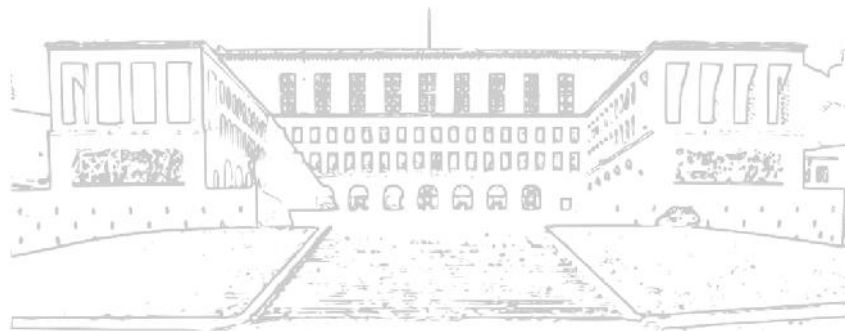


## FINANCIAL MARKETS AND INSTITUTIONS

### MUTUAL FUNDS

A.Y. 2016/2017  
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### AGENDA

- Rationale of mutual funds
- Performance measures: NAV
- Types of mutual funds
- Mutual funds and conflicts of interest

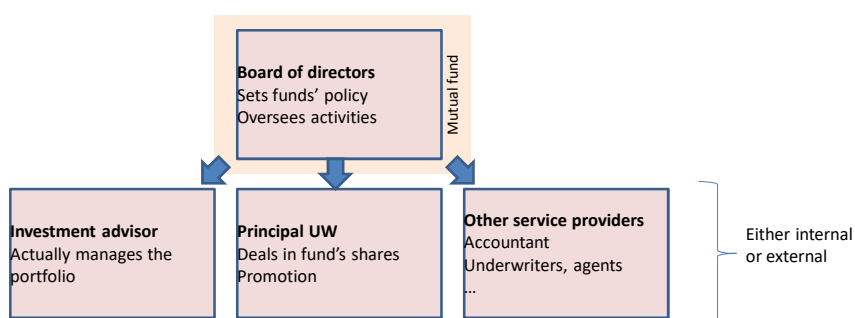
## RATIONALE OF MUTUAL FUNDS

Impressive **exponential growth** in the last decades closely linked with their competitive advantage:

- **liquidity** of investments
- **access** to securities sold at large-denominations
- **diversification** also for small invested capitals
- **affordable** fees Vs huge transaction costs
- provision of **expertise** on a continual basis
- cheap and quick **transferability** of funds

## RATIONALE OF MUTUAL FUNDS

Recurring structure



Otherwise, like investing in stocks: periodic earnings and capital gains

## PERFORMANCE MEASURES

Main tool for evaluating funds' performance:

- $$\frac{\text{MARKET VALUE OF ASSETS} - \text{LIABILITIES}}{\text{NUMBER OF SHARES}}$$
- represents the current purchase or selling price for funds' shares

However other measures exist:

- To account for risk-taking (f.i. Sharpe ratio)
- To measure performance specific to an actual investor (f.i. MWRR)
- To measure funds' overperformance due to active management (f.i. Treynor ratio)
- ...

## TYPES OF MUTUAL FUNDS

Among several potential categories, a few emerge:

- **close-end:**
  - mutual funds' shares are fixed in number at the initial offering
  - this limits new investments but avoids withdrawals
  - frequent, f.i., when dealing with real estate
- **open-end:**
  - vast majority
  - new investors lead funds to issue new shares
  - buy-backs are frequent

## TYPES OF MUTUAL FUNDS

Main investment target:

- **equity** funds: aiming at current income (dividends), capital gains or a combination (i.e. total return funds)
- **bond** funds: government, corporate, currency, maturity, ...
- **money market** funds: short-term, versatile and cheap
- **hybrid** funds: stocks and bonds together
- **index** funds: passive management (f.i. ETFs, ETCs, ...)
- **hedge** funds: seeking pricing anomalies from predicted paths, often unregulated and/or offshore, longer term to cope with higher risk, frequent use of leverage

## TYPES OF MUTUAL FUNDS

Fee structure:

- **load funds**: commissions are paid to intermediaries up-front reducing the investment
- **deferred load funds**: fees are charged when leaving the fund, usually with % declining in time (redemption fee)
- **no-load funds**: sold directly with no direct charges

Several kinds of fees exist:

- costs of **switching** between complexes and families
- periodic **administrative** or similar fees
- **sharing** of income with shareholders
- ...

## CONFLICTS OF INTEREST

Typical agency issues of mutual funds encompass the following:

- **free-riding** in monitoring directors and advisers
- **late trading:**
  - allowing trades received after CoB to be settled at day's end prices instead of next day's opening
  - unethical, becomes illegal when *certain* investors could do it *harming* other investors by diluting funds' NAV
- **market timing:**
  - allowing trades taking advantage of time differences around the world and diverging foreign securities' prices
  - legal but considered unethical

Regulatory solutions: more **transparency**, **independency** of directors, **fees** or **rules** discouraging hit-and-run strategies

## EXAMPLES

1. Two mutual funds differ for their costs: Fund 1 has a 6% upfront fee and running fees for 1%. Fund 2 has a 4% final fee and running fees for 1.2%. Assuming a return of 10%, which one performs better for the investor in 5, 10, 15 and 20 years? What if the gross return starts at 5% and grows every year by 0.5%? What if the gross return starts at 7.5%, grows every year by 0.5% until it reaches 11%, then a market shock pushes it back to -10% for 1 year, -5% for another year, and then to 5% growing again at a 0.5% pace?

$$FV_1 = (1 - ef_1) \cdot (1 + i - rf_1)^t$$

$$FV_2 = (1 + i - rf_2)^t \cdot (1 - ff_2)$$

	Fund 1	Fund 2
5 y	1.45	1.46
10 y	2.23	2.23
15 y	3.42	3.40
20 y	5.27	5.19

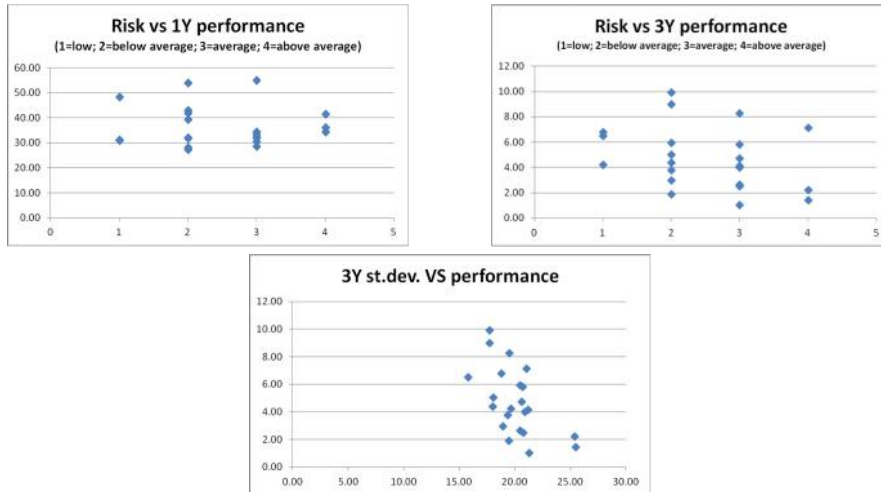
$$FV_1 = (1 - ef_1) \cdot \prod_{h=1}^t (1 + i_h - rf_1)$$

$$FV_2 = \prod_{h=1}^t (1 + i_h - rf_1) \cdot (1 - ff_2)$$

	Fund 1 A	Fund 2 A	Fund 1 B	Fund 2 B
5 y	1.20	1.23	1.35	1.38
10 y	1.72	1.76	1.48	1.51
15 y	2.77	2.83	1.89	1.93
20 y	5.00	5.10	2.71	2.77

## EXAMPLES

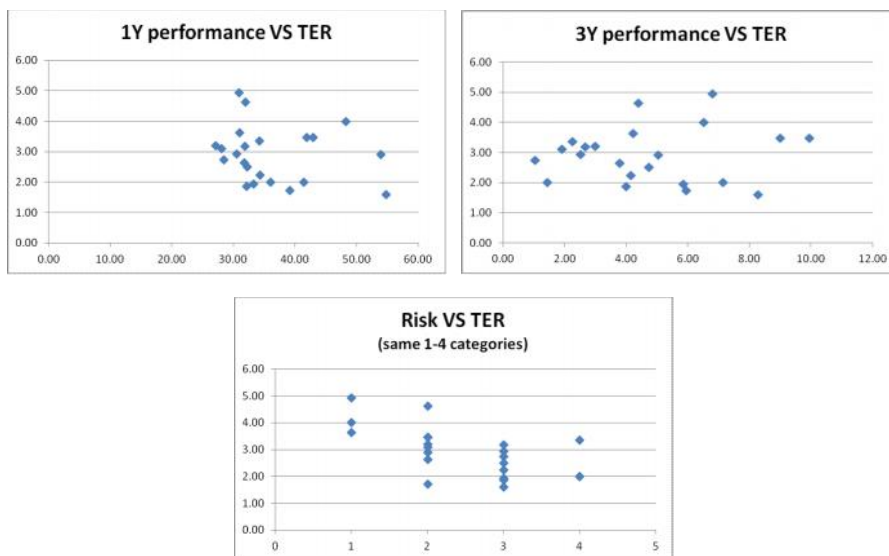
2. Several websites provide plenty of data on mutual funds (f.i. Morningstar). Consider the following comparison of Italian funds specialised in Italian stocks and dedicated to the retail market. Comments?



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## EXAMPLES



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## EXAMPLES

