



Optimal life cycle portfolios

FIAP/ASOFONDOS Congress

Rolf Banz
April 2008 – Cartagena de Indias, Colombia

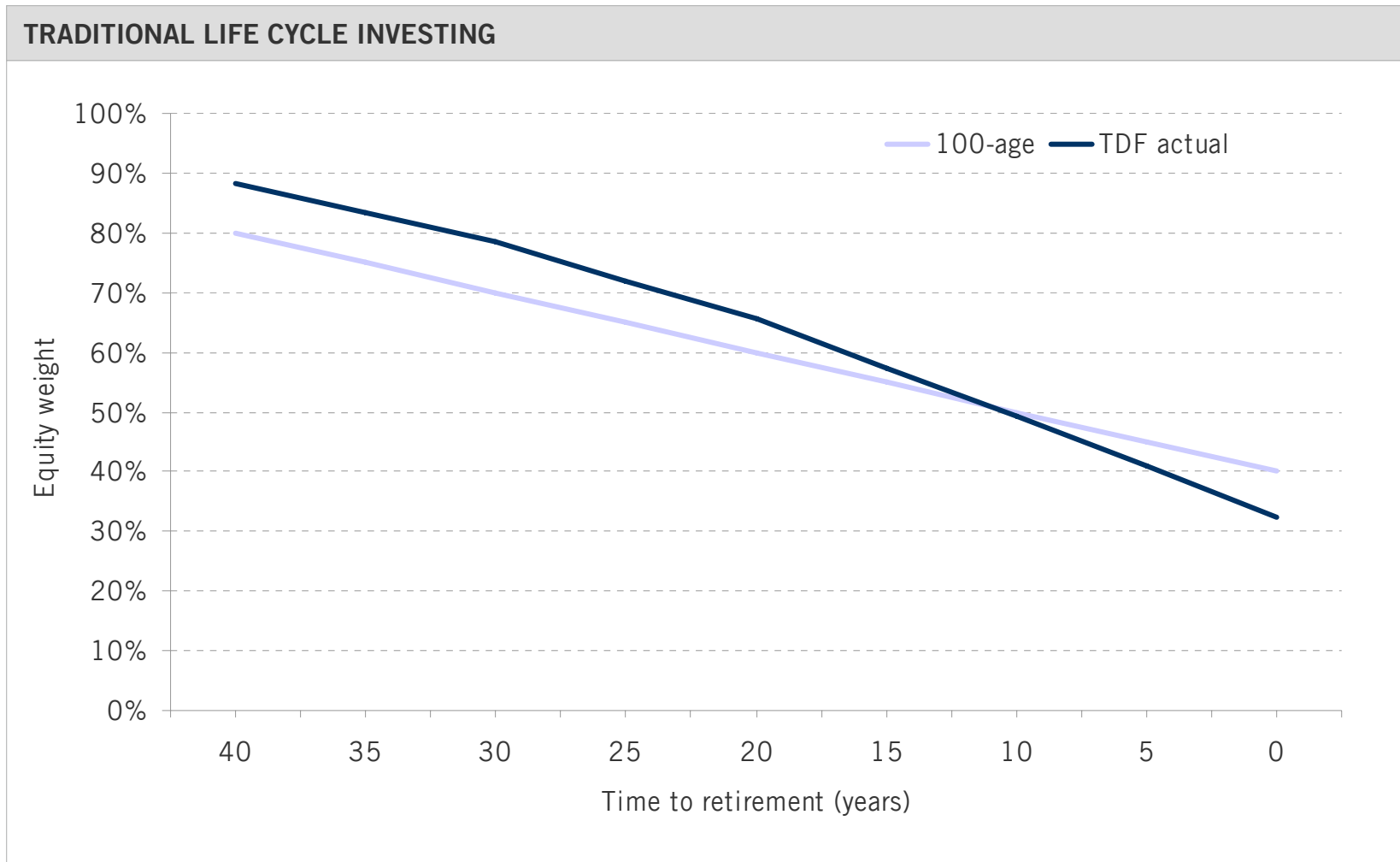
Outline

- Critical look at some important issues surrounding lifecycle investing
- Lifecycle funds
 - Approaches
 - Digression on risk
 - Conclusions
- Multifunds
 - Major Issues
 - Prescriptions

Lifecycle or target date investing

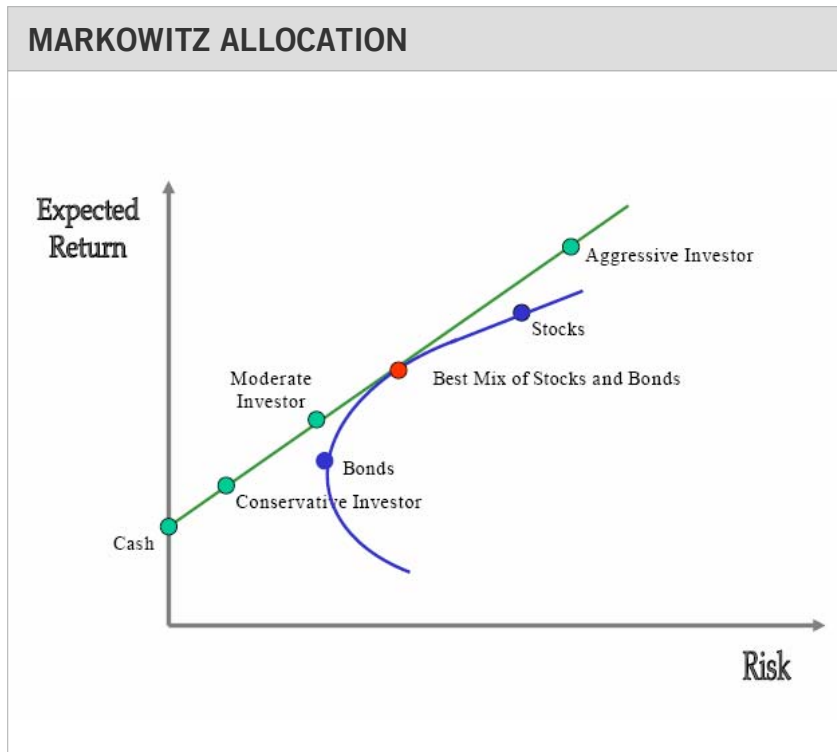
- Investors face shortening of investment horizon as they age
- Asset allocation should become more conservative, i.e., lower weight of equities
 - Traditional rule: equity weight = $100\% - \text{age} [\%]$
 - Optimized solutions
- Implementation
 - Personal
 - Mutual funds for age groups
 - Pension funds
 - Multifunds
 - Full member choice

Dynamic equity weights



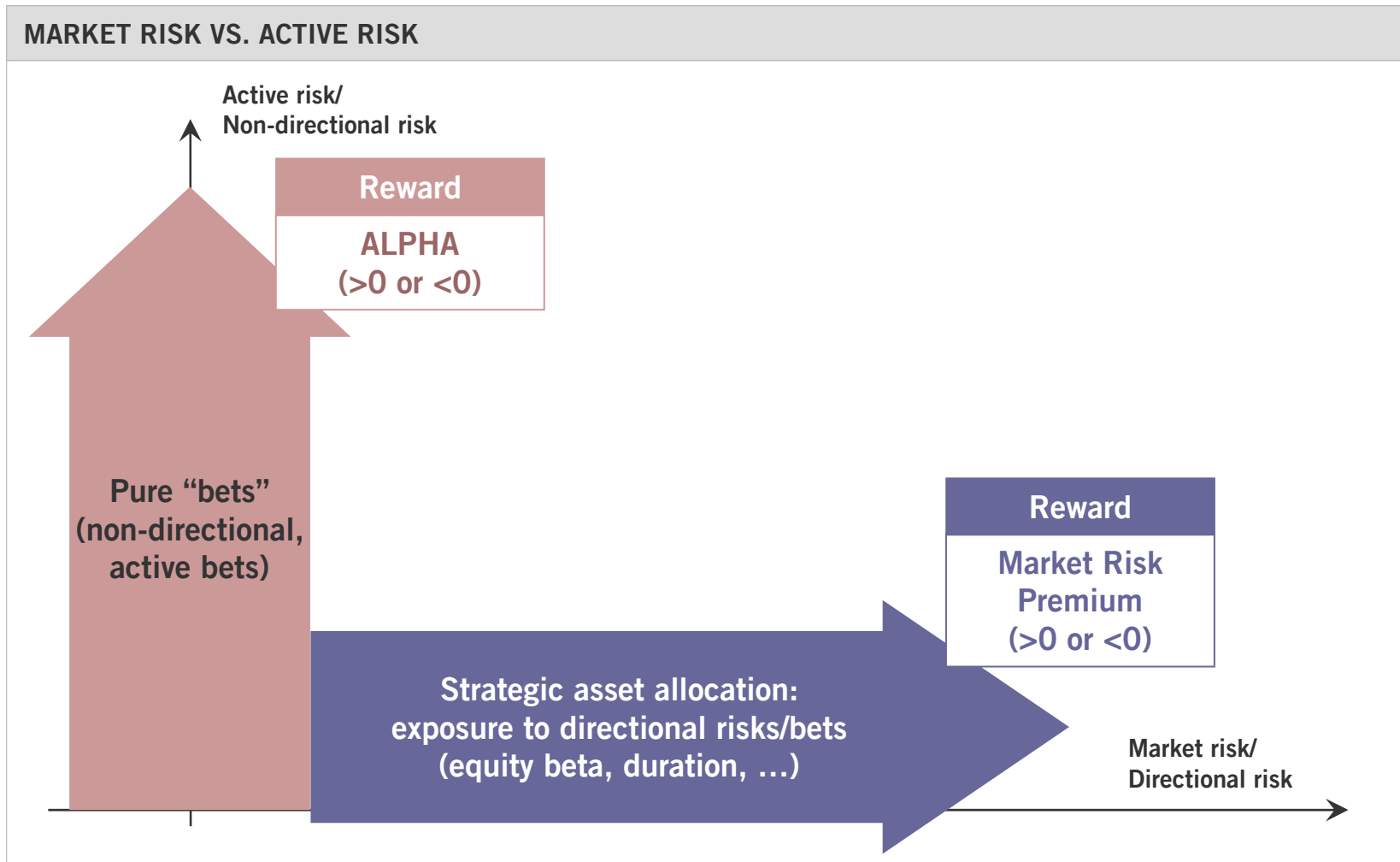
Source: Bodie and Treussard, “Making Investment Choices as Simple as Possible: An Analysis of Target Date Retirement Funds, working paper, 2007. 100-age: equity weight equals 100% – age in %, TDF: average of six US target date funds. Assumes retirement age of 60.

Optimal asset allocation solution?

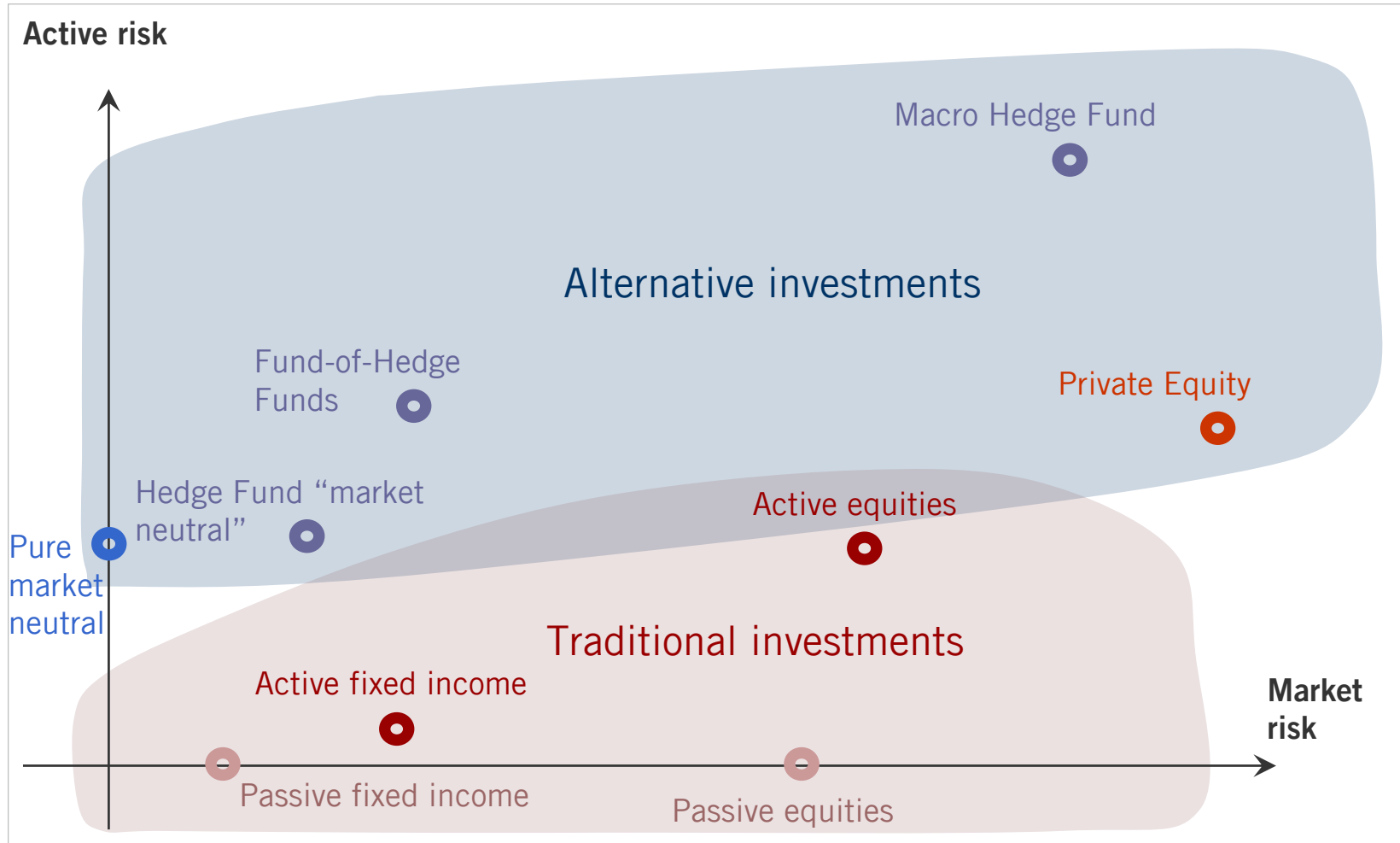


- *The icon of modern finance* (Markowitz)
- Basis for strategic asset allocation
- Lifecycle fund solution: lower target risk with age
- ? But: estimation risk: forecasting skill? Optimisation or error maximization?
- ? How to fit alternative assets?
- ? Illusion of precision?
- ➔ Dangerous tool for most investors (corner solutions, iterations)

A broader view on risk

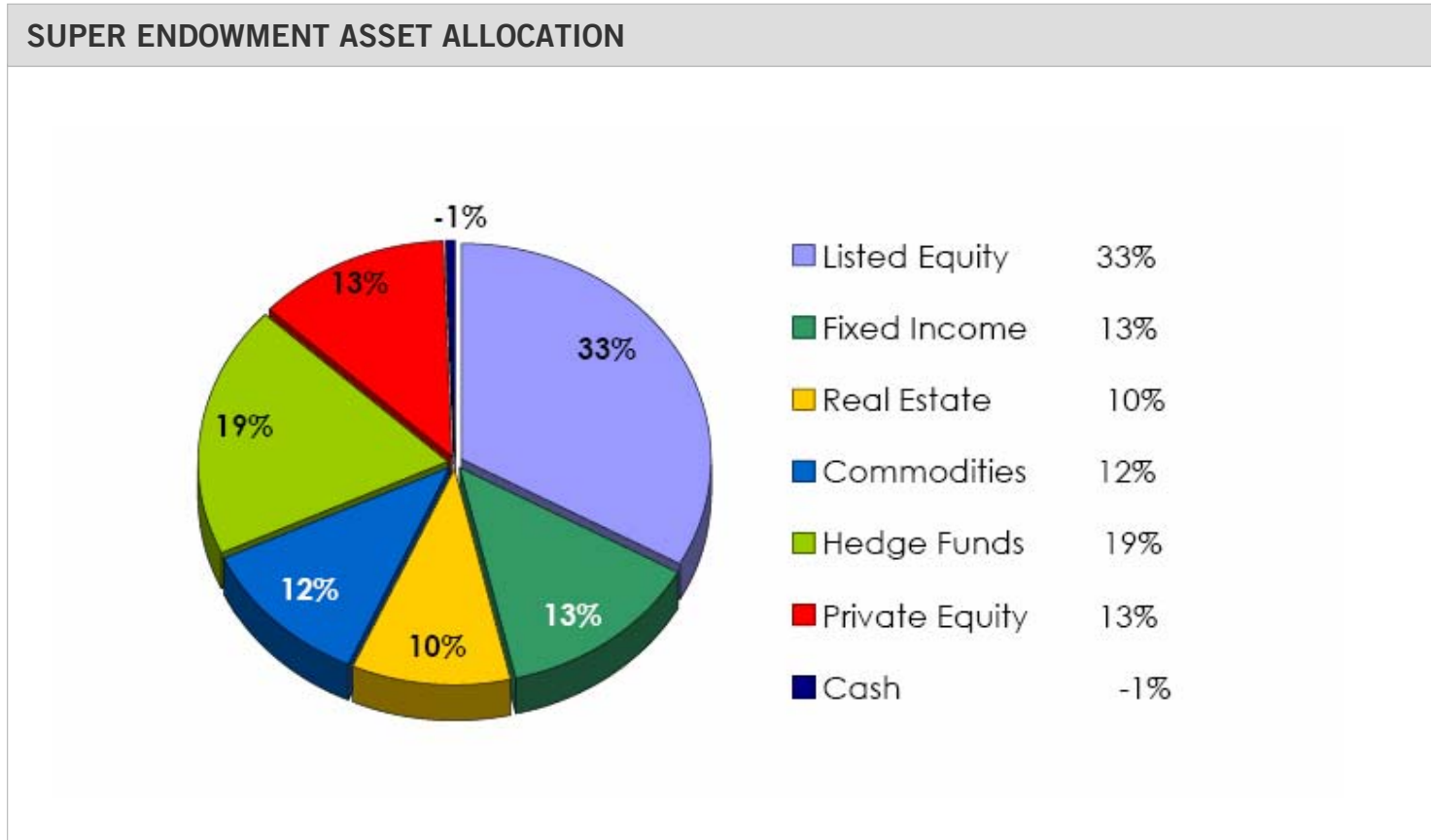


Risk allocation



Example of a risk budget – US university endowments

Allocation



Lifecycle funds – initial conclusions

- Dynamic asset allocation over life time is a highly sensible approach
- Personal factors (wealth, human capital) may dominate age as determining factor
- Dependence on quantitative tools to provide aggressively dogmatic allocations requires very high levels of skill
- ➔ Start with a portfolio that is very broadly diversified across the major *risk* classes
- ➔ Do not allow allocation to become too dogmatic (fixed-income heavy) as retirement age approaches

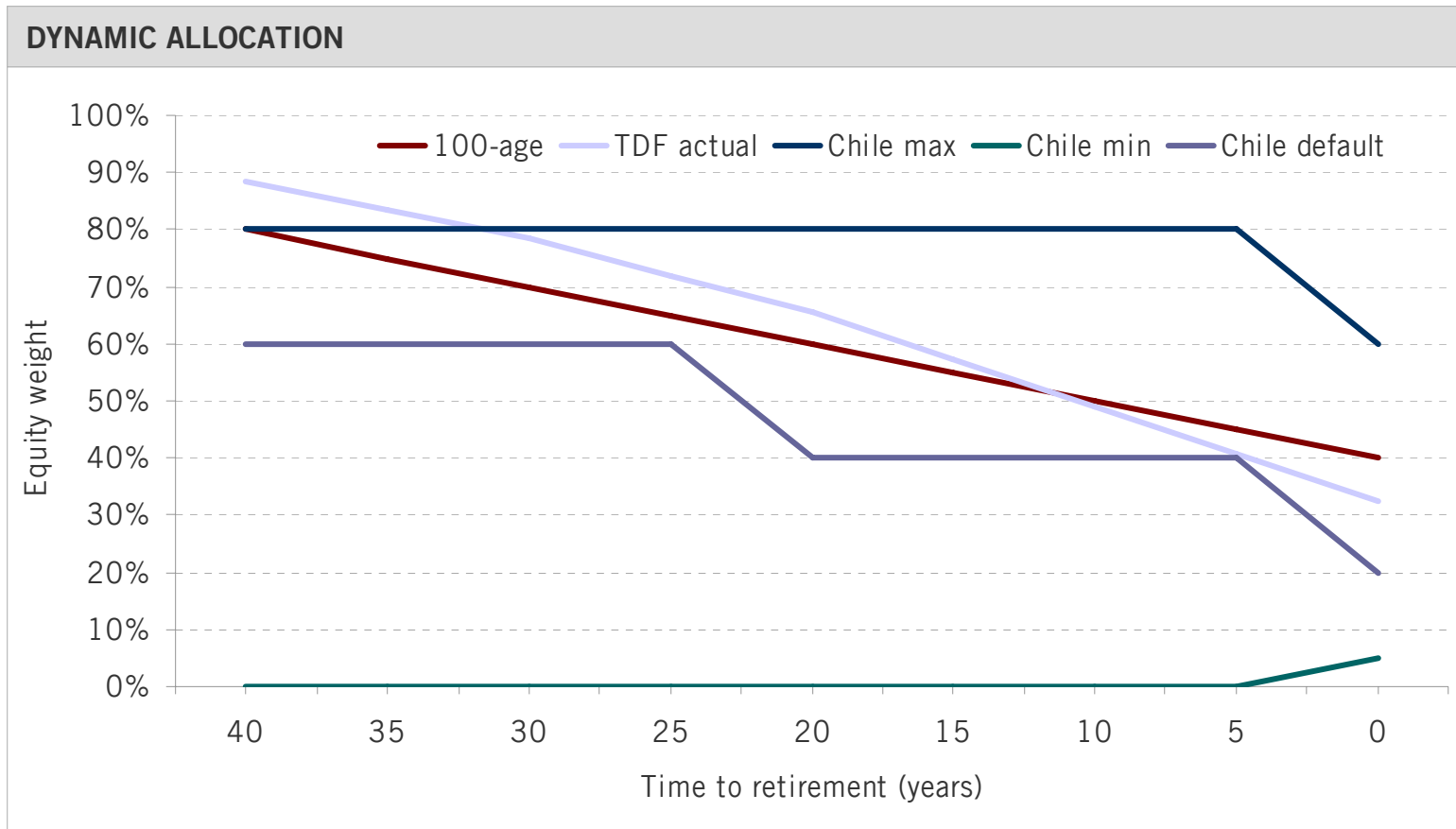
Multifunds

- The multifund approach is obviously superior to the traditional occupational pension plan
 - Greater freedom of choice can accommodate a broader range of individual circumstances
 - Dynamic asset allocation (over life cycle but possibly also market timing)
- Implementation
 - The basic problem:

“Many participants in self-directed retirement plans do not know enough about investing to choose rationally among alternatives. Others may know enough, but find it unpleasant or too time-consuming.”

Bodie and Treussard [2007]
 - Importance of default options
 - Agency problems
 - Horizon issues
 - Regulatory issues

The Chilean solution



Source: Bodie and Treussard (2007). 100-age: equity weight equals 100% – age in %, TDF: average of six US target date funds. Chile max./min.: max./min. allocation to equities under Chilean regulations. Chile default: max. equity allocation for Chilean default solution by age group. Assumes retirement age of 60.

Multifunds – major issues I

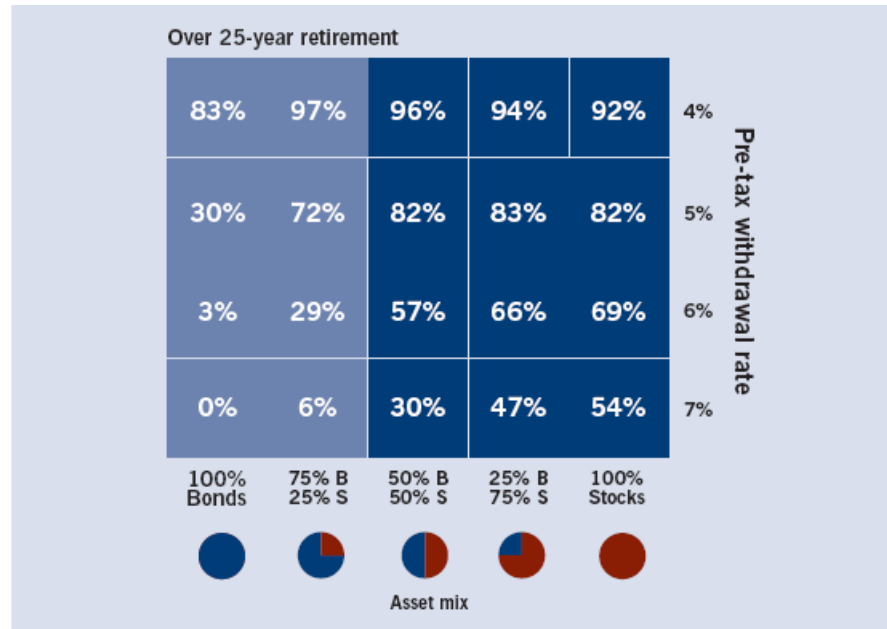
- Asymmetric view on risk during saving phase
 - Strategy too aggressive: failure to achieve target wealth *may* happen but, if it does, very visible and failure may occur tomorrow
 - Strategy too conservative: failure to achieve target is *guaranteed* but problem will become obvious only very far in the future
- Drawdown is *the* major risk factor (in terms of both absolute and relative performance)
 - “Survivability” of strategy/product (given free choice of plan)
- Procyclical allocation by members
 - Chasing what recently worked (market timing)
- Herding: competitive and regulatory pressure on short-term performance

Multifunds – major issues II

- Regulatory impact
 - Minimum return requirement leads to short investment horizon (“need to insure”)
 - Home country bias
 - Alternative investments

Shortfall risk – sustainability of pension payments?

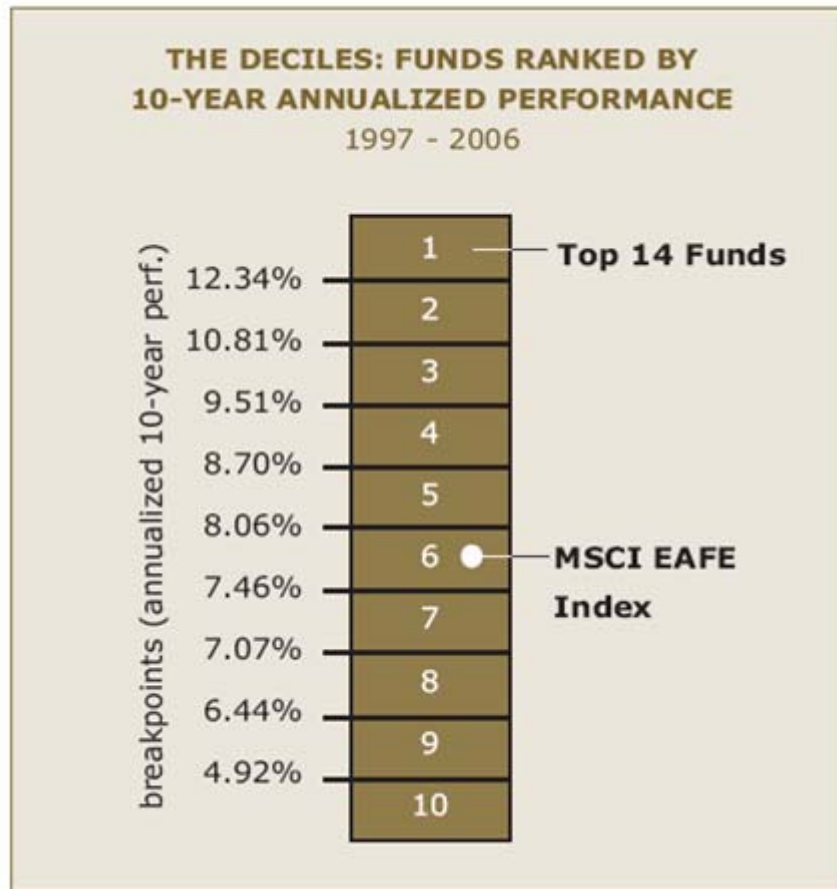
PROBABILITY OF MEETING WITHDRAWAL RATES



Stocks in this example are represented by the S&P 500 Index®, which is an unmanaged group of securities and considered to be representative of the stock market in general. Bonds are represented by the five-year U.S. government bond, inflation by the Consumer Price Index and mutual fund expenses from Morningstar. An investment cannot be made directly in an index. The data assumes reinvestment of income and does not account for taxes or transaction costs. The image was created using parametric simulation that estimates the range of possible outcomes based on a set of assumptions including arithmetic mean (return), standard deviation (risk), and correlation for a set of asset classes. The inputs used are historical 1926–2006 figures. The risk and return of each asset class, cross-correlation, and annual average inflation over this time period follow. Stocks: risk 20.1%, return 12.3%; Bonds: risk 5.7%, return 5.4%; Correlation 0.04; Inflation: return 3.1%. Other investments not considered may have characteristics similar or superior to those being analyzed. The simulation is run 5,000 times, to give 5,000 possible 25-year scenarios. A limitation of this simulation model is that it assumes a constant inflation-adjusted rate of withdrawal, which may not be representative of actual retirement income needs. This type of simulation also assumes that the distribution of returns is normal. Should actual returns not follow this pattern, results may vary. © 2007 Morningstar, Inc. All rights reserved.

Danger of short-term focus – example

EAFE MUTUAL FUNDS



Source: Morningstar, The Brandes Institute
Data as of 31/12/06, EAFE mutual funds, USD returns

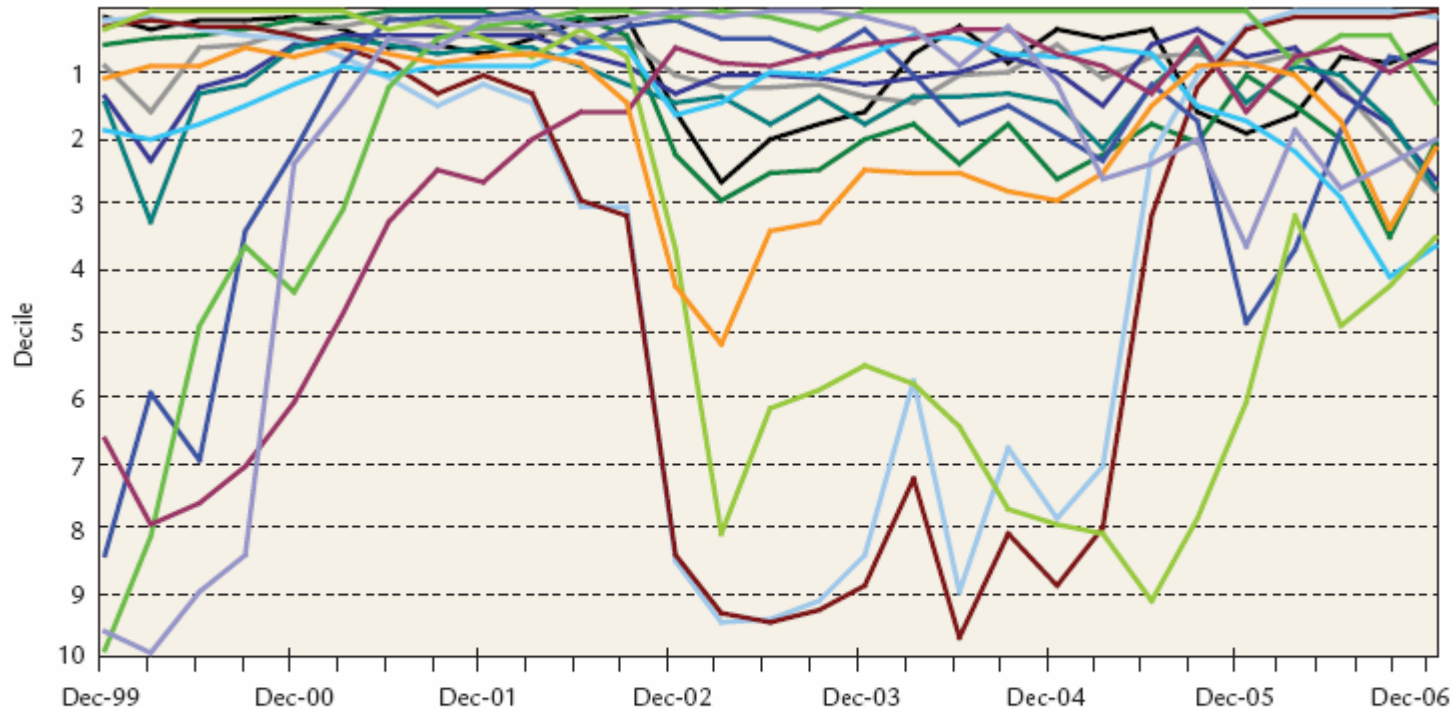
Short-term manager selection

TOP 14 FUNDS: APPEARANCES IN LOWER DECILES (1997 – 2006)

	# of top funds, with at least one appearance at or below...				
	decile 6	decile 7	decile 8	decile 9	decile 10
Based on quarterly performance	14	14	14	13	13
Based on annualized 1-year performance	14	13	13	10	9
Based on annualized 3-year performance	8	7	7	6	4

Short-term vs. long-term

TOP 14 FUNDS: DECILES BASED ON ROLLING 3-YEAR ANNUALIZED PERFORMANCE (1997 – 2006)



Source: Morningstar, The Brandes Institute; as of 12/31/06

Rolling returns are annualized returns for a series of overlapping, smaller time periods within a single, larger time period. A hypothetical example is the 10-year time period from 12/31/96 through 12/31/06, this time period consists of 29 three-year segments on a rolling quarterly basis. The first segment is the three-year period 12/31/96 - 12/31/99, the next segment is the three-year period 3/31/96 - 3/31/99, and so on.

Procyclical allocation?

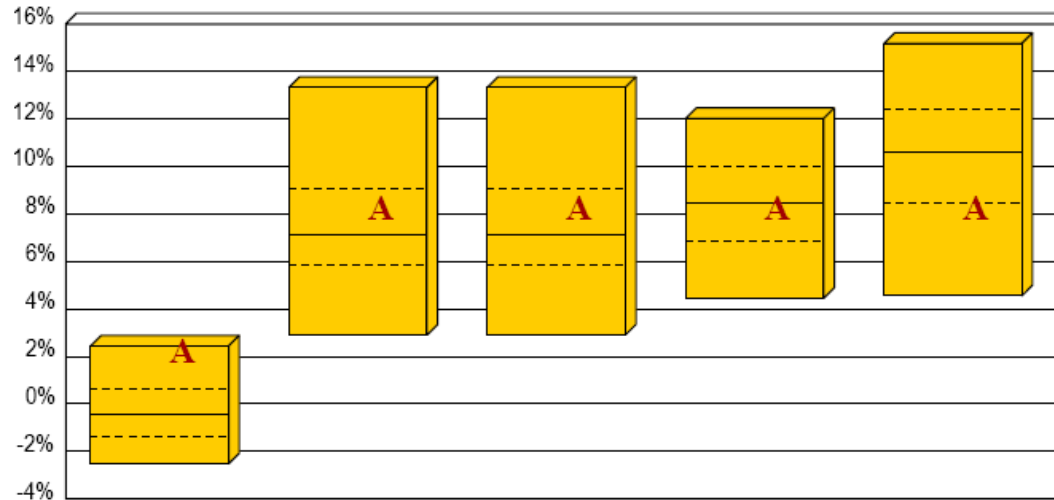
TIME-WEIGHTED VS. MONEY WEIGHTED RETURNS

Table 1 Category	Official 10-Yr. Return	Dollar-Weighted 10-Yr. Return	Difference
Large Growth	7.8%	4.4%	-3.4%
Large Blend	9.1	7.5	-1.6
Large Value	10.0	9.6	-0.4
Small Growth	8.4	5.4	-3.1
Small Blend	11.3	9.0	-2.4
Small Value	13.6	11.6	-2.0
Sector			
Health	12.5	8.5	-4.0
Communications	8.4	3.0	-5.4
Technology	7.7	-5.7	-13.4
Fund			
Vanguard 500	10.2	6.5	-3.7
Janus Mercury	10.1	-3.9	-14.1
White Oak Select Growth	8.2	-14.7	-22.9

Source: Morningstar, Inc. Returns are ended April 30, 2005
 Data: USD mutual fund returns: time-weighted (left) and money-weighted (right)

Herding: how to beat the benchmark?

TOTAL RETURNS OF TOTAL FUND PORTFOLIOS PERIODS ENDING 12/07



	Last Qtr	12/07 YTD	Last Year	Last 3 Years	Last 5 Years
High	2.44	13.32	13.32	12.01	15.17
1st Qt	0.65	9.08	9.08	9.98	12.42
Median	-0.44	7.13	7.13	8.43	10.58
3rd Qt	-1.36	5.83	5.83	6.85	8.45
Low	-2.52	2.90	2.90	4.44	4.55
A 8.0% Absolute Return					
Net Ret	1.94	8.00	8.00	8.00	8.00
Rank	9	37	37	57	78

Prescriptions I

1. Major educational effort required to ensure that potential benefits of multifunds/member choice are realized
2. Set default options towards upper end of range of “acceptable risk”
3. Loosen minimum return requirement (longer horizon)
4. Discourage excessive switching (impose fee?)
5. Loosen restrictions on foreign investment and alternative investments to improve portfolio balance
6. Consider extending freedom of choice to allow individual, tailored solutions

Conclusions

- Multifund structure is superior alternative to traditional pension funds
- Realisation of potential requires major educational effort to ensure that members are sufficiently knowledgeable to exploit positive aspects of multifund system
- “Herding” may lead to very limited real choice for members
- Other dangers include poorly timed, overly frequent changes of funds and insufficient risk taking during the accumulation phase
- Regulatory drag introduced by short-term minimum return requirements may introduce large opportunity costs
- Member choice including direct access to building blocks of pension funds would alleviate most problems

PAM Definition In this document, "PAM" refers to the institutional business division of Pictet & Cie. PAM includes all the operating subsidiaries and divisions of the Group that carry on institutional asset management. It comprises PAM Switzerland (including Pictet Asset Management SA, a Swiss corporation registered with the Swiss Federal Banking Commission) Pictet Asset Management Ltd., an English company, authorised and regulated by the Financial Services Authority, and Pictet Asset Management (Japan) Limited, a Japanese company regulated by the Financial Services Agency of Japan.

Disclaimer This document is produced for information purposes and does not constitute investment advice, nor does it constitute a recommendation or solicitation to buy shares. Any research or analysis used in the preparation of this document is based upon sources believed to be reliable, but no representation or warranty is given as to the accuracy or completeness of those sources. Any opinions, estimates or forecasts may be changed at any time **without prior warning**.

This document is not intended for distribution to private investors and is not directed to, or intended for distribution to or use by, any person or entity who is a citizen or resident of or located in any locality, state, country or other jurisdiction where such distribution, publication, availability or use would be contrary to law or regulation.

Pictet Asset Management Limited or any of its connected companies may from time to time deal in investments mentioned herein on behalf of its clients.

The value of an investment and the income received from it can go down as well as up and, on sale; investors may not get back the full amount invested. Past performance is no guarantee of future performance. Changes in the rates of exchange may have an adverse effect on the value of an investment. The prices of small cap stocks tend to be more volatile than the prices of other stocks and are sometimes less liquid and harder to value than securities of large cap stocks. Emerging markets tend to be less liquid and more volatile than developed markets. Furthermore, these markets face a certain number of specific risks (dramatic changes in currency rates and modifications of exchange control regulations)

Persons dealing with Pictet entities outside the UK are not covered by the rules and regulations made for the protection of investors in the UK. This means that such persons will not have the benefit of rights designed to protect investors under the Financial Services Authority. In particular such persons will not benefit from the right to claim through the Financial Services Compensation Scheme for losses resulting from a default of obligations owed under relevant regulations, and will not have the right to complain to the Financial Ombudsman Service.

This document has been issued by Pictet Asset Management SA This document may not be reproduced or distributed, either in part or in full, without prior authorisation being obtained from Pictet Asset Management.