

Alternative investments

Required Rate = $(1 + \text{Inflation})(1 + \text{Real Rate} + \text{Risk Premium}) - 1$

Expected Return = Risk Free + $\beta(\text{Expected Market Return} - \text{Risk Free})$

Return = Constant + $\sum (\text{Factor Sensitivity}_i)(\text{Factor Value}_i)$

$V_0 = \sum [\text{Cash Flow}_i / (1+k)^i] + [(\text{Cash Flow}_{N+1} / k - g) / (1+k)^N]$

Effects of Property Selection = $\sum (\text{Active Allocation Weights})(\text{Active} - \text{Passive Returns})$

Effects of Market Selection = $\sum (\text{Active Weight} - \text{Passive Weight})(\text{Passive Returns})$

$\text{HPR} = \sum \text{HPR}_i / N$

Coefficient of Variation = σ / Return

Return = Spread_{Long-Short} + Short Rebate + Interest on Cash

Return = Spread_{Long-Short} + Short Rebate + Interest_{Cash & Margin on Futures} + Return on Futures

Real Estate Portfolio Management

flashcard concepts

- Uncertainty in the real estate space markets is driven by (a) existing over-supply, (b) global competition and downsizing, and (c) the electronic revolution and (d) shifting demographics
- The six steps in the real estate portfolio management process are:
 - *Determining Investor Objectives and Constraints*
 - *Determining Real Estate Market Conditions & Expectations*
 - *Determining the Target Portfolio*
 - *Determining the Portfolio Strategy*
 - *Monitoring & Rebalancing*
 - *Performance Measurement & Attribution*
- Hotels, offices and Raw land are the riskiest real estate investments with the highest return whereas apartments, industrial, and sale leasebacks are least risky with lower returns
- Active management should be employed in real estate markets due to their relative inefficiency
- Real estate cash flows are composed of two components: (a) bond-like lease cash flows and (b) reversionary or terminal value
- Non-diversifiable risk is typically associated with the attributes of the national market
- Diversifiable risk is relative to regional markets, local markets, and individual properties
- Examples of diversifiable risk are vacancies, employment growth, demographic trends, income growth, construction costs, property-specific characteristics, etc.
- **REQUIRED RATE** = $(1 + \text{Inflation})(1 + \text{Real Estate} + \text{Risk Premium}) - 1$
- **EXPECTED RETURN** = **RISK-FREE** + $\beta (\text{Expected Market Return} - \text{Risk Free})$
- **Return** = Constant + $\sum (\text{Factor Sensitivity}_i)(\text{Factor Value}_i)$
- $V_0 = \sum (\text{Cash Flow}_i / [1+k]^i) + ([\text{Cash Flow}_{N+1}/k-g] / [1+k]^N)$
- Be ready to compute the expected return of a real estate investment using scenario analysis
- Due to the poor quality of real estate data, the inputs to efficient frontier analysis should be reconciled using several different methods and judgment should be employed when deciding on final values of these inputs

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- The target portfolio represents the optimal real estate allocation between property types or geographic sectors. Instead of using the actual target allocation, develop a target RANGE instead
- Market Timing and Property Selection techniques can be used to add value or enhance portfolio return
- Memorize the following performance attribution formulas
Effects of Property Selection = $\Sigma(\text{Active Allocation Weights})(\text{Active} - \text{Passive Returns})$
Effects of Market Selection = $\Sigma(\text{Active Weight} - \text{Passive Weight})(\text{Passive Return})$

Problem Set: real estate portfolio management by lieblich

1. Briefly DESCRIBE investor objectives and constraints as they apply to real estate investing

Investor Objectives & Constraints are:

- *Return Requirements*: You must determine the nature of the client's return requirements. Do you use real or nominal returns? After-tax returns? Do you focus on income or capital gains
- *Risk Tolerance*: Hotels, offices and raw land are the riskiest real estate investments while apartments, industrial complexes, and sale leasebacks are the least risky. The investor's risk tolerance will determine the types of properties that should be considered for investment
- *Liquidity and Time Horizon*: Real estate by nature is an illiquid investment. Therefore, cash requirements must be carefully monitored. REITs can solve some liquidity problems
- *Taxes & Legal, Regulatory Considerations*: After-tax returns should be maximized and legal/regulatory problems should be minimized

2. DEFINE Two portfolio Management approaches

There are 2 basic approaches (1) Top-down management and (2) bottom-up management

- *Top Down*: focus starts with the national economy and then moves to regional and local markets that are expected to provide superior performance. Property selection is the last step in a top-down approach
- *Bottom-up*: application of asset-by-asset portfolio management. You are simply trying to find mispriced assets. The bottom-up approach does not consider how an asset fits within a larger portfolio context

3. DISCUSS both the systematic and diversifiable risks that relate to the real estate markets

The risk factors of real estate investments can be separated by SYSTEMATIC & UNSYSTEMATIC (or Diversifiable) Risk

- *Systematic*: cannot be diversified away. Systematic risk is associated with the risk of the NATIONAL MARKET. Examples of non-diversifiable risk are taxation policies, inflation, cap rates (risk premiums), discount rates, and the business cycle
- *Unsystematic*: Diversifiable components or real estate risk are associated primarily with the regional market, local market, and individual properties. As the number and type of properties in the portfolio increases, diversifiable risk falls. This is your old diversification argument
 - > Regional market diversifiable risks are demographic trends, income growth, vacancies, and the growth of the employment base. The concept of a regional market is

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moving away from the grouping of contiguous states and toward the definition of 'regions' based on employment base. For example, a 'region' might be defined as a group of metropolitan areas that have a heavy concentration of manufacturing jobs. Hence, the key regional diversifiable risk that you should remember is the growth of the employment base

- > Local market diversifiable risks include construction costs, state and local taxes, employment base, income levels and vacancy rates
- > Property specific risks include location, lease structure, financing characteristics, property age and condition, and property management quality

4. Briefly DESCRIBE the need for judgment when deciding on portfolio optimization inputs in real estate investment analysis

Real estate data is of inherently poor quality. Therefore, judgment must be used when deciding on optimization inputs to make sure that the data is providing coherent and usable data. If the data doesn't make sense, then it should be reconciled with other methodologies.

International Real Estate Investment

flashcard concepts

- Memorize at least a few of the key market variables listed in the chart

<i>- Macro Factors</i>	<i>Micro Factors</i>
Nat'l Stats, GDP, Savings rate	Supply & Demand for space, local activity
Currency fluctuations, inflation income	
Political Stability	Local Political & Social issues
Social Stability	
Organizational & bureaucratic structures	
Financial System Structure	Leasing Market - terms and conditions
Property Market Structure (laws)	Property market structures (local mgmt, transaction costs)
National Real Estate returns	
Consumer psychology & culture	Local/regional real estate returns
- A systematic approach to international real estate investing is a top-down approach that quantifies the investment decision based on a rank ordering of macroeconomic variables. The intuitive approach is more of a bottom-up approach where the seasoned investor goes right to the analysis of individual property markets
- The pitfalls of using multinational economic data are:
 - Computation of statistics can differ across borders
 - Investors may misinterpret economic statistics
 - Foreign economic statistics may be computed with a considerable lag and be prone to other quality problems
- The five-step decision process for investing in international real estate is:
 - Reduce the World to a Manageable Size, which involves performing a FIRST-PASS country selection screen based on selected macro variables
 - Select the Local Markets. KEY variables here are Inflation, debt:GDP, Corporate profitability, and real estate construction. Here you have to be careful to consider the correlation between individual property markets. Diversification is achieved by investing

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in markets that do not rely on the same industry for their tenant base. Tax-legal issues are another important consideration

- Compare local market returns
 - Select individual properties. This process involves a more comprehensive look at the fundamentals and opportunities, composition of individual property arrangements, and tax-legal implications for prospective deals
 - Monitor & Rebalance the portfolio. This process involves comparing outcomes against appropriate benchmarks, obtaining approval from the board for necessary internal decisions and outlining future actions
- Local Market cycles are influenced by local market patterns, limits to new construction and financing practices

Problem Set: international real estate investing by Arnold & grossman

1. DISCUSS the difference between a Systematic approach to international real estate investing and a more Intuitive approach to the process

A Systematic approach to international real estate investing is a top-down approach that quantifies the investment decision based on a rank ordering of macroeconomic variables. The Intuitive approach is more of a bottom-up approach where the seasoned investor goes right to the analysis of individual property markets

2. BRIEFLY DISCUSS the pitfalls of evaluating multinational economic data for use in the international real estate decision-making process

The pitfalls of using multi-national economic data are:

- Computation of statistics can differ across borders
- Investors may misinterpret economic statistics
- Foreign economic statistics may be computed with a considerable lag and be prone to other quality problems

3. OUTLINE a multi-stage international real estate decision-making procedure

- Reduce the world to a manageable size, which involves performing a first-pass country selection screen based on selected macro variables
- Select the local markets. Key variables here are inflation, debt:GDP, corporate profitability, and real estate construction. Here you have to be careful to consider the correlation between individual property markets. Diversification is achieved by investing in markets that do not rely on the same industry for their tenant base. Tax-legal issues are another important consideration
- Compare local market returns
- Select individual properties. This process involves a more comprehensive look at the fundamentals and opportunities, composition of individual property arrangements, and tax-legal implication for prospective deals.
- Monitor and rebalance the portfolio. This process involves comparing outcomes against appropriate benchmarks, obtaining approval from the board for necessary internal decisions, and outlining future actions

4. DISCUSS how each of the following factors influence international real estate investment

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i. Local Market Patterns - must recognize:

- Sources of Space demand within a market (financial, services, gov't, industrial, etc.)
- whether there are a few larger players or a larger number of smaller players
- higher correlations in tenant base between local markets, though unique characteristics still exist based on type of local economics
- diversification benefits remain because of variations in timing, location, and type of product demanded in local markets, as well as the local tenant base and employment fluctuations

ii. Limits to New Construction - influenced by political & bureaucratic restriction including:

- concern for existing historical structures and the time delays on planning approval & construction
- limits on rents and restrictions on retail leases to protect small businesses from the competition of malls
- limits on expansion in order to protect the supply of agricultural land
- actions which encourage/discourage new construction based on transportation access, quality of life, and technological needs

iii. Financing Practices - financing practices influence international real estate investment

- Conservative lending practices help promote a steady, stable development program
- Differences in lease terms can differ significantly among markets with respect to lease terms (length, rent review, and rent indexation), lease escalation clauses, responsibility for space improvements (ordinary & structural), responsibility for insurance, and special taxes on rental space
- recently, lessors have included clause allowing the right to cancel after a specified interval, free rent and space improvement allowances

Real Estate Investment Performance

flashcard concepts

- EREITs are traded on organized exchanges, liquid, and highly correlated with small stocks. EREITs can be levered trusts
- Mortgage REITs differ from EREITs in that mortgage REITs make commercial real estate loans. EREITs own & manage real property
- The NCREIF index uses Appraisal data to compute the value of the index. The result is an Appraisal Smoothing characteristic of the NCREIF relative to an EREIT index
- The appraisal smoothing of the NCREIF index leads to lower standard deviations and higher risk-adjusted returns (as measured by the coefficient of variation)
- EREITs outperformed the S&P 500 on a risk-adjusted basis between 1979-94
- The correlation between the NCREIF index and the S&P 500 is negative, whereas the correlation between the EREIT index and the S&P 500 is strongly positive

Problem Set: real estate investment performance by brueggerman & fisher

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1. IDENTIFY and BRIEFLY Describe Three risks of real estate investing

There are several risks involved with real estate investing:

- *Systematic Risk*: This is the risk that movements in the real estate market as a whole will affect your property's value
- *Business Risk (property specific risk)* Least type, location, and property type can have an effect on the risk of a property
- *Default Risk*: IF the real estate is leveraged, then there is the risk of default by the property owner
- *Liquidity Risk*: It may be difficult to sell a property quickly at a fair price

2. CONTRAST the structure of an equity REIT investment with the structure of NCREIF's FRC Property Index

REITs:

- Equity REITs trade on an organized exchange (like NASDAQ) and are highly correlated with the returns of small stock
- Since Equity REITs trade on organized exchanges, they tend to be more liquid than a direct real estate investment
- Equity REITs (EREITs) can be levered (i.e., the trust holds some debt).
- The price of an Equity REIT will reflect not only the value and quality of the underlying properties held, but may also reflect investors' perceptions regarding the ability of REIT management to find good properties in the future
- Income from a REIT is net of advisory & management fees

FRC PROPERTY INDEX:

- FRC Property Index measures the returns of properties that are owned by members of NCREIF
- Return is calculated using actual sales prices or appraisal data from 1450 properties
- Return incorporates both price data and the net operating income of each property and is calculated quarterly
- Only properties that have no outstanding mortgage debt are used for the index.
- Advisory and management fees are NOT considered
- The index is segregated into four geographic regions and contains data on five major property classifications: Apartments, Retail Shopping Centers, Office Buildings & Warehouses, and R&D facilities

3. CONTRAST the effectiveness of equity REITs as a portfolio-diversifying agent relative to the FRC Property Index. RECOMMEND one of the two real estate vehicles as the most effective diversifying agent

Equity REITs exhibit a relatively high correlation with US stocks & bonds (.69 with the S&P 500). This high correlation is most likely due to the fact that EREITs trade on an organized exchange (they are actually small stocks). Alternatively, the FRC Property Index is computed using appraisal data and actual sales prices from 1450 unlevered real estate investments. The correlation between the FRC index and US stocks and bonds is relatively low (-.071 with the S&P 500). Hence, due to the lower correlation, an FRC-type investment should be a more effective diversifying agent

Controlled Risk Strategies

flashcard concepts

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- Long-short is a portfolio construction process which takes two forms:
 - *Market Neutral*: eliminates systematic risk by purchasing high expected return securities and selling short low expected return securities
 - *Equitized*: restores systematic risk by adding stock index futures to the market neutral, long-short position
- The long-short strategy makes better use of manager insights (by focusing on identifying both superior and poor performers), eliminates systematic risk, and controls risk without having to adhere to weightings of the stocks in the underlying benchmark index
- Value-added for the long-short strategy comes from the excess return from the long and short positions, and the rebate (interest) on the proceeds from the short position
- There are several reasons to believe that more market inefficiencies exist on the short side than on the long side:
 - Restrictions on short sales promote over-valued securities
 - Market over-reaction can cause over-valued securities
 - Investment professionals are more likely to issue a buy recommendation than a sell recommendation
- The overall return to an equitized long-short position will include the spread on the long-short position (selection premium) and the stock index futures. The advantage to this strategy is that it allows for an inexpensive and flexible way to capitalize on systematic risk when desirable, and to remove that exposure when not desirable
- Isolating the selection (α) premium can be accomplished with other asset classes by combining the underlying long-short portfolio with an appropriate derivative security (futures or swaps)
- The long-short strategy does not require balance between long and short positions. However, balancing may be desirable
 - balancing allows investors to take advantage of the full amount of leverage allowed by short-sale regulations
 - Investors may find a balance between long and short positions desirable in achieving market neutrality
 - Balancing may appeal to an investor's need for 'mental accounting'
- The long-short strategy has a number of operational considerations when compared to long-only strategies
 - *higher trading costs*: may result, but can be reduced by altering the level of leverage
 - *management fees* are usually higher on an absolute basis (but comparable on a per-dollar basis) because of the greater amount of actively managed funds
 - *higher risk levels* result from the unlimited potential loss for short positions. holding smaller positions in a larger number of short positions can reduce this risk
 - *implementation issues* may include higher transaction costs caused by difficulty in locating shares to borrow for short selling purposes, by margin & maintenance requirements which may cause extra trading activity, by only being able to trade on an uptick or zero-plus-tick, by the requirement to reimburse stock lenders for dividends paid on borrowed stock and by tax consequences associated with higher turnover

Problem Set: controlled risk strategies by jacobs

1. DISCUSS the advantages of the long-short strategy over the long-only strategy

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Long-short has a number of advantages over a long-only strategy:

- Expands use of manager's insights; they can now focus on identifying both superior and poor performers. Typically managers are focused on selecting securities that will be superior performers. Using this strategy, managers can make full use of the financial information by also trying to identifying those securities that believe will be poor performers as well
- Eliminates systematic risk
- Controls risk without adhering to weightings of the stocks in the underlying benchmark index

2. EXPLAIN why markets are considered to be more inefficient on the short side

Several reasons exist to believe that greater pricing inefficiencies exist on the short side

- *Restrictions on Short Sales* promote overvalued securities. If short selling is restricted and investors do not have the same expectations, then market inefficiencies result. Such inefficiencies mean that asset pricing models no longer hold. Without short selling, investors who believe that a stock is overvalued are blocked from participating in the determination of security pricing. Without their contributions, securities prices tend to be overpriced
- *Market overreaction* can cause overvalued securities. Market overreaction can come from any number of sources such as speculative bubbles or fads, which can drive security prices to unsubstantiated levels; or from corporate publicity, which tends to be positively skewed which provide an environment for overvaluation
- *More Buy than Sell Recommendations by Analysts*: More commissions can be generated on the buy side than on the sell side since anyone can respond favorably to a buy recommendation, while only existing clients can respond favorably to a sell recommendation. IN addition, analysts may fear that key investment banking relationships may be jeopardized if they issue a sell recommendation

3. DISCUSS the following operational considerations when using the long-short strategy

i. Trading Costs - may be higher due to the greater volume of traded expected with the long-short strategies. However, by altering the level of leverage used in the long-short strategy, costs can be reduced to levels comparable with long-only strategies

ii. Management Fees - on an absolute basis are usually higher because the entire portfolio is actively managed with the long-short strategy, while a sizeable portion of the long-only portfolio may be passively managed. Yet, if costs are measured on a per dollar basis of actively managed funds, the relative costs are comparable

iii. Risk Levels - may be higher with long-short strategies. This is caused by the unlimited potential losses for short positions (long positions are restricted to losing no more than price paid) However, holding smaller positions in a larger number of short positions can help alleviate the potential damage of a runaway short position

iv. Implementation Issues - may include the following

- High transaction costs due to the lack of availability of shares to borrow for short selling purposes
- the possibility of forced trading activity caused by maintenance margin requirements for short selling
- regulations on when short selling can occur (short sells can only be made on an uptick or zero-plus tick), which can result in a costly delay in implementing a strategy

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- dividends must be reimbursed to lenders of borrowed stock. Should short positions pay higher dividends than long positions, the difference would come from the liquidity buffer

4. CALCULATE the total return from the following equitized long-short position. You have \$100,000 available to invest. You plan to place 90% in a long-short position. You are optimistic about market prospects and have chosen to take a long position on the S&P 500 stock index futures of \$100,000. The margin requirement is 5% and you take that from the 10% liquidity buffer. Let's assume the S&P 500 rises by 20%, our long position rises by 24%, the short position rises by 16% and the futures contract rises by 15%. Return on proceeds from the short sale and on funds remaining in the cash account earn 5%

$$\text{RETURN} = \text{SPREAD}_{\text{Long-Short}} + \text{Short Rebate} + \text{Interest}_{\text{Cash \& Margin on Futures}} + \text{Return on Futures}$$
$$\text{Return} = (24\% - 16\%)(90,000) + (5\%)(90,000) + (5\%)(10,000) + (15\%)(100,000)$$
$$\text{Return} = 7200 + 4500 + 500 + 15000 = 27200$$

Total return on the equitized position is \$27,200 or 27.2% (27200/100000) which represents the return on the long-short strategy of 7.2% (8% spread of 90% of total invested funds) plus the return on the market index of 20%

Market Neutral: Engineering Returns & Risk

flashcard concepts

- The Core/Satellite Approach breaks Portfolio Management into two components:
 - *Passive or Semi-passive (CORE)* Management, which targets market exposure and features low turnover, low costs and low risks
 - *Active (SATELLITE)* management, which targets excess returns through manager skill and features higher turnover, higher costs, and higher risks
- Risk Measurement differs between long-only and long-short strategies. Long-only strategies are mainly concerned about systematic risk factors and correlation between the portfolio and the benchmark. Long-short strategies attempt to reduce systematic risk factors and must develop appropriate risk models that reflect the unique nature of their engineered portfolio.
- Three techniques are used for risk engineering for market-neutral strategies in an international setting are Pair Diversification, Strategy Diversification, and Leverage
- Pair Diversification attempts to create pairs of long-short positions, which minimizes factor (market & industry) risks and then diversifies this pair across other pairs, which exhibit low correlation on non-factor (company-specific) risks
- Strategy Diversification is accomplished by diversifying individual market long-short positions across markets
- Leverage attempts to control risk by reducing the amount of units allocated to long and short positions while retaining unit levels in cash
- International Equity market-neutral strategies can present special challenges:
- The best opportunities to achieve excess returns exist in neglected areas where information is the least available and reliable risk modeling is most challenging
- Because the strategies focus on market inefficiency, competition for appropriate models requires managers to extensively test developed models.
- Market-neutral strategies will not add value in an environment where all active managers are pursuing them

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Problem Set: market neutral engineering returns and risks by steyn

1. DESCRIBE the core/satellite approach to portfolio management

The Core/Satellite approach breaks portfolio management into 2 components:

- *Passive or Semi-passive (Core Management)*, which targets market exposure and features low turnover, low costs, and low risk
- *Active (Satellite) Management* which targets excess returns through manager skill and features high turnover, higher costs and higher risks

2. COMPARE & CONTRAST risk measurement between long-only and long-short strategies

For both the long-only and long-short strategy, tracking error is one source of risk that must be considered in the establishment of risk-control techniques. The tracking error of the 2 strategies looks similar in construction but differs in terms of applications :

- the tracking error of a LONG ONLY strategy is a f of the risk of both the portfolio and the benchmark, taking into consideration their correlation
- the tracking error of the LONG-SHORT strategy is a f of the risk of the long positions and the short positions, while also taking into consideration their correlation

In addition, specific risk to each strategy must be identified in order to establish risk control measures for the long-only and long-short strategies

- market risk is the primary concern of the long-only strategy. This risk is much easier to identify and model because of its relative stability
- active-return risk is the primary concern of the long-short strategy. Because of the desire to eliminate market risk, the risks of the active-return manager are not easily identified and modeled. The manager must be prepared to adapt standard market risk strategies to the dynamic nature of the long-short strategy

3. DESCRIBE the construction of each of the following techniques used for risk-engineering for market-neutral strategies in an international setting

- Pair Diversification** - consists of sub-portfolios of matched long and short groupings with minimal exposure to the main risk factors (market & industry risks). These sub-portfolios are then aggregated into the overall portfolio, which effectively eliminates systematic risk
- Strategy Diversification** - involves establishing long-short portfolios within each country and then diversifying across long-short portfolios internationally. Next, long-short portfolios are combined across markets, which provide even stronger diversification benefits
- Leverage** - accomplished by reducing the number of units invested in long and short positions while maintaining unit levels in cash. Leverage is accomplished within a market (targeting those markets with higher levels of risk) and then the leveraged market is combined with the overall domestic and international portfolio

4. APPRAISE the risk properties of pair trades at the trade and portfolio levels

Within each pair, securities are matched that exhibit a high correlation between the long and short returns. By matching factor risks (market & industry risks), the return variation from

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systematic factors is minimized. What remains within each pair is the company-specific risk. The goal is to minimize the factor risk relative to the total risk within each pairing. Pairings are then matched with other pairings that exhibit a low correlation of Non-factor risk (company-specific risk) between them (market risk was eliminated within individual pairs). If all pairs have similar risk characteristics, but the pairs themselves exhibit low correlation (since market risk has been removed), then the level of risk decreases as the number of pairs increase.

5. DISCUSS the challenges present in international equity market-neutral strategies

Challenges present in international equity market-neutral strategies include the following:

- the best opportunities to achieve excess returns exist in neglected areas where information is the least available and reliable and risk modeling is the most challenging
- Because the strategies focus on market inefficiency, competition for appropriate models requires managers to extensively test developed models
- market-neutral strategies will not add value in an environment where all active managers are pursuing them

The Reality of Hedge Funds

flashcard concepts

- Hedge funds are privately organized, pooled investment vehicles that invest primarily in publicly traded securities and derivatives
- In recent years, some hedge funds have altered the way they use leverage, becoming more speculative in nature. Historically, the net long position was between 0 - 100% of capital; however, the net long position for some funds has exceeded 100% of capital or they have taken a net short position
- Hedge funds have grown in popularity in recent years because of good economic times (producing more 'high net worth' individuals), increased liquidity of leveraging and derivatives markets, the substantial investment hedge managers have in their own funds, the perception of high returns, and diversification benefits
- Hedge funds have similar approaches to investing in the following areas:
 - *Shorting* - used to offset systematic risk, to capitalize on security selection, and to broaden potential investment alternatives
 - *Leverage* - used to create market neutral (equal proportions of long and short positions) and levered directional positions
 - *Concentration* - tend to hold smaller, less diversified portfolios than the portfolios of traditionally managed funds
 - *Derivatives* - use derivatives as an alternative source of leverage, as alternative way to establish a short position, and as a way to more precisely express their strength of conviction to their views
 - *Efficient Execution* - place high priority on minimizing transaction costs relative to profit opportunities
- Different segments of the hedge fund universe differ in terms of investment strategy, use of leverage and risk control
 - *Fundamental Long/short*: seek out mispriced securities, based on business prospects using both long & short positions. They are using an increasingly larger band of leverage and are controlling risk through market-neutral strategies

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- *Quantitative Long/Short*: seek out mispriced securities using statistical analysis and using a high degree of leverage. Risk is controlled by eliminating all risk except what their models would indicate is profitable
- *Arbitrage / Relative Value* seek out mispricings in the market that are not attributable to fundamental factors and aggressively use leverage to capitalize on relatively small differences. Broad market risk is eliminated in these funds to capitalize on relative mispricings
- *Macro* funds seek out mispricings in the global currency, stock and bond markets using derivative securities. Little leverage is used because of the low correlation between currencies and market indices
- *Fund of funds* seek out diversification through investing in a variety of hedge funds
- Hedge funds must be concerned about many types of risk: Market Risk Security-specific risk, non-market, common factor risk, liquidity risk, “herd” risk, “Greeks” risk, borrow risk, counter-party credit risk, credit-crunch risk, operational risk and redemption risk

Problem Set: the reality of hedge funds by Purcell & crowley

1. DISCUSS the following general approaches to investment that are common to hedge funds

- i. **Shorting** - short positions offset systematic risk by making security selection a much larger component of overall risk. Short positions broaden a manager’s ability to profit from security selection. By taking short positions on expected under-performing securities, a second source of potential profit based on security selection emerges
- ii. **Leverage** - several leveraging strategies exist in an attempt to augment return on investment. Some leveraging strategies attempt to be market-neutral (equal proportion of long & short positions). Others attempt to adopt a levered directional position
- iii. **Concentration** - hedge funds tend to hold smaller, less diversified portfolios than traditionally managed funds. Their intention is to augment returns. However, overall risk is also increased
- iv. **Derivatives** - Hedge fund managers use derivatives as an alternative source of leverage, as alternative way to establish a short position, and as a way to more precisely express a view - by using a derivative security, rather than the outright purchase of a stock

2. CONTRAST the investment strategies, use of leverage, and risk controls of the following types of hedge funds:

- i. **Fundamental Long/Short Funds** - seek out mispriced securities, based on business prospects using both long and short positions, using an increasingly larger band of leverage and controlling risk through market-neutral strategies
- ii. **Arbitrage / Relative Value Funds** - seek out mispricings between securities in the market that are not attributable to fundamental factors. They aggressively use leverage to capitalize on relatively small differences. Broad market risk is eliminated in these funds to capitalize on relative mispricings
- iii. **Fund of Funds** - seek out diversification as a means of risk control by investing in a variety of hedging funds. Leveraging is not present in this type of hedge fund

3. DISCUSS the following risks inherent in hedge funds

- i. **Market Risk** - not completely eliminated in most hedge funds. Eliminating such risk remains a primary goal for most funds. Recent bull market activity has encouraged some hedge

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fund managers to establish levered directional positions, which moves them into the world of market timing rather than security selection only

- ii. **Security-Specific Risk** - usually small in heavily concentrated portfolios. Yet, the impact of security-specific risk becomes magnified when funds pursue leveraging strategies
- iii. **“Herd” Risk** - results from the collusive behavior of hedge fund managers. Hedging community is small. With similar styles, hedge funds may simultaneously be attempting to alter positions in the same way, which magnifies liquidity risks beyond what would otherwise be expected
- iv. **“Greeks” Risk** - caused by a mismatch of price movements of options and underlying stocks caused by changes in input variables such as volatility, interest rates and time. Such changes alter portfolio dynamics. The term “Greek” risk comes from the fact that many of the option pricing relationships are denoted by Greek symbols