Dow Jones Indexes
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Understanding Equity Index Methods and How to Use Them

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What is an Index?

A statistical measure of the changes in a portfolio of securities representing a defined segment of a market.

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How are Indexes Calculated?

- Defined as the arithmetic average of the component prices.

- Assumes a portfolio contains the same number of shares for each component.

- Pros:
  - Easy to understand and calculate. Increasing prices drive performance.

- Cons:
  - The index can be distorted due to price adjustments such as stock splits.

- Example: The Dow Jones Industrial Average

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How are Indexes Calculated?

An example of a price-weighted index calculation:

Company	Price	Weight
A	20.00	44.44%
B	15.00	21.43%
C	10.00	18.18%

Sum: 45.00

Divisor: .5555

Index = Sum Prices/Divisor

Index= 45/.5555 = 81.08

DOWJONES Indexes

How are Indexes Calculated?

- Defined as the arithmetic average of the components' market caps.

- Pros:
  - The component weights will not be distorted due to price adjustments such as stock splits.

- Cons:
  - The methodology has a built in bias towards larger-cap companies.

- Example: S&P 500, Dow Jones "Market" Indexes,

    Russell 3000

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How are Indexes Calculated?

An example of a market cap-weighted index calculation:

Company	Price	Shares	Market Cap	Weight
A	20.00	1,000	20,000	90.91%
B	15.00	100	1,500	6.82%
C	10.00	50	500	2.27%

Sum Market Cap: 22,000

Divisor: 111

Index = Sum Marketcap/Divisor

Index= 22000/111 = 198.20

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How are Indexes Calculated?

Equal Weighted Indexes

- Assumes an equal dollar investment is made for each component.
- Pros:
  - All components have the same weight regardless of how large or small their market cap may be.
- Cons:
  - Component weights can be distorted if not maintained periodically. Liquidity squeeze with small cap components.
- Often used for academic studies. Aligned with active mgmt.

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How are Indexes Calculated?

An example of an equal-weighted index calculation:

Company	Price	Shares	Weight Factor	Market Cap	Weight
A	20.00	1,000	0.37	7,333	33.33%
B	15.00	100	4.89	7,333	33.33%
C	10.00	50	14.67	7,333	33.33%

Sum Market Cap: 22,000

Divisor: 11.001

Index = Sum(Price x Shares x Weight Factor)/Divisor

Index = 22000/11.001 = 1998.18

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How are Indexes Calculated?

- Component weights determined by "fundamentally" assigned score (e.g. DJ Select Dividend, FTSE RAFI).

- Pros:
  - Screened and scored component weight scheme *may* out/under-perform market cap indexes in certain market conditions.

- Cons:
  - Component weights are manipulated. Liquidity squeeze with small cap components. Certain "cap" markets in favor.

- Often used for theme indexes. Aligned with active mgmt.

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How are Indexes Calculated?

- There are at least two series of indexes for each benchmark: total return and price return.

- Price return indexes do not assume cash dividends will be automatically re-invested into the index.

  – The divisor is not adjusted for cash dividends.

- Total return indexes assume dividends will be automatically re-invested into the index.

  – The divisor is adjusted for cash dividends.

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How are Indexes Calculated?

Free-Float Cap Weighted Indexes

- Free-float factors are used to exclude share holdings that are closely held and are not available on the open market.

- Free-float weighted indexes measure the truly "investable" market cap of its components.

- Examples of when a component's market cap may be adjusted to reflect closely held shares:
  - Cross ownership
  - Government ownership
  - Private ownership
  - Restricted shares

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How are Indexes Calculated?

Other Types of Weighting Schemes

An index methodology can include a restriction that sets parameters for component or market weights (e.g.: components can not be over 10% of the overall index market cap).

- Most often used in blue-chip or narrow-based indexes, rather than total market indexes (e.g. DJ Titans indexes).

- Prevents a small number of components from controlling the performance an index.

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The Major Global Index Providers

- **Dow Jones Indexes**

  – An independent business unit within Dow Jones & Co., publisher of *The Wall Street Journal*. Now owned by NewsCorp.

- **The Russell Indexes**

  – Part of Frank Russell Co., a consultant and money management firm, which in turn is a unit of Northwestern Mutual Life Insurance.

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The Major Global Index Providers

- **Standard & Poor's Index Services**

  – A unit of financial services business Standard & Poor's, which is in turn owned by publisher McGraw-Hill.

- **MSCI/Barra**

  – Independent public firm partially owned Morgan Stanley.

- Boutiques & Start ups – new to industry

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The Major U.S. Indexes

U.S. Total Market Indexes: An Overview

Total Market Index	Review Frequency	Float Weighted	Transparency	Coverage	Weight Adjustments
Dow Jones U.S. Market Index	Quarterly	YES	YES	95%	Quarterly
Russell 3000	Annually	YES	YES	98%	Monthly
S&P 1500 SuperComposite	No set review schedule.	YES	YES	82%	Quarterly
DJ Wilshire 5000	Adustments are made monthly.	YES	YES	100%	Monthly

DOWJONES Indexes

The Major Index Providers

DJ, FTSE, Russell (ICB)

10 Industries

19 Super Sectors

41 Sectors

114 Sub-Sectors

MSCI/S&P (GICS)

10 Economic Sectors

24 Industry Groups

67 Industries

147 Sub-Industries

DOW JONES Indexes

The Major Index Providers

DJ, FTSE, Russell (ICB)	MSCI/S&P (GICS)
Basic Materials	Materials
Consumer Goods	Consumer Discretionary
Consumer Services	Consumer Staples
Oil & Gas	Energy
Financials	Financials
Healthcare	Health Care
Industrials	Industrials
Technology	Information Technology
Telecommunications	Telecommunication Svcs
Utilities	Utilities

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The Major Index Providers
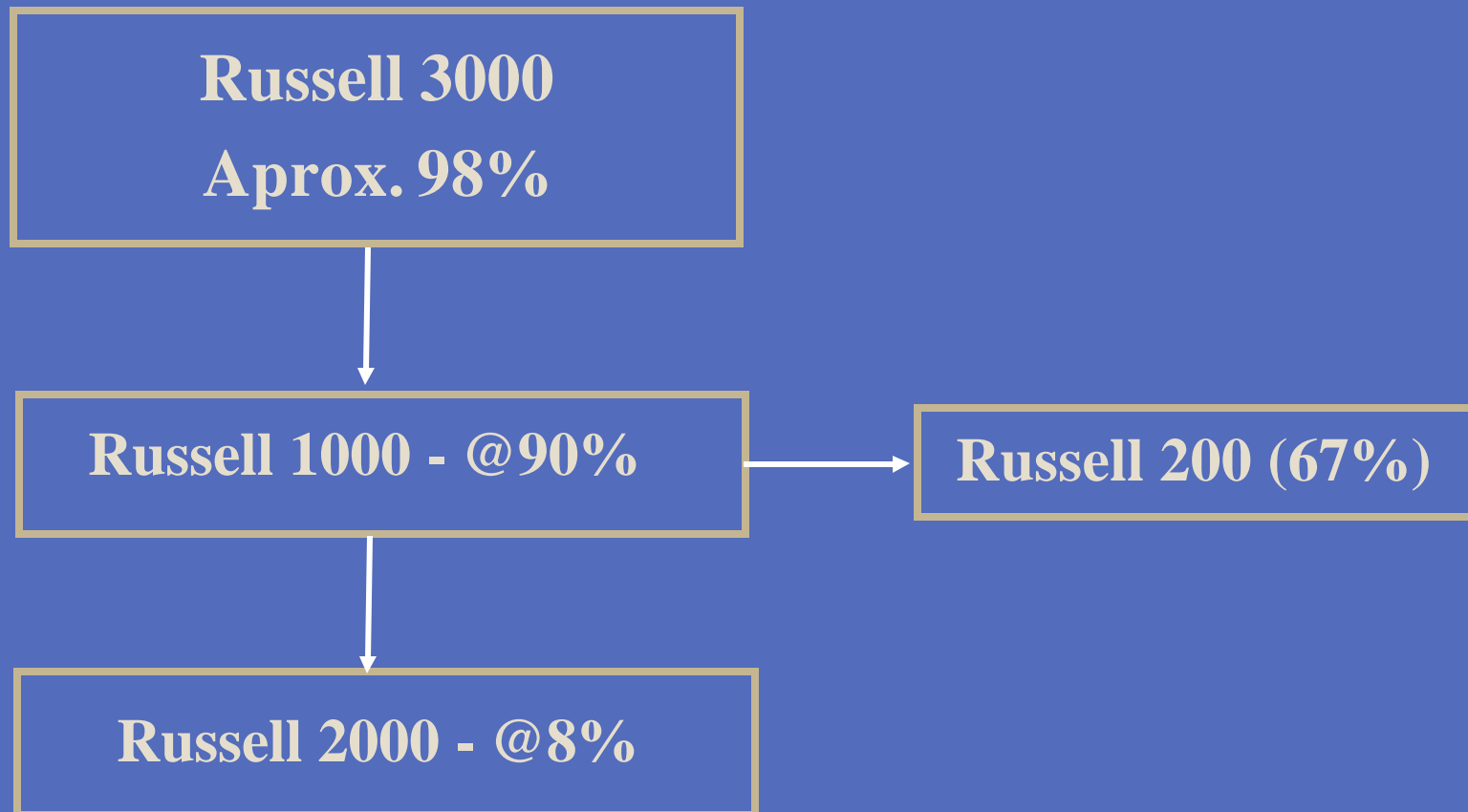
- The definition of size (i.e.: large cap, mid cap, small cap) differs among all index providers or markets.

- Size classification is often determined by # ranking components by market cap (e.g.: Russell, S&P, DJW).

- Dow Jones also assigns size by percentage coverage of the universe.
  - The top 70% of companies are labeled large-cap.
  - The following 20% of companies are labeled mid-cap.
  - The remaining 10% of companies are labeled small-cap.

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The Major Index Providers – DJ by %

Dow Jones U.S. Market Index

95% Market Coverage

Large-Cap Index

Largest 70%

Mid-Cap Index

Next 20%

Small-Cap Index

Smallest 10%

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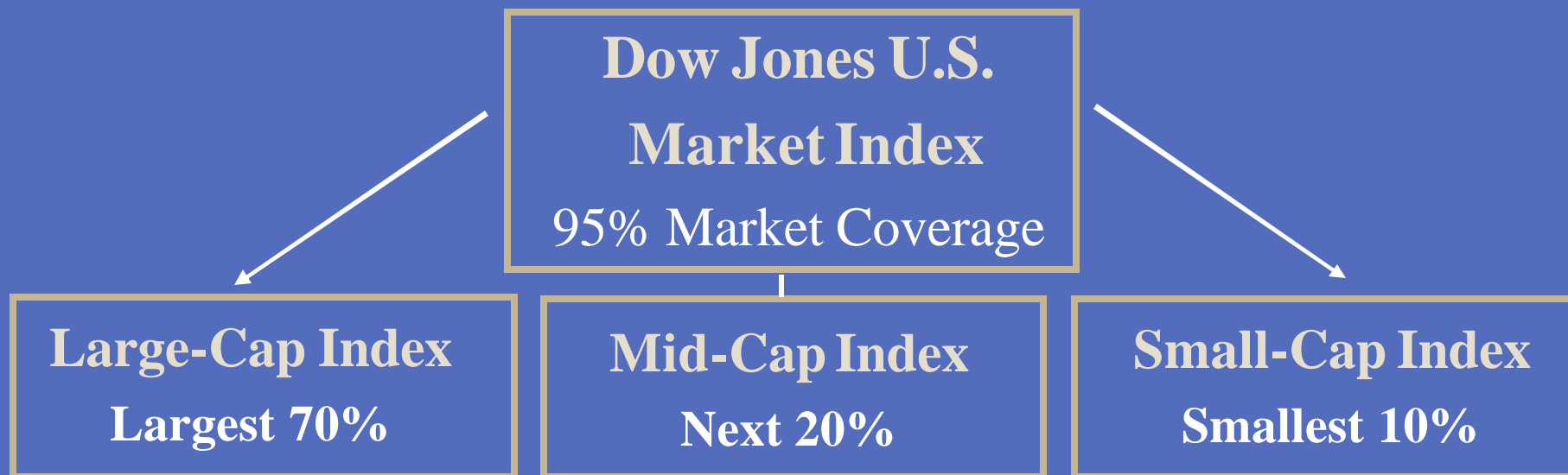
The Major Index Providers – Russell by

Russell 3000

Aprox. 98%

Russell 1000 - @90% → **Russell 200 (67%)**

Russell 2000 - @8%

DOWJONES Indexes

The Major Index Providers – S&P by

S&P SuperComposite 1500
Aprox. 82%

S&P 500
@72%

S&P MidCap 400
@7%

S&P SmallCap 600
@3%

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The Major Index Providers

- How to classify constituent as Growth, Value, or Neutral?

- DJ uses a six factor pure approach with no overlaps.

- Russell components can be classified as both growth and Value, where 30% are weighted proportionately to both value & growth. Two factors - $/BV, forecasted growth.

- S&P uses Book Value as factor where one half of the index market cap is assigned to Growth and the other half is assigned to Value.

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What are Indexes Used For?

- **Measure the performance of a targeted segment of a particular market.**

- **Measure the performance of professional money managers.**

- **The basis for financial instruments.**

- **Create passive portfolios.**

- **Attempt to predict future performance.**

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Products Based on Indexes

- **Futures**

- **Options**

- **Exchange Traded Funds**

- **Index Funds**

- **Equity-Indexed Performance Linked Annuities**

- **Structured Products**

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Benchmark Selection Basics

There are so many indexes out there…….

How do you know which one fits your needs?

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Benchmark Selection Basics

Know what you are looking for.

What market segment are you trying to represent?

- Be sure the index uses the same or similar parameters when looking for a comparative benchmark.

  – The boundaries that describe large cap, mid cap, and small cap issues differ for each index provider and market.

- Be careful of indexes using a set number of components.

  – The market representation will change over time.

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Benchmark Selection Basics

Know what you are looking for.

What investment style/strategy should the index represent if at all?

- Assigning a style label to an index is subjective. There is no universally accepted definition of style.

- The index style should match up closely with the stated objective of the fund.

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Benchmark Selection Basics

Know what you are looking for.

What level of turnover is acceptable to you?

- Turnover may not be much of a concern for an active manager, but it is very important to a passive manager.

- Screens and buffers should be part of the methodology to avoid high turnover.

- Both infrequent and frequent re-balancings can cause high turnover.

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Benchmark Selection Basics

Know what you are looking for.

How important is investability to you?

- An index can't be replicated if it is not investable.

  - The weight characteristics for a constituent should be realistic (e.g.: shares outstanding, pricing).

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Benchmark Selection Basics

Know what you are looking for.

How important is liquidity?

- The cost of replicating an index will increase if the components are not liquid, or do not trade frequently.

- Can you get in or out of the component or market?

- Index to fund tracking error concerns?

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Benchmark Selection Basics

Know what you are looking for.

Does the benchmark capture the essential risk and return characteristics of the market segment or fund it is measuring?

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Evaluating Index Providers

Access to Index Data:

The user should have ready access to constituent and index data.

- The data should be made available on a daily basis.

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Evaluating Index Providers

Depth of Maintenance:

- There should be established procedures and rules.

- The rules should be consistently applied.

- The index provider should show independence of judgement.

- Quality control procedures that ensure accuracy should be in place and should be reviewed on an ongoing basis.

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Evaluating Index Providers

Dissemination:

- The index values should be calculated on both primary and redundant systems.

- The calculation systems should have quality control measures.

- The index data should be covered by major data vendors.

- A comprehensive Web site should support the index products.

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Evaluating Index Providers

Client Service and Support:

- Clients should have open access to trained staff.

- The index provider should offer a variety of index products with similar methodologies.

- The index provider should be open to creating and calculating customized indexes.

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Evaluating Index Providers

Product Research and Development:

- The Research and Development teams should track the market closely to stay on top of market trends.

- The staff should use robust technology.

  –Off-line development system.

  –Portfolio analysis capabilities.

  –Proper back-testing procedures.

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What's Coming from Dow Jones:

- LatAm Fixed Income Indexes

- Global Infrastructure Indexes

- More RBP weighted indexes (fundamental type)

- More Long/short and 130/30 indexes

- More individual countries (EM) added to global indexes

- Balanced indexes - equity & fixed income blends

- Emerging market currency index

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- **Thank You**

- **Questions?**

www.djindexes.com

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