21. Investment strategies & merger arbitrage

= How can I profit from stock P ∆ caused by M&A deals?

1. Pre-bid  
   = buy shares of potential takeover targets
2. Post-bid  
   = merger arbitrage

1. TAKEOVER TARGETS

1.1 Detecting targets

= Rules of thumb based on market experience & academic research

**Higher P(takeover)**

* Smaller company
  + More buyers can afford purchase cost
  + Easier to integrate into existing operations
  + Lower defense capacity against hostile takeovers
* Lower stock market valuation
  + Low P/E, high div yield
  + Low takeover P
  + Low growth expectations as stand-alone company
* Lower management efficiency
  + Lower profit margins (ROA, ROE) than industry peers
  + Lower sales growth
  + Lower inventory turnover
  + Poorly performing subsidiaries, too much real estate holdings
* Very high/low leverage and/or liquidity
  + High leverage and/or low liquidity  
    = signal of financial distress (weak prey)
  + Low leverage and/or high liquidity  
    = buy company and use the company’s own excess of cash to recover part of cost

**Characteristics**

1. Industry  
   = M&A deals clustered across industries
2. Market conditions  
   = hot (risk too high) vs. cold markets
3. Stock P momentum  
   = speculation and/or insider trading often leads to + P momentum during weeks prior to bid announcement
4. Prediction model
   1. Most European quoted companies acquired 1992-2003 succeeded
   2. Larger companies  
      = P(acquisition) lower
5. Trading strategy  
   ! Expensive strategy  
   ! # funds , reward
   1. Compute P(takeover) of all companies in broad market index according to model
   2. Order all shares
   3. Buy top-10% takeover candidates
   4. Update portfolio composition once a month

1.2 M&A mutual funds

= an investment strategy that speculates on the successful completion of M&A

= in tw funds high risk/return & funds low risk/return

🡪 Sharpe ratio = (Ri – Rf)/σi = the larger, the better

🡪 S&P index, do lot better but also have more risk  
🡪 Downside risk valued more than upside risk

2. POST-BID STRATEGY: MERGER ARBITRAGE

= When deal is announced, stock P target increases to level just below (1-2%) value of bid

= speculates on successful completion of deal  
= zero-investment purchase of a security financed by the sale of an identical security at a higher P.

🡪 Zero P(loss) & positive P(profit) = risk free! But risky due to occasional deal failure

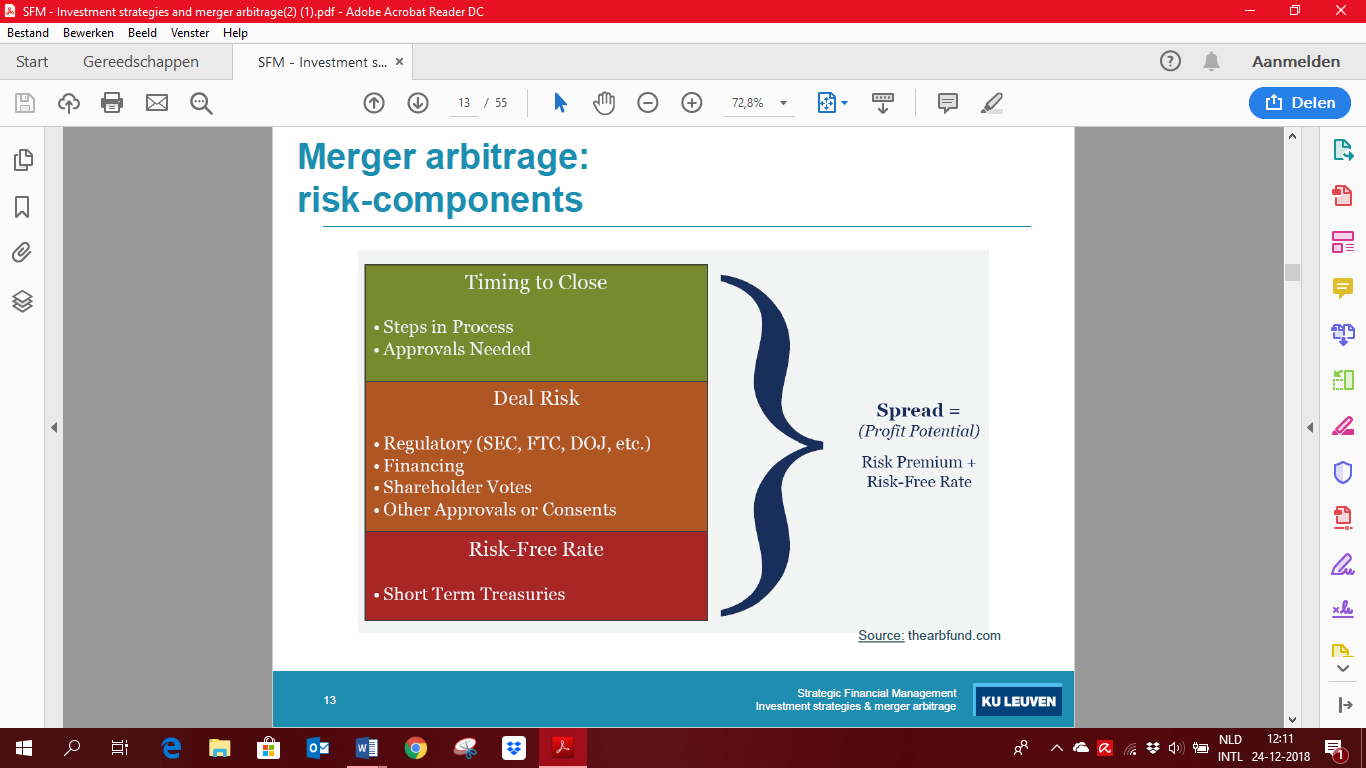
**! Risk arbitrage/Deal arbitrage**

= No pure arbitrage strategy, given there is always risk of non-completed deal   
e.g. buyer doesn’t have money/ antitrust laws block deal

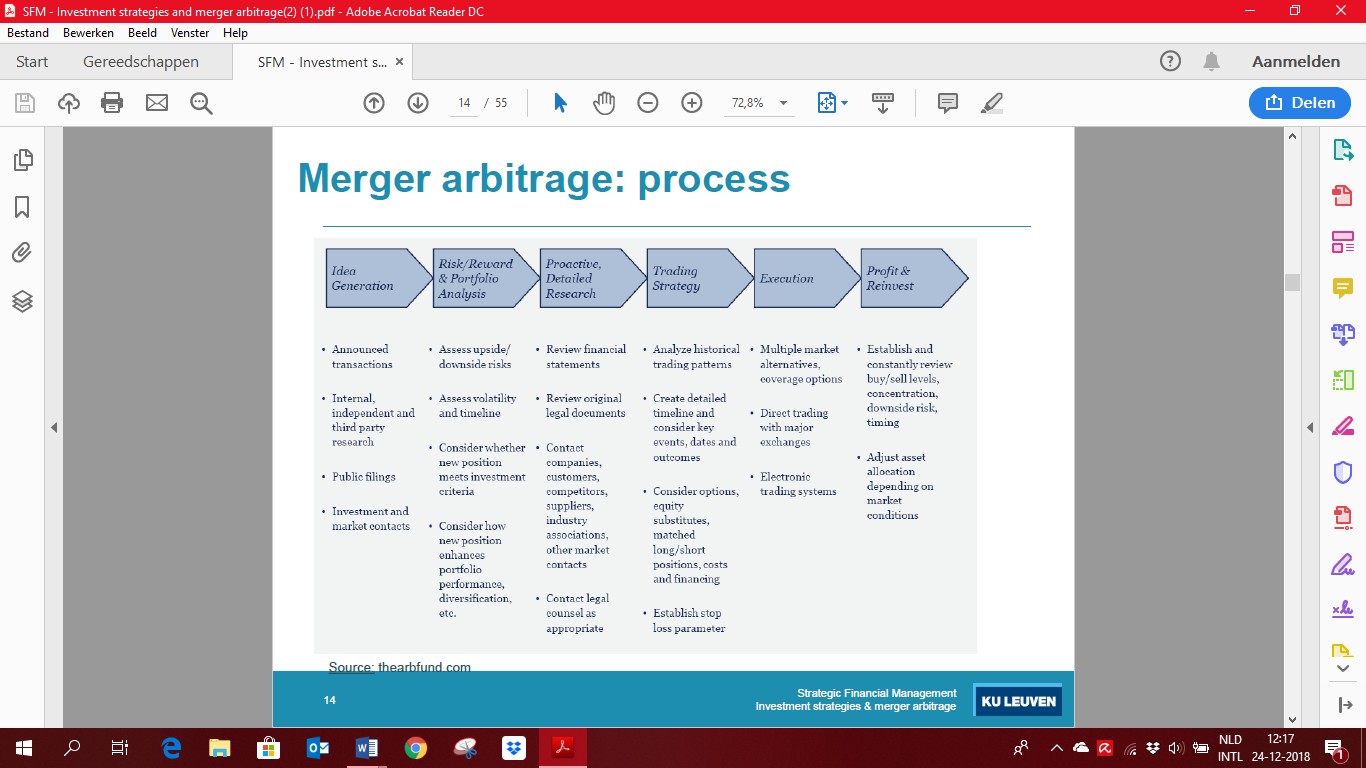
2.1 Existing shareholders

1. Receive large part of bid premium if they sell immediately
2. Reward for waiting  
   = some additional percentage points
3. Risk of waiting  
   = deal falls apart
   1. Important losses
   2. Sell shares to arbitrageur (insurance against deal risk)

2.2. Merger arbitrage: Risk-components



2.3 Merger arbitrage: Process



2.4 Merger arbitrage: Strategies

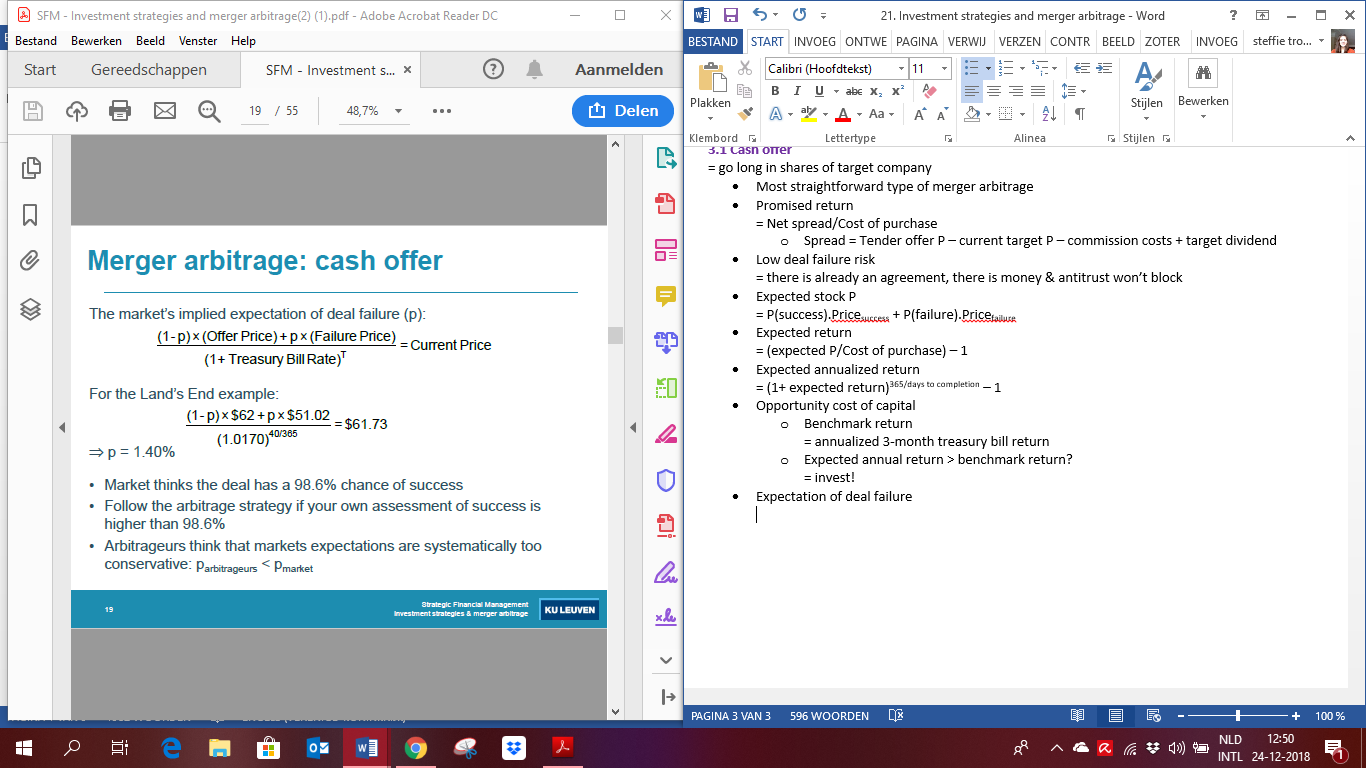
Basic strategies

1. Long only
   1. Buy shares of target company
   2. Financed with own funds + ST loans
2. Long + short
   1. Buy shares of target company + short shares of bidder
   2. Finance (part of) long position with short position’s proceeds, then use own funds & ST loans
3. Basic strategies can be combined with derivatives to increase strategy’s leverage and/or hedge market risk

3. THREE TYPES OF MERGER ARBITRAGE

3.1 Cash offer

= go long in shares of target company

* Most straightforward type of merger arbitrage
* Promised return  
  = Net spread/Cost of purchase
  + Spread = Tender offer P – current target P – commission costs + target dividend
  + Spread decreases as deal gets closer to completion
* Low deal failure risk  
  = there is already an agreement, there is money & antitrust won’t block
* Expected stock P   
  = P(success).Pricesuccess + P(failure).Pricefailure
* Expected return  
  = (expected P/Cost of purchase) – 1
* Expected annualized return  
  = (1+ expected return)365/days to completion – 1
* Opportunity cost of capital
  + Benchmark return  
    = annualized 3-month treasury bill return
  + Expected annual return > benchmark return?  
    = invest!
* Expectation of deal failure  
  
  + Break-even analysis  
    = alternative method  
    = market’s implied expectation of deal failure (p) can be computed from break-even relationship
    - (1-p) x (profit if deal succeeds) + p x (loss if deal fails) = 0
    - P = …
    - Follow arbitrage strategy if own assessment of success > 1-p

3.2 Exchange offer

= company A wants to acquire company B by exchanging shares of A for shares of B

**Strategy**

= long in target & short in bidder

* Limit financing needs (use proceeds short position to finance long position)
* Neutralize exposure to value of bidder’s share P
* Hedged vs unhedged
  + Unhedged investment  
    = captures spread only if bidder P at completion deal = closing P start date
  + Hedged investment  
    = shorts x shares of bidder for each share of target purchased  
    = captures spread as long as deal is completed
* Adjust (gross) spread for all costs & benefits linked to the strategy’s positions
  + Gross spread + target div – bidder div + Short interest proceeds – commission cost  
    = net spread
  + Return   
    = net spread/cost of purchase
    - Cost of purchase = offer P – net spread
  + Expected annualized return  
    = (1 + expected return)(12/months to completion) – 1
* Medium – high deal failure risk
  + Large amount of public criticism
  + High risk of antitrust intervention
  + Resistance from bidder’s largest shareholders
* Stock p & implied P(success) continuously ∆

3.3 Combined offer

= exchange offer + fixed cash amount

Strategy

= long in target & short in bidder for the exchange offer part of the bid

3.4 Other types

1. Combined offer with fixed % of shares/cash
   1. Exchange offer + cash
2. Combined offer with variable exchange ratio  
   = derivatives

! When you get in offer at different times

= \* different results & different prospectives about success/failure

4. EMPIRICAL EVIDENCE

= evidence of very high excess returns

* Correlation other assets low
* Beta should be low (zero)  
  = if deal risk uncorrelated with market returns

5. MERGER ARBITRAGE FUNDS

5.1 Merger arbitrage funds

= offers opportunities to make small % of profits during short periods of time (deal = ±4 months)

* Viable strategy
  + Needs constant flow of new cases  
    = consider almost all M&A deals in certain market
  + Needs to be able to invest large amounts in each deal

🡪 Specialized merger arb funds

5.2 MAF & leverage

= returns low, so need to be levered

* Expected return x # times per year – net interest on loan = net profit
* Net profit/equity investment (fund) = return
* If too many deals fail  
  = not enough money to pay interest

5.3 Selling points

* Professional, advanced strategy with proven track-record
* High (Excess) returns
* Low correlation with other assets, low (zero) beta
* Example The Arbitrage Fund
* Risk return comparison & performance comparison  
  = S&P very high return, but also high risk

**Problems with selling points**

1. Professional, advanced strategy with proven track-record
   1. Survivorship bias  
      = Funds that are active today, are not funds that went out of bs in the past  
      = more skill or more luck?
2. High (excess) returns?  
   = theoretical excess returns high, but should be corrected by
   1. Transaction costs
   2. Impact of arbitrage trading on profit potential (share P)   
      = size of arbitrage positions limited
3. Low correlation with other assets  
   = low beta  
   = true, but only if markets are doing well!

5.4 MAF: returns

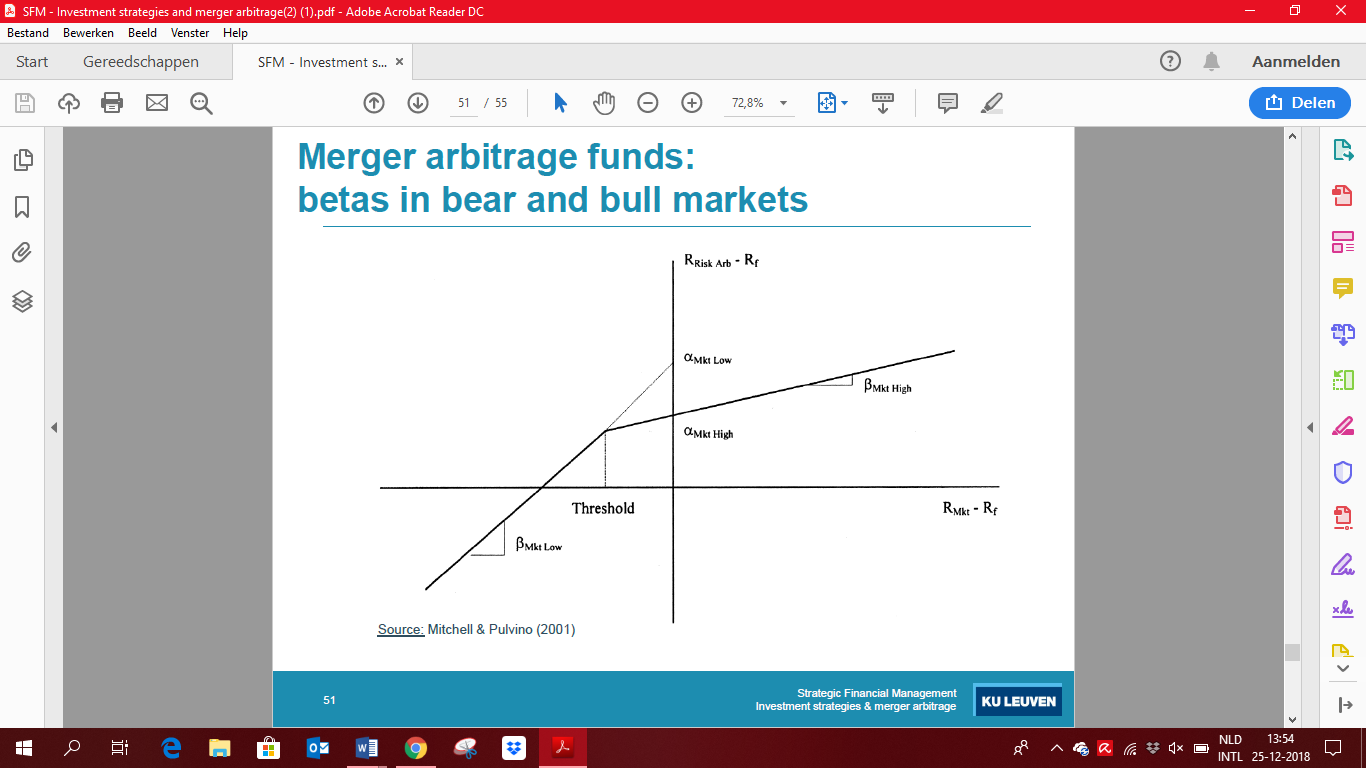
1. After controlling for market risk  
   = significant 0.3% α on monthly basis
2. Excess return 3-4% annual
   1. Fair compensation for deal risk & increasing market liquidity

S&P merger arbitrage index

= provide risk arbitrage strategy that exploits commonly observed P∆ associated with global selection of publicly announced M&As

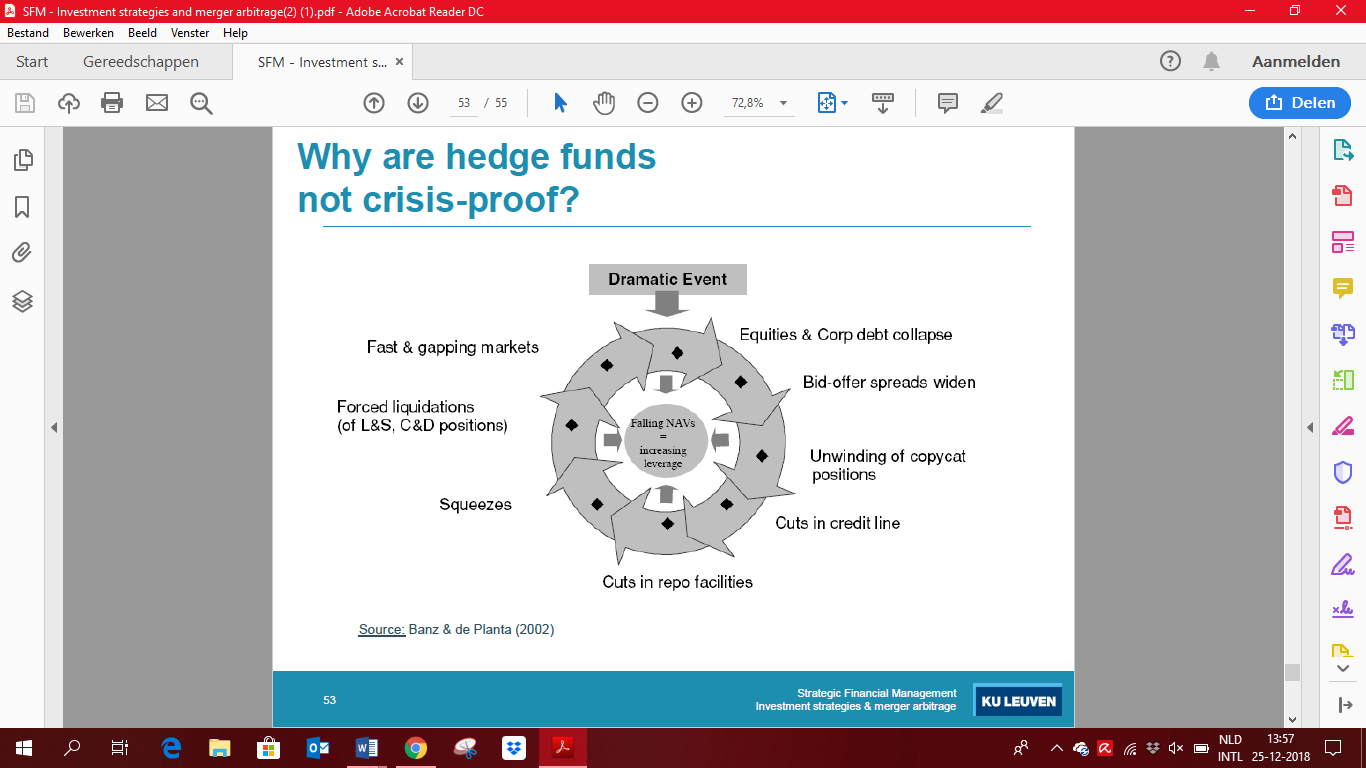
5.5 MAF: correlation with other assets

🡪 Risk is asymmetric!

🡪 Market beta almost 0 in bull markets (0.02), but increases to 0.49 in bear markets

**Effect of economic crisis**

🡪 During crisis: MAF go down alogn with markest (no zero beta)

🡪 Why are hedge funds not crisis proof?