There are numerous stock indexes available to U.S. stock market investors, ranging from the Wilshire 5000, which essentially covers the entire U.S. market, to stock indexes that cover very small segments or sectors of the market. This paper will compare U.S. stock indexes that either address the broad U.S. market or address a segment of the U.S. market defined by market capitalization (i.e. large-, mid- or small-cap).

A logical starting point for one who wants to gain exposure to the U.S. market would be to buy all the stocks in the U.S. and weight those purchases by market capitalization. There are two problems with this strategy. First, many of these stocks are illiquid, so when they are bought and sold, the transaction costs can be quite high. Second, an average-sized mutual fund would be spending only a few dollars on each of the smallest U.S. stocks. For example, a $100 million fund attempting to replicate the Wilshire 5000 would be establishing a position of less than $10 each in many of the Wilshire stocks. It is not economically practical to establish or maintain holdings of this size.

An alternative solution is to buy a subset of the U.S. market and rebalance the portfolio periodically to maintain a representative index. Most U.S. stock indexes are designed as such a subset. Some will attempt to represent the entire U.S. market, or a market-cap segment thereof; some attempt to mirror an industrial sector; and some seek to depict a style (e.g.: value or growth). If a subset of the U.S. market is selected, periodic changes will be required to the content of the subset to ensure that it continues to represent the selected segment or sector of the market.
U.S. Stock Indexes: Is There a Best Choice?

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Summary

Can the index returns be achieved by a money manager? Ideally, an index will be constructed so that it is possible for an index-fund manager to achieve the index returns. For this to happen, the stocks in the fund must be investable and the turnover of the fund must be reasonable. If an index has many stocks with wide spreads between the bid price to buy shares and the asking price, it will be very difficult for the index-fund manager to achieve the returns of the index, because the manager will typically be buying at the ask and selling to the bid. Turnover also is an issue. The index-fund manager must pay commissions and a portion of the bid ask spread every time a stock is added to or deleted from the index.

In this paper we compare market-cap-weighted indexes provided by Dow Jones Indexes, Frank Russell Company, Standard & Poor’s Corp. and Wilshire Associates. Section I includes a brief discussion of how each of these index families is constructed and reconstituted. Section II provides an evaluation of the indexes with regard to their market capitalization and sector representation. Section III evaluates the investability of the constituent stocks in each index, and Section IV assesses the historical turnover of each index. Finally, Section V presents historical returns, volatility and Sharpe ratios for each of the indexes. For the broad capitalization indexes, the tracking error versus the U.S. market is presented.

Throughout this paper, we refer to the specific index names on numerous occasions, in the text and in the charts and tables. For simplicity of presentation, we abbreviate the names of the indexes. The full index names of the indexes that are included in this study and the abbreviations we use are provided below:

Dow Jones U.S. Total Market Index (Dow Jones TMI)
Dow Jones U.S. Large-Cap Index (Dow Jones Large)
Dow Jones U.S. Mid-Cap Index (Dow Jones Mid)
Dow Jones U.S. Small-Cap Index (Dow Jones Small)

Russell 3000 Index (Russell 3000)
Russell 1000 Index (Russell 1000)
Russell 2000 Index (Russell 2000)
Russell Top 200 Index (Russell Top 200)
Russell Midcap Index (Russell Midcap)
S&P SuperComposite 1500 Index (S&P 1500)
S&P 500 Index (S&P 500)
S&P MidCap 400 Index (S&P 400)
S&P SmallCap 600 Index (S&P 600)

Wilshire 5000 Total Market Index (Wilshire 5000)
I. Index Construction

A brief discussion is provided in this section to describe the construction and reconstitution policies for each of the indexes discussed in this paper. All of the indexes are market-capitalization weighted.

**Dow Jones TMI** The Dow Jones U.S. TMI includes three size-based sub-indexes: Large-Cap, Mid-Cap and Small-Cap. The Dow Jones TMI currently includes approximately 1,600 stocks, and the index is designed to capture approximately 95% of the investable U.S. market cap. Approximately 70% of the U.S. market cap is captured in the large-cap index, 20% in the mid-cap index and 5% in the small-cap index. The market caps in the Dow Jones TMI are float adjusted, meaning that if another corporation or insiders own a portion of a company’s stock, that portion is excluded from the market cap when the weights are established. Buffer zones are used during the reconstitution process to reduce turnover. The buffer zones make it more difficult for a constituent not currently in the index to be added and make it more difficult for an existing constituent to be deleted. As a result, the first 67.5% of the float-adjusted U.S. market cap is large cap, 67.5% to 75% can be either large or mid, 75% to 85% is mid, 85% to 92.5% can be either mid or small, 92.5% to 95% is small, and 95% to 99% can either be small or not in the index. Dow Jones reconstitutes its indexes on a quarterly basis.

**Russell 3000** The Russell index family includes the Russell 1000 and the Russell 2000. Russell ranks all of the U.S. exchange-traded stocks by total market capitalization each year at the end of May. The top 1,000 stocks are included in the Russell 1000 and stocks with rankings of 1,001 to 3,000 are included in the Russell 2000. The largest 200 stocks in the Russell 1000 are placed in the Top 200 index and the rest of the stocks in the Russell 1000 are placed in the Russell Midcap index. For ranking purposes, the total market caps are used, but once the indexes have been established, the weights of each stock in the index are based on the float-adjusted market cap of the stock. Russell indexes are reconstituted once per year on the last day of June, based on market caps at the end of May.

**S&P 1500** The S&P family of indexes uses three indexes to represent the U.S. market. The S&P 500, S&P 400 and S&P 600 consist of 500, 400 and 600 stocks respectively, selected to represent the large-, mid- and small-cap market segments. Together, the three indexes make up the broad-cap S&P 1500 index. S&P has a committee that selects the stocks for each index. Market capitalization is not the only consideration. Committee members attempt to achieve a balanced representation of the various sectors, and they incorporate a profitability screen into their selection process. Stocks
are deleted from the indexes due to mergers and delistings and if the stock deviates “significantly” from the membership criteria. When a stock is deleted from one of the indexes, a new stock is added to maintain a fixed number of stocks in each index. Stocks are added and deleted on an as-needed basis.

**Wilshire 5000**  The Wilshire 5000 index essentially consists of all of the exchange-listed common stocks in the United States. The number of stocks in the index varies; currently there are approximately 5,200 stocks in the index. Since all common stocks are included, index reconstitution is not an issue for this index. Stocks of new IPOs are added to the index at the end of each month and companies are removed when they merge with another company or are delisted from an exchange.
II. Size and Sector Representation

A summary of some key statistics regarding the market capitalization of the index constituents for the Dow Jones, Russell and S&P indexes is provided in Figures 1 through 3. The broad-cap indexes are the Dow Jones TMI, the Russell 3000, and the S&P 1500. The Dow Jones TMI and the S&P 1500 currently contain approximately the same number of stocks, with the Dow Jones TMI’s stocks having a slightly higher average and median market capitalization. Unlike the S&P 1500, the number of components included in the Dow Jones TMI changes over time to ensure 95% coverage of the U.S. market. The Russell 3000 contains significantly more stocks, and the average and median market capitalization is much lower, since a greater proportion of the stocks in the Russell 3000 have a market cap of less than $1 billion. A couple of other observations regarding market capitalization follow:

- The Russell family of indexes provides the most precise breaks in terms of market capitalization, particularly shortly after the annual index reconstitution. The Dow Jones indexes are also fairly precise, but overlap somewhat due to their buffer zones. The S&P large-, mid- and small-cap indexes show the most overlap.

- The Dow Jones large-, mid- and small-cap indexes all have a higher average market cap than the corresponding S&P indexes. The Russell 2000 has the lowest average market cap of all of the small-cap indexes.

<table>
<thead>
<tr>
<th>Indexes</th>
<th>Index Market Cap</th>
<th>Number of Stocks</th>
<th>Average Market Cap</th>
<th>Median Market Cap</th>
<th>High Market Cap</th>
<th>Low Market Cap</th>
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<td>2,095</td>
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<td>112</td>
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<td>Dow Jones Large</td>
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<td>36,610</td>
<td>18,548</td>
<td>311,066</td>
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<td>Russell Top 200</td>
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<td>Russell Midcap</td>
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<td>17,024</td>
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<td>S&amp;P 1500</td>
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<td>Wilshire 5000</td>
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</table>

Data as of December 31, 2003. All market cap values are estimates calculated with data provided by Dow Jones Indexes.
Data represents full market capitalization rather than float market capitalization.
### Figure 2: Number of Stocks in Various Market-Cap Ranges

<table>
<thead>
<tr>
<th>Market-Cap Ranges (USD Bil.)</th>
<th>Totals</th>
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<tbody>
<tr>
<td>&gt;50</td>
<td>1,600</td>
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<tr>
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<td>180</td>
<td>196</td>
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<tr>
<td>5-10</td>
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<td>154</td>
<td>1</td>
<td>187</td>
<td>2</td>
<td>184</td>
<td>180</td>
<td>196</td>
</tr>
<tr>
<td>0.05-0.1</td>
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<td>296</td>
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<td>1</td>
<td>187</td>
<td>2</td>
<td>184</td>
<td>180</td>
<td>196</td>
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</table>

Data as of December 31, 2003. All market cap values are estimates calculated with data provided by Dow Jones Indexes. Data represents full market capitalization rather than float market capitalization.

### Figure 3: Percentage of Index’s Total Market Capitalization in Various Market-Cap Ranges

<table>
<thead>
<tr>
<th>Market-Cap Ranges (USD Bil.)</th>
<th>Totals</th>
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<tr>
<td>&gt;50</td>
<td>100.00</td>
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<td>10-50</td>
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<tr>
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<tr>
<td>1-2</td>
<td></td>
</tr>
<tr>
<td>0.5-1</td>
<td></td>
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<tr>
<td>0.1-0.5</td>
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</tr>
<tr>
<td>0.05-0.1</td>
<td></td>
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<tr>
<td>&lt;0.05</td>
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<td>0.00</td>
<td>0.09</td>
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<td>0.00</td>
<td>0.00</td>
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</tr>
</tbody>
</table>

Data as of December 31, 2003. All market cap values are estimates calculated with data provided by Dow Jones Indexes. Data represents full market capitalization rather than float market capitalization.
Bar charts are provided in Figures 4 through 7 to show the percentage of each index by sector. The analysis utilizes the ten broad economic sectors of the four-tiered Dow Jones Global Classification Standard (DJGCS). As indicated in the bar charts, there is a fair amount of consistency with regards to economic sector breakdown within the broad-cap, large-cap and mid-cap segments, but there is more disparity within the small-cap segment.

**Figure 4: Economic Sector Representation for the Broad-Cap Indexes**

- **Broad-Cap Sector Breakdown, %**

  - Data as of December 31, 2003. All market cap values are estimates calculated with data provided by Dow Jones Indexes.
  - Data represents full market capitalization rather than float market capitalization.
Figure 5: Economic Sector Representation for the Large-Cap Indexes

Large-Cap Sector Breakdown, %

Figure 6: Economic Sector Representation for the Mid-Cap Indexes

Mid-Cap Sector Breakdown, %

Figure 7: Economic Sector Representation for the Small-Cap Indexes

Small-Cap Sector Breakdown, %

Data as of December 31, 2003. All market cap values are estimates calculated with data provided by Dow Jones Indexes. Data represents full market capitalization rather than float market capitalization.
III. Investability

As discussed in the introduction, the investability of an index is important to investors attempting to replicate the index or to use the index as a universe. Broadly speaking, investability influences an investor's ability to achieve the returns of an index. Investability bears directly on transaction costs. In an investable index, the investor is able to establish positions in the index constituents at a reasonable transaction cost. In a less investable index, many of the index constituents are costly to buy or sell. A portfolio manager will need to incur transaction costs upon initiating the positions in the fund, whenever there is a net inflow or outflow of money from the fund, and whenever stocks are added to or deleted from the index.

Perhaps the best measure of investability would use the effective bid-ask spread for the index constituents. However, the true bid-ask spread is not directly observable, and is also variable. We will use the percentage of the average daily volume as a proxy for transaction costs. Past research has indicated that temporary price impact is a function of the trade size.

The first step in the process of evaluating investability was to decide how much money would be invested in the index. We decided to make the amount substantial, because a small investment spread across the large number of index constituents will always be investable. Only a large investment would “stress” the system in a way that would give us meaningful results. We also decided to vary the amount invested by market segment, with broad-cap indexes receiving the largest investment. Finally, we made the investments in the large, mid and small-cap segments add up to the investment in the broad-cap index, with the portions approximating the percentage of the market that the segments represent. The investment amounts were:

- Broad-Cap Segment: $1 Billion
- Large-Cap Segment: $700 Million
- Mid-Cap Segment: $200 Million
- Small-Cap Segment: $100 Million

To conduct the investability comparison, we distributed the fixed investment in the index to each index constituent based on its weight in the index. This dollar amount was then divided by the constituent’s closing price on December 31, 2003, to determine the number of shares that would need to be purchased. Then we compared the number of shares being purchased to the average daily volume for the prior six-month period, to see what percentage of the average daily volume of each stock was being purchased. If the percentage of the average daily volume was low, the shares would be considered easy to purchase, while if the percentage was high the shares would...

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1 For example in Keim & Madhavan's 1996 paper in The Review of Financial Studies they estimated a regression of temporary price impacts on traded size and powers of trade size, with trade size defined as the number of shares traded divided by shares outstanding. They found the temporary impact was significantly related to the trade size.
be difficult to purchase. Note that all of these percentages can be scaled up or down by choosing an alternative amount to invest, and that we are making no judgment regarding what percentage of average daily volume (ADV) will create a market impact. This analysis is simply a way to evaluate relative investability between indexes.

For each index we calculated a percent of ADV for each index constituent. We ranked these percentages and calculated the cumulative weights for each constituent (the weight of that constituent plus the weights of all easier-to-purchase constituents). For Figures 8, 10, 12 and 14 we plotted the cumulative weights as a function of %ADV, where the investment in each index is as shown above. For clarity we plotted only 13 points for each index.

This analysis may tend to favor an index with a larger number of stocks, so we conducted an additional investability analysis. In the second analysis, the amount invested in the index with the smallest number of stocks is the same as before, but the amount invested in the other two indexes in each segment is scaled up such that the average invested in each stock is the same for all indexes in a segment. The results of the second analysis are shown in Figures 9, 11, 13 and 15. In the first analysis we were measuring the investability of the indexes and in the second analysis we were measuring the investability of the stocks in the indexes.

These plots could be thought of as cumulative probability distributions, where the y-axis value is the probability that $1 invested in the index will be invested in a stock where the purchase represents less than the %ADV shown on the x-axis. The plot with the steepest slope is the most investable, because for the same level on the y-axis, say 0.9, the steeper curve will result in a lower %ADV on the x-axis. The most investable index also appears furthest to the left and above the others.

Based on how this first analysis is structured, all else equal, an index with a larger number of stocks will be more investable than an index with a smaller number of stocks. For example the S&P 500 is the most investable index in Figure 10, but when the investment amount is scaled up in Figure 11 to account for the larger number of stocks in the S&P 500, it becomes the least investable. The same phenomenon is apparent in Figures 12 and 13, where the Russell Midcap goes from being the most investable to the least investable.

However, with the small-cap indexes a different pattern is apparent. The Dow Jones Small-Cap index appears as the most investable index in Figure 14 and 15. As more dollars are added to the Dow Jones Small-cap index in Figure 15 the graphs for the Dow Jones and S&P indexes move closer.
together but the Dow Jones Small-Cap maintains its advantage. The same pattern holds when comparing the Dow Jones Mid-Cap and the S&P 400 in Figures 12 and 13 (Dow Jones Mid-Cap is more investable in both).

Figure 1 of this report indicates that the Dow Jones Indexes have higher average and median market caps than the S&P indexes. The primary reason why the Dow Jones indexes are more investable is likely that a higher range of market capitalization is being targeted with Dow Jones versus S&P. It is fairly well accepted that larger capitalization stocks are typically more liquid than small capitalization stocks.

![Figure 8: Investability Profile for the Broad-Cap Indexes](image1)

![Figure 10: Investability Profile for the Large-Cap Indexes](image2)

![Figure 9: Investability Profile for the Broad-Cap Indexes](image3)

![Figure 11: Investability Profile for the Large-Cap Indexes](image4)

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Data as of December 31, 2003. All market cap values are estimates calculated with close, shares and float factor data provided by Dow Jones Indexes.

Data calculated using average daily volume figures from July 1, 2003 to December 31, 2003.
Data as of December 31, 2003. All market cap values are estimates calculated with close, shares and float factor data provided by Dow Jones Indexes. Data calculated using average daily volume figures from July 1, 2003 to December 31, 2003.
IV. Turnover

Index investors typically desire long-term exposure to a market or sector. Turnover is not desirable for index investors or their portfolio managers, primarily because turnover results in costs (brokerage fees, bid-ask spreads, administrative costs, etc.) and ultimately reduces returns.

Turnover is difficult to compare among the major index families, because each index provider uses a different method of calculation. If the three methods of calculation were applied to any of the indexes considered in this study, the S&P method would yield the highest turnover, the Russell the second highest and the Dow Jones method the lowest.

Figure 16 provides a tabular summary of the turnover that has been reported by the providers of the Dow Jones, Russell and S&P indexes. We have also included turnover data reported by the exchange-traded funds tracking the Dow Jones, Russell, and S&P indexes. Definitive statements regarding comparative turnover cannot be made due to the different methods of calculation. Interestingly, the reported turnover of the S&P indexes more closely approximates the reported turnover of their corresponding exchange traded funds (ETFs). It appears that S&P’s turnover calculation may more closely reflect the turnover of the ETFs linked to them.

All of the broad-cap and large-cap indexes have turnover percentages in the single digits, while all of the mid-cap and small-cap indexes have average turnover percentages in the double digits. The broad-cap and large-cap indexes have lower turnover for a couple of reasons. First, a stock can only enter or leave the index from one direction. A growing stock will enter the index and a shrinking stock will leave the index. With the mid- and small-cap indexes, stocks can leave the index from the upper border or the lower border. A stock can grow into the index or out of the index. Likewise, a stock can shrink into the index or out of the index. Second, smaller stocks tend to be more volatile than larger stocks.

Each of the index families uses different methods to control turnover in its indexes. While their individual approaches to minimizing turnover vary, the actual turnover results are fairly close between these three index families.

Russell reconstitutes its indexes once per year. Frank Russell Company produced a paper entitled “Russell Indexes, Examining the Frequency of U.S. Reconstitution” (Gardner, et al., 2001) which evaluated the projected differences in turnover if its indexes were reconstituted quarterly or semi-annually, instead of annually. The author found that the turnover would be more than 30% higher for the Russell 1000 and more than 60% higher for the Russell 2000 with quarterly reconstitution.
Dow Jones Indexes reconstitutes its indexes on a quarterly basis, but uses a buffer zone to reduce turnover (See Section I for details). The buffer zone makes it more difficult for a stock that is not currently in the index to be added to the index and also makes it more difficult for a stock that is currently in the index to be deleted from the index. The buffer zones have historically been an effective way of reducing turnover, while still allowing for a more frequent reconstitution process.

Standard and Poor’s relies on a committee to make decisions to add or delete stocks from its indexes. Stocks are added and deleted from the indexes throughout the year, not on any specific schedule. The S&P index committee controls the turnover by requiring that a stock significantly deviate from the membership criteria before it is deleted.
V. Historical Returns

Another way to compare the indexes is simply to look at the historical returns. In this section, we compare historical returns, volatilities, and Sharpe ratios. For the broad-cap indexes we also evaluate how well each of the indexes tracks the U.S. market as a whole, using the Wilshire 5000 as a proxy for the U.S. market.

Returns: Cumulative returns for the broad-cap, large-cap, mid-cap and small-cap indexes are plotted on Figures 17, 18, 19, and 20 respectively for the period December 31, 1994, through December 31, 2003. All of the indexes were indexed to a value of 100 on December 31, 1994 for comparison purposes. As seen in Figures 17 and 18, the returns for the broad-cap and large-cap indexes have been very close throughout the period studied. There is more of a separation in returns in the mid- and small-cap indexes than in the broad- and large-cap indexes. Higher mid-cap returns for the S&P 400 and lower small-cap returns for the Russell 2000 were observed in the 1994-2003 period. Two papers authored by Peter Jankovskis have addressed this phenomenon. Another paper, authored by Quinn and Frank Wang, also sheds some light on the under-performance of the Russell 2000.

Jankovskis’s paper on small-cap indexes contends that the Russell 2000 index under-performs the S&P 600 index, due to the annual Russell reconstitution. The Russell 2000 historically under-performs in July and August, which is when the excess returns for the additions to the index are typically negative. Quinn and Wang’s paper uses event studies to quantify the excess returns following the reconstitution for stocks added to the Russell 2000, and found that the return of the Russell 2000 is adversely impacted by the reconstitution. This significant impact is attributed to the large number of illiquid stocks in the Russell 2000.

Jankovskis’s paper on mid-cap indexes seeks to explain why the S&P 400 outperformed mid-cap indexes from Russell and Wilshire for the period 1997-2001. Jankovskis does an attribution analysis for sector representation, size, and value/growth, and finds that these factors explain only a small portion of the S&P 400’s superior returns. He finds that the positive excess returns that S&P 400 stocks experience immediately prior to leaving the index and moving to the S&P 500 index explain most of the difference in performance between the S&P 400 and the Russell and Wilshire mid-cap indexes.
Data based on price-return index values from December 31, 1994 to December 31, 2003.
**Volatility:** Average volatilities are extremely close between indexes within each of the market segments. The volatilities of the indexes change quite a bit over time, but the changes are synchronized. Figure 21 depicts volatility over time for the broad-cap indexes. The individual lines in this graph are almost indistinguishable. Figure 22 is a table that summarizes volatility over the period December 1996 to December 2003. This table shows that some of the volatility may be lost when monthly returns are used to calculate volatility instead of daily returns.

### Figure 21: Broad Cap Index Volatilities for Dec 1994 – Dec 2003

Volatility (%)

- **Cap Range:**
  - Broad-Cap: S&P 1500, Wilshire 5000, Dow Jones TMI, Russell 3000
  - Large-Cap: S&P 500, Russell 1000, Dow Jones Large, Russell Top 200
  - Mid-Cap: Russell Midcap, S&P 400, Dow Jones Mid
  - Small-Cap: S&P 600, Russell 2000, Dow Jones Small

**Sharpe Ratio:** The Sharpe ratio of a stock index is the return of the index minus the risk-free rate of return, divided by the volatility of the index. The Sharpe ratio is often used to compare investments with different levels of risk (for which volatility is a proxy). Investors seek investments with high Sharpe ratios. Figure 23 presents the Sharpe Ratios for all of the indexes for the period December 1996 through December 2003. All of the Sharpe ratios within each segment are very close with the exception of the S&P 400’s higher ratio and the Russell 2000’s lower ratio. This is consistent with the observations made in the comparison of returns. Figures 24 through 27 present the Sharpe ratios for the period from 1996 to present. Sharpe ratios of less than 0 are not meaningful, so if the index return was negative for a period, the Sharpe ratio is not reported on the chart. None of the indexes consistently showed higher Sharpe ratios than the others over the period.

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**Figure 23: Sharpe Ratios for All Market Segments**

December 1996 – December 2003

**Figure 24: Sharpe Ratios by Year for Broad-Cap Indexes**

December 1996 – December 2003

All data based on price-return index values. Sharpe Ratios calculated using the 3-month Treasury Bill.
Figure 25: Sharpe Ratios by Year for Large-Cap Indexes

Figure 26: Sharpe Ratios by Year for Mid-Cap Indexes

Figure 27: Sharpe Ratios by Year for Small-Cap Indexes

All data based on price-return index values. Sharpe Ratios calculated using the 3-month Treasury Bill.
Tracking Error: Tracking error is a measure of how closely a portfolio tracks an index. A low tracking error indicates that the portfolio tracks the index very closely. We used tracking error to determine how well the three broad-cap indexes tracked the U.S. market. We used the Wilshire 5000 returns as a proxy for the U.S. market returns, and compared the Wilshire 5000 returns with the Dow Jones TMI, the Russell 3000, and the S&P 1500. Figure 28 depicts the annual and period tracking errors for these three indexes versus the Wilshire 5000, and Figure 29 displays the underlying data. The tracking errors for all three of these indexes against the U.S. market are low.
VI. Conclusions

U.S. stock indexes calculated by Dow Jones Indexes, Frank Russell Company, Standard and Poor’s, and Wilshire Associates were examined from a number of perspectives. There are very few differences among the indexes competing within a given market segment. This is especially true for the broad-cap and large-cap indexes. A few additional conclusions emerge from the analysis:

- In terms of index composition, the Dow Jones indexes tended to contain higher market cap stocks than the Russell and S&P indexes. This difference probably contributed to Dow Jones’s better results on the investability measure.
- The Dow Jones, Russell, and Standard and Poor’s index families have significantly different composition requirements and reconstitution policies; however, the turnover appears to be somewhat similar within a given market size segment.
- The S&P 400 had the best returns in the mid-cap segment, and the Russell 2000 had the lowest returns in the small-cap segment. Otherwise, all of the indexes within a given segment had very close returns, especially considering the high volatility of returns. The volatilities for all of the indexes were similar.

References


About the Author

Jim Quinn initiated his research on index investing in September 2002. He conducted a substantial research effort regarding U.S. indexes while completing his Masters degree in Financial Engineering at Haas Business School (UC Berkeley), which he completed in March 2003. He published a portion of that research with a colleague, Frank Wang, in the November 2003 issue of the Journal of Indexes. Mr. Quinn conducted the research that comprises this paper initially during the summer of 2003, and he presented those results at the Institutional Capital Investing Forum in Washington, D.C. in October 2003. The results were updated through the end of 2003 and are presented in this paper. Jim recently joined Gifford Fong Associates, a financial modeling firm in Lafayette, CA and is managing several research projects there. He also recently launched the San Francisco chapter of QWAFAFEW (Quantitative Work Alliance for Applied Finance Education and Wisdom) and serves as the chair for that group. The author acknowledges Dow Jones Indexes, who provided the data for this project. Thanks are particularly due to Bernadette O’Sullivan, John Prestbo, and Richard Ciuba at Dow Jones Indexes for their help and support throughout the project.