, (0)} + d(y) \right\}$$



# Private Equity Investment for Pension Funds

John Hannon

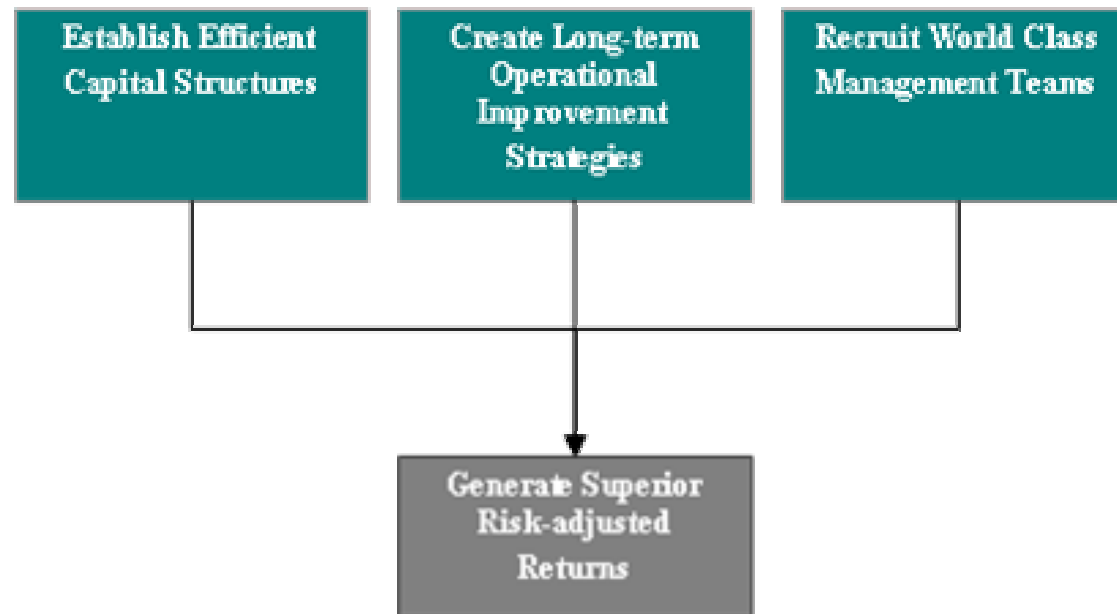
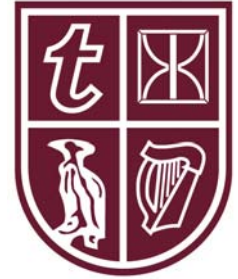
Society of Actuaries in Ireland

February 12<sup>th</sup> 2008

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$$p(y) = \exp \left\{ \frac{y \cdot 0, -b(o)}{a, (o)} + d(y, y) \right\}$$

# Private Equity Defined

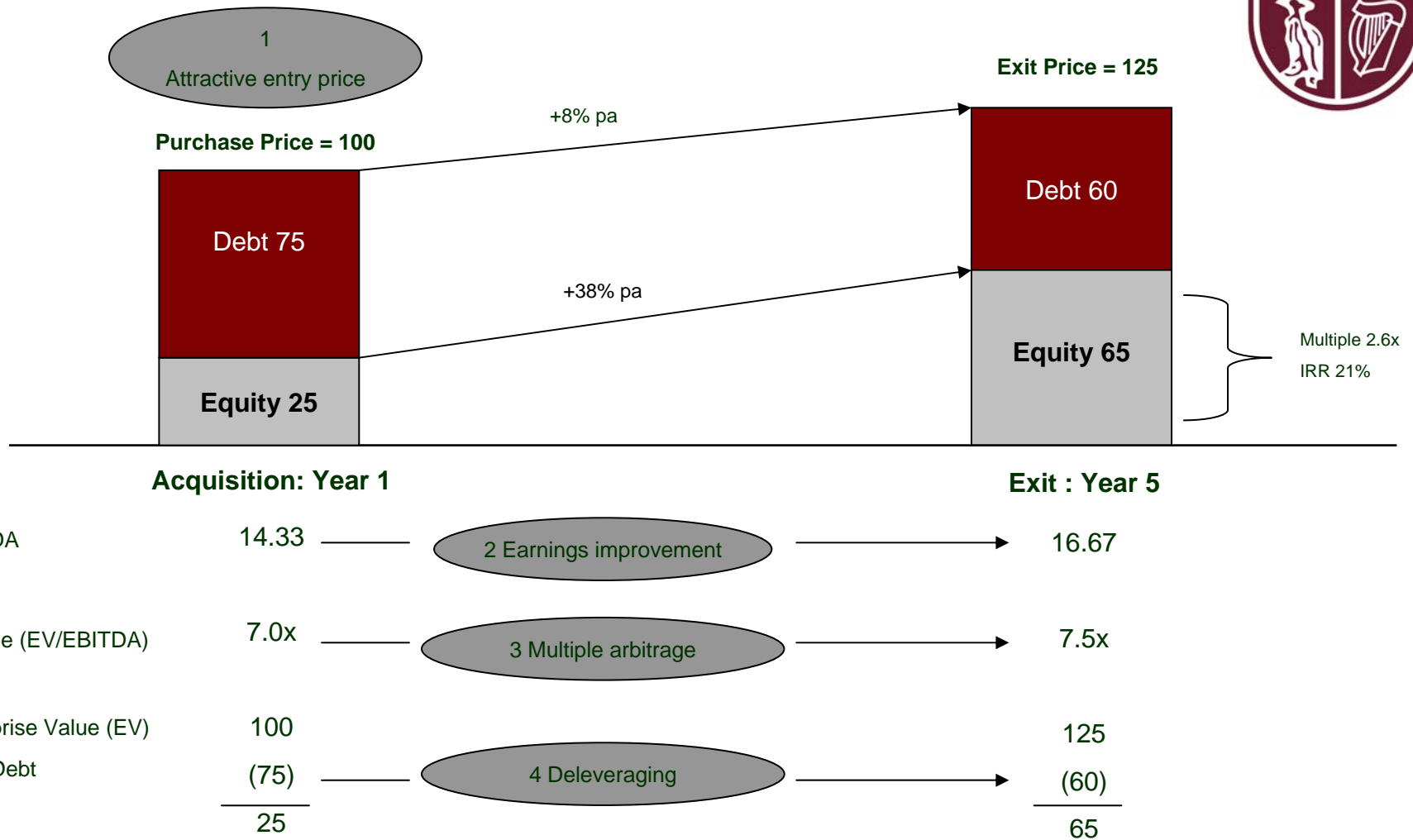
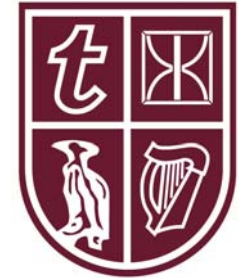


- Investment in unlisted companies
- Controlling ownership of company
- Long term investment horizon – 4-6 years

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$$p(y) = \exp \left\{ \frac{y_0 \cdot 0, -b(0)}{a_0(0)} + d(y_0) \right\}$$

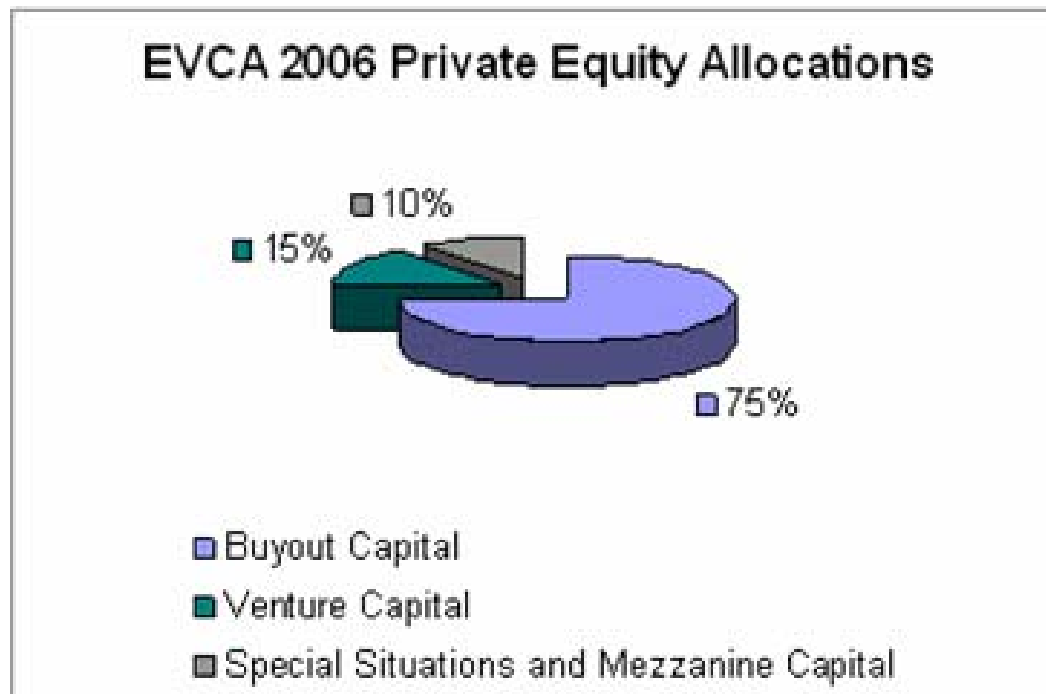
# Private Equity Investment Thesis



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$$p(y) = \exp \left\{ \frac{y \cdot 0, -b(0)}{a, (0)} + d(y, y) \right\}$$

# Private Equity Categories

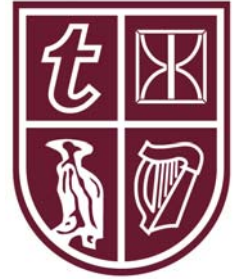


- Buyout funds now comprise the majority of investments in the private equity asset class

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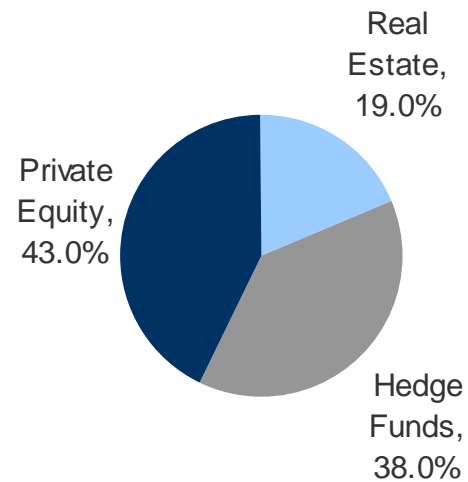
$$p(y) = \exp \left\{ \frac{y \cdot 0, -b(0)}{a, (0)} + d(y) \right\}$$

# Private Equity As Alternative Assets



## Breakdown of Total Alternative Assets USA 2006

100% = \$ 1.9 trillion

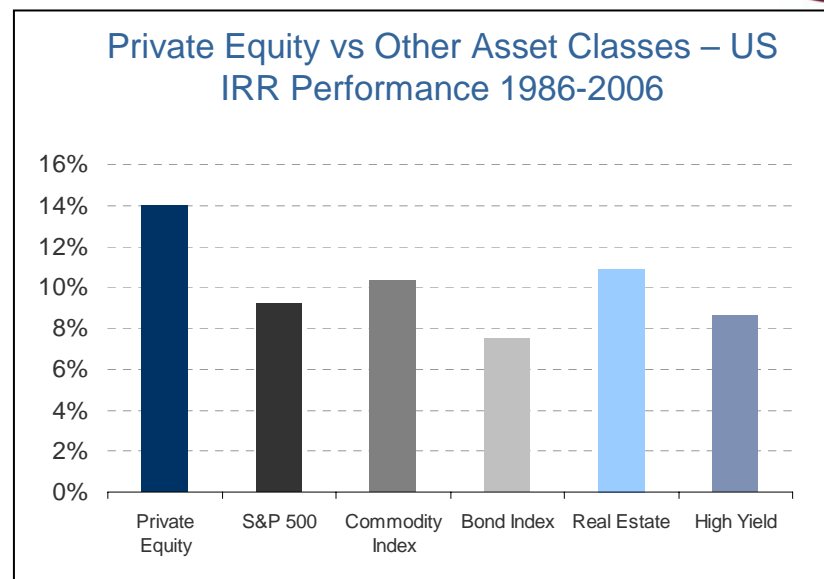
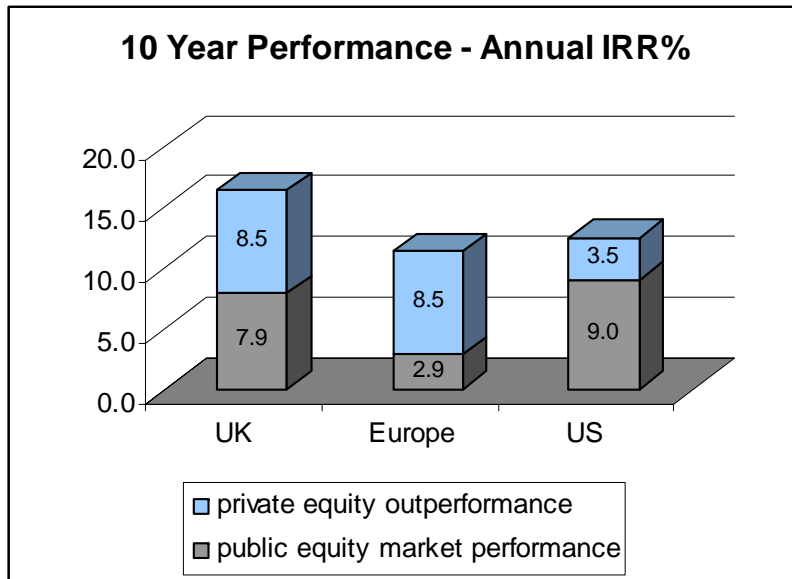
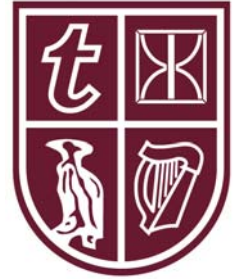


- Private Equity forms a high proportion of “Alternative Assets”

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$$p(y) = \exp \left\{ \frac{y \cdot 0, -b(o)}{a, (o)} + d(y_i) \right\}$$

# Private Equity Performance

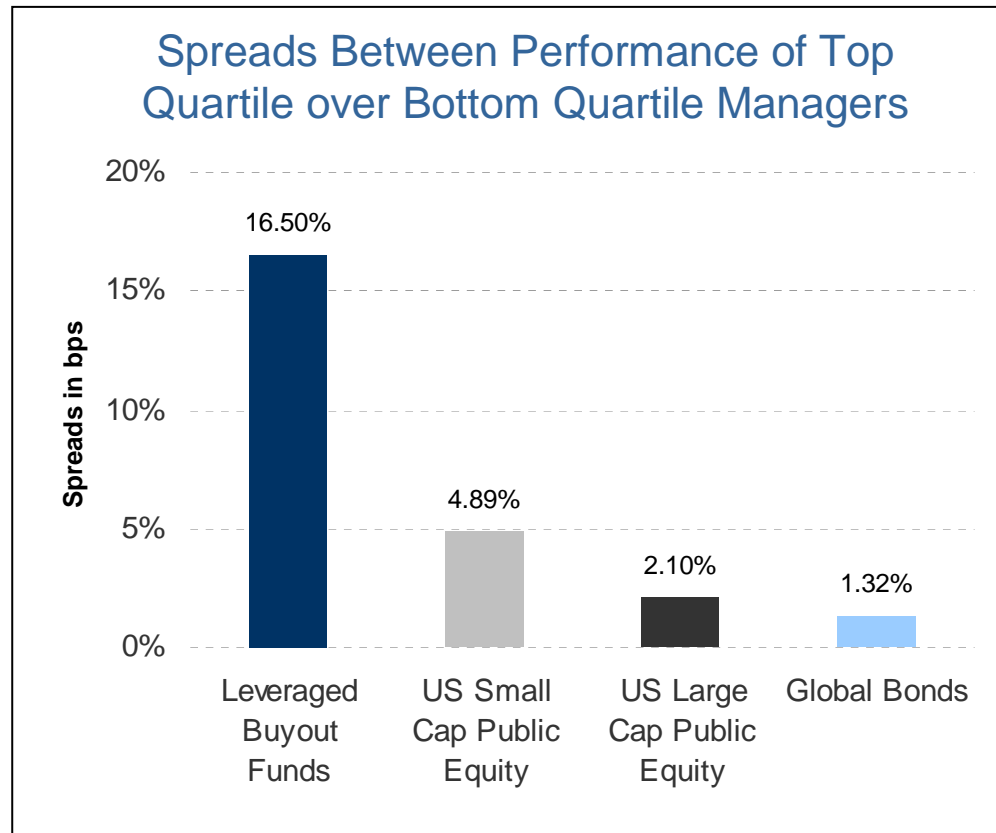
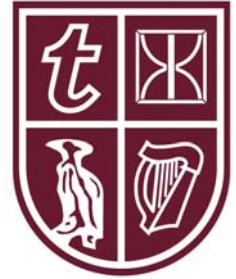


- Private equity has demonstrated an ability to outperform:
  - Public equity markets and other asset classes
  - Multiple geographies and through multiple economic cycles

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$$p(y) = \exp \left\{ \frac{y \cdot 0, -b(o)}{a, (o)} + d(y_i) \right\}$$

# Performance within Private Equity

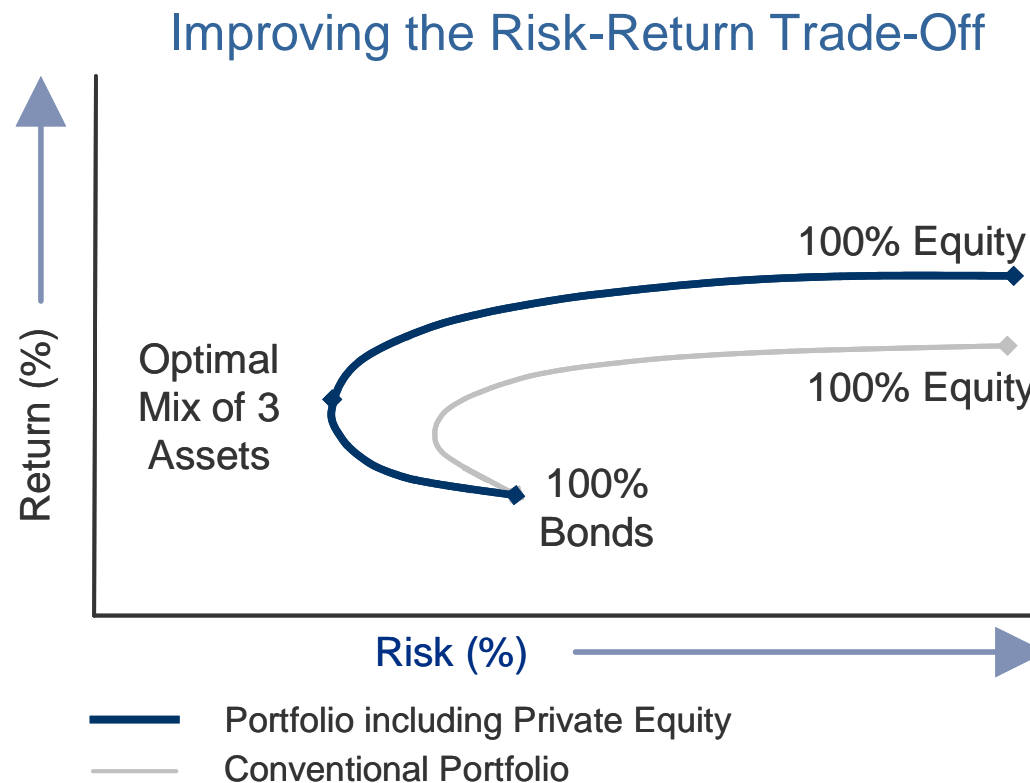
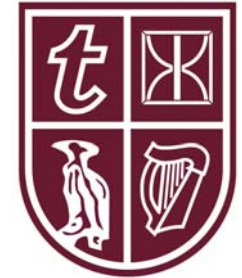


- Manager selection in Private Equity investment is critical relative to other public asset classes

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$$p(y) = \exp \left\{ \frac{y \cdot 0, -b(0)}{a, (0)} + d(y) \right\}$$

# Private Equity helps Diversification



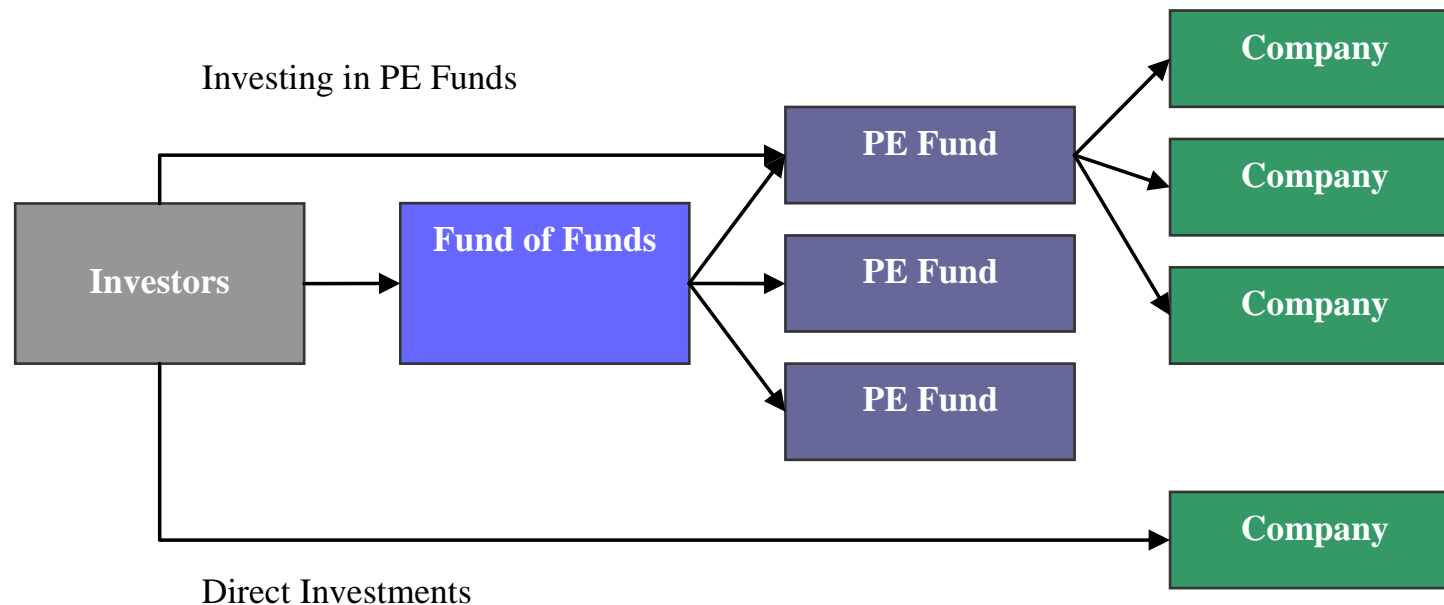
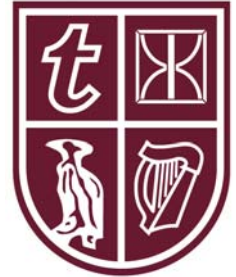
- Private equity has low correlation with public equities and bonds
- Using private equity in a portfolio improves the risk-reward profile

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$$p(y) = \exp \left\{ \frac{y \cdot 0, -b(o)}{a, (o)} + d(y_i) \right\}$$

# Investing in Private Equity

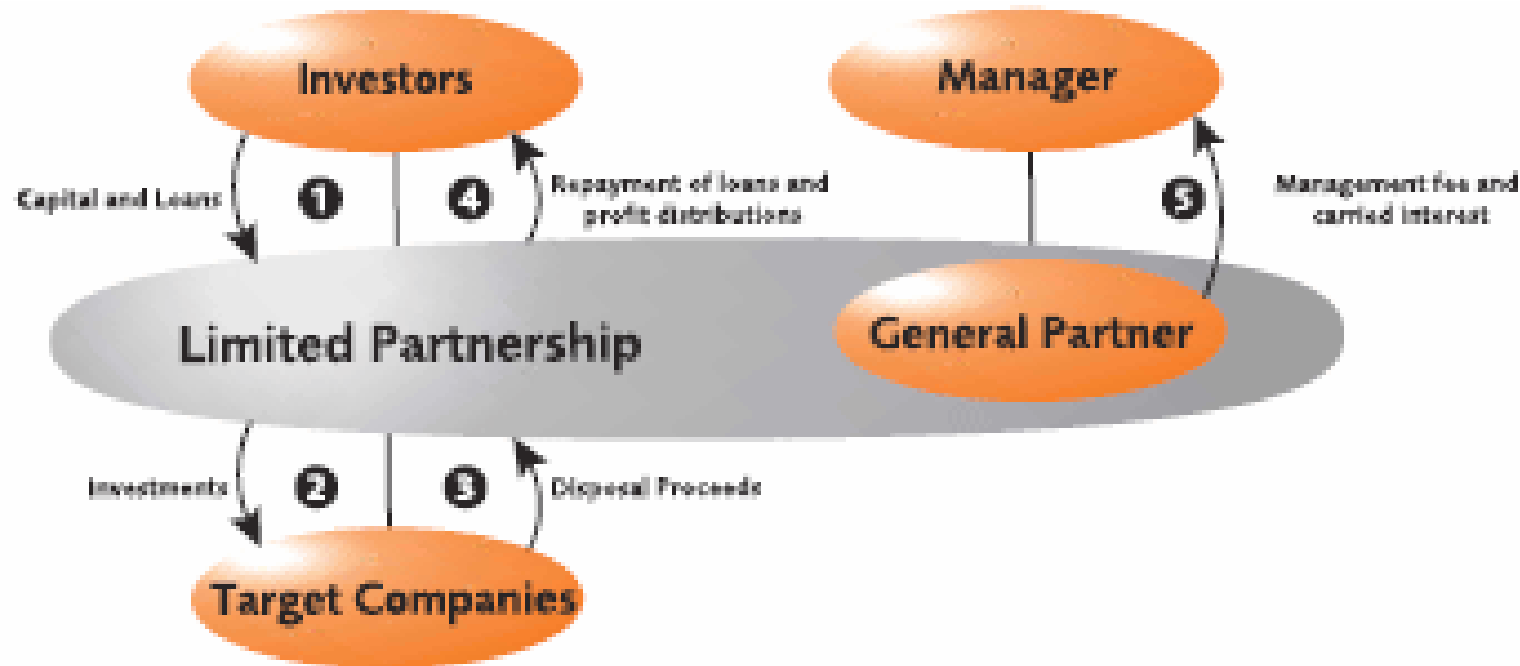
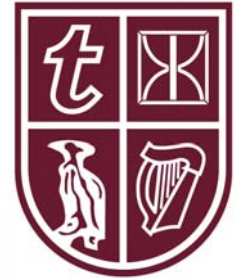


- Direct Investment in private companies (co-investment)
- Investment in a Private Equity fund as a limited partner
- Investment in a Fund of Funds vehicle

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$$p(y) = \exp \left\{ \frac{y_1 \cdot 0, -b(0)}{a_1(0)} + d(y_1) \right\}$$

# Limited Partnership Structure

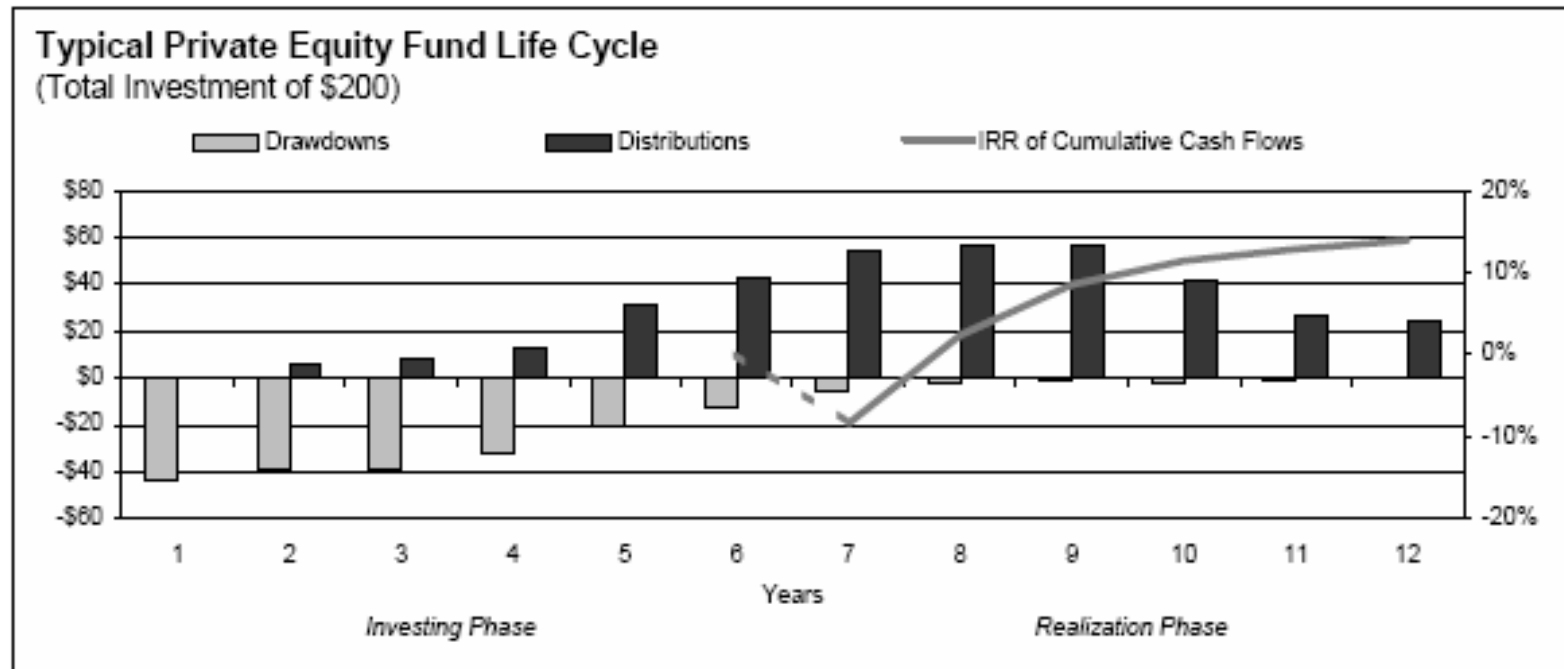
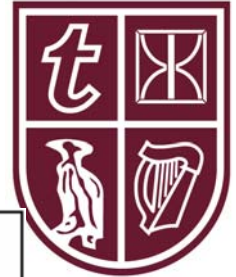


- Private equity funds are generally structured as limited partnerships for taxation reasons
  - Investors commit funds as limited partners
  - The fund manager is the General Partner for the partnership

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$$p(y) = \exp \left\{ \frac{y_0 \cdot 0, -b(0)}{a_0(0)} + d(y_t) \right\}$$

# Private Equity Cashflows

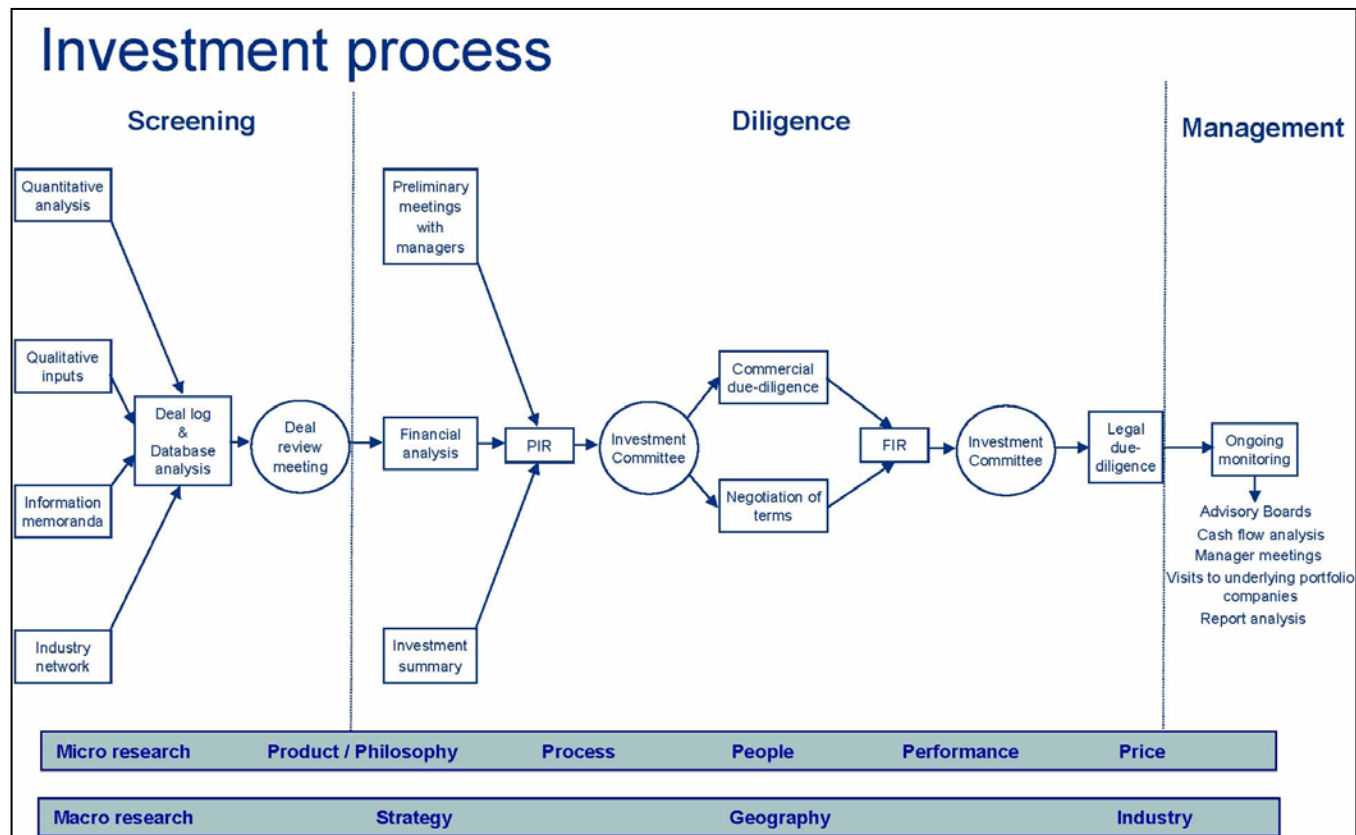
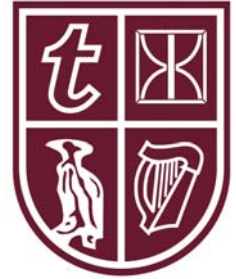


- Cashflow management is important when investing in private equity
  - Manager draws funds during the investment period of 4-5 years
  - 4-6 year holding period for investments
  - Realisations begin to occur in years 3-5

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$$p(y) = \exp \left\{ \frac{y_1 \theta_1 - b(\theta_1)}{a_1(\theta_1)} + d(y_1) \right\}$$

# Private Equity Investment Process

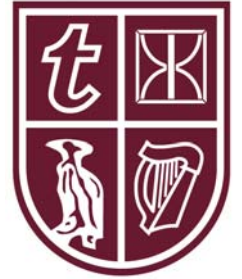


- 3-level approach is best to ensure that the whole market can be surveyed before making manager and fund selections

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# Private Equity Risks

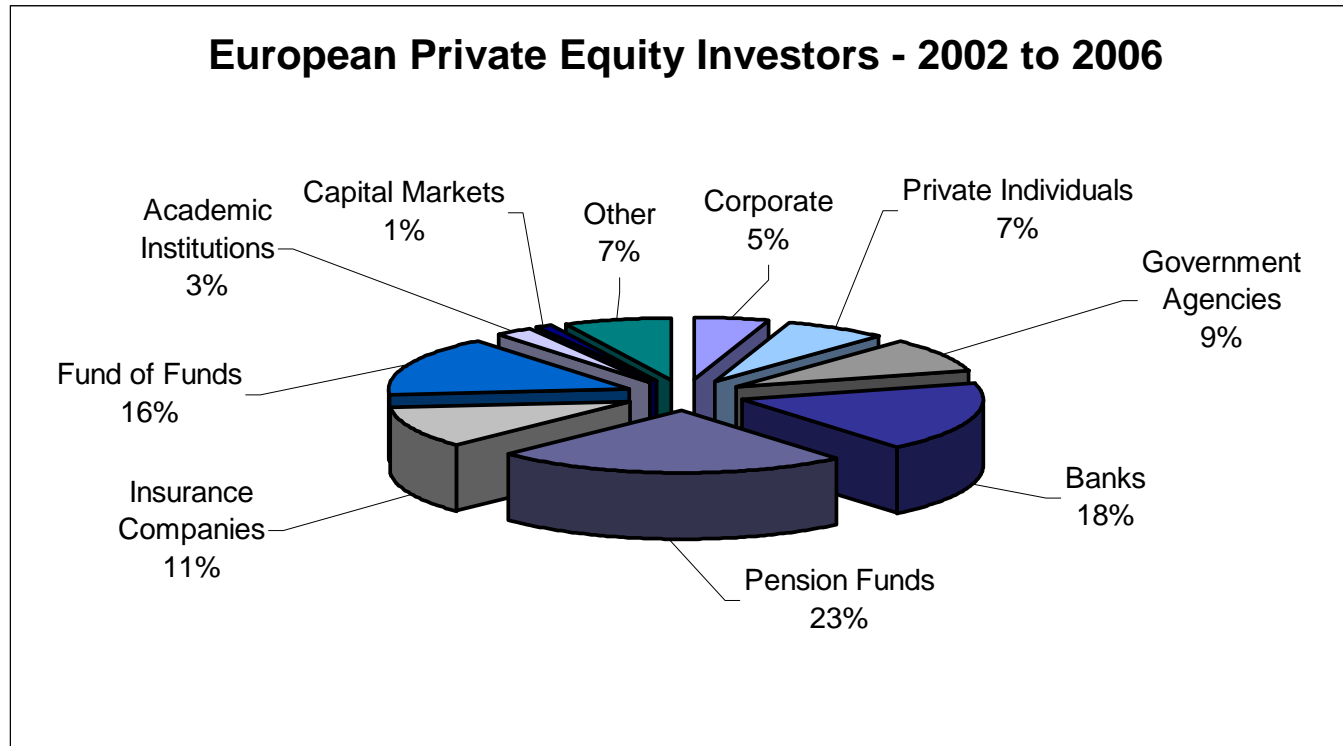
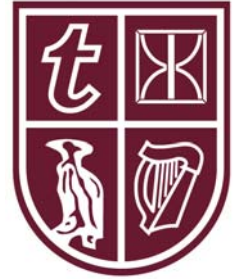


- Passive investment
- Investments in companies that are highly leveraged
- Illiquidity and long term nature of investments
- Distributions in kind
- Indemnities
- Restrictions on disposals / transfers
- Failure to meet Capital Calls – penalties
- Key Individuals
  
- Usually described in detail in each Limited Partnership Agreement – legal due diligence is important

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$$p(y) = \exp \left\{ \frac{y \cdot O_t - b(O_t)}{a_t(O_t)} + d(y_t) \right\}$$

# European Private Equity Investors

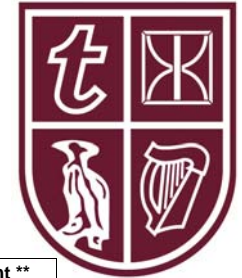


- Pension funds are large investors in private equity in Europe
  - Mainly UK, Sweden, Netherlands

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$$p(y) = \exp \left\{ \frac{y \cdot 0, -b(o)}{a, (o)} + d(y_i) \right\}$$

# NPRF Private Equity Portfolio



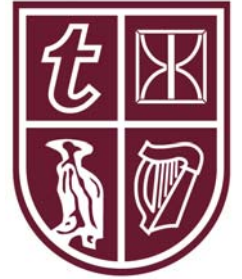
- The NPRF has made significant efforts to ramp up its private equity investment program
- Target allocation of 9% by 2009
  - US and Europe
  - Buyout and Venture
  - Co-investments
- Specific resources dedicated to managing the private equity program

Year	Investment	Region	Commitment **
2005	CVC European Equity Partners Fund IV	Europe	75
2005	Vestar Capital Partners Fund V	US/Europe	26
2005	Clayton, Dubilier & Rice Fund VII	US/Europe	67
2006	Montagu Newhall Fund III	US	22
2006	Charterhouse Capital Partners Fund VIII	Europe	65
2006	Madison Dearborn Capital Partners V	US	67
2006	Fortress Investment Fund IV	US/Europe	15
2006	Fortress Investment Fund IV Co-investment Fund	US/Europe	15
2006	Oak Investment Partners XII	US	15
2006	Texas Pacific Group Fund V	Global	59
2006	Palamon European Equity II	Europe	34
2006	New Enterprise Associates 12	US	15
2006	Intrawest (Fortress Co-investment)	US	28
2006	CVC European Tandem Fund	Europe	25
2006	Providence Equity Partners VI	US/Europe	74
2006	Clayton, Dubilier and Rice VII Co-investment Fund	US/Europe	22
2006	Abingworth Bioventures V	US/Europe	10
2006	Hellman & Friedman VI	US/Europe	56
2007	Fortress Investment Fund V	US/Europe	48
2007	Fortress Investment Fund V Co-Investment Fund	US/Europe	26
2007	Weathergag I	US	22
<b>Total</b>			<b>786</b>
**	All figures are expressed in millions of euro.		

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$$p(y) = \exp \left\{ \frac{y \cdot 0, -b(0)}{a, (0)} + d(y) \right\}$$

# Conclusions



- Private equity as an asset class
  - Exposure to non-quoted companies
  - Fund managers have an active role in company management
- Private equity has performed well historically
- Benefits of diversification
- US pension funds are significant investors in Private Equity
- Irish pension funds can benefit from exploring increased allocations to the Private Equity asset class
  - NPRF is leading the way