

Fundamental Indexation Down Under: An Examination of the Performance of Non-Capitalization Weighted Indexation in the Australian Equity Market

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1. Background and aims of project

The index fund industry is a multi-trillion dollar industry worldwide. In Australia, over \$40 billion is invested in index funds. Almost all of this money is invested, in or benchmarked to, capitalization-weighted indexes¹.

Capitalization-weighted indexes assign a weight to each stock in the index that is proportional to the total market value of its shares. Accordingly, the overall index return represents the aggregate return to all shareholders.

Theoretical support for indexing can be found in the capital market theory of Tobin (1958), which posits that the optimal risky portfolio for an investor is the market portfolio. As the true market portfolio is unobservable, a capitalization-weighted index such as the S&P500 in the USA or the ASX200 in Australia has typically been used as a proxy, notwithstanding well documented concerns regarding the mean-variance efficiency of such proxies [e.g. Roll (1977); Gibbons, Ross and Shanken (1989); Kandel and Stambaugh (1987); MacKinlay and Richardson (1991); and Zhou (1991)].

The efficient market hypothesis also provides theoretical support for this approach: in an efficient market it is assumed that the price of a stock at any time represents the best, unbiased estimate of the true value of the firm. The hypothesis therefore implies that for most investors, it is impossible to identify overvalued or undervalued shares. In this scenario, capitalization-weighted indexes offer investors optimal risk-return combinations.

Recently, an alternative weighting scheme known as fundamental indexation has received considerable attention in the investment management industry. Fundamental indexation involves the construction of indexes weighted according to alternative metrics of size.

Arnott, Hsu and Moore (2005) proposed a fundamental indexation methodology employing measures of company size such as book value of equity, gross sales, cash flow, gross dividends, gross revenue and total employment as weights. Additionally, a composite fundamental value index based on the first four of these measures was constructed. Their backtest results in the US market showed that, over the period 1962-2004, the returns produced by the fundamental indexes were, on average, 1.97 percentage points per annum higher than the S&P500 return.

While empirical evidence provides persuasive support for fundamental indexing, Hsu (2005) and Treynor (2005) show theoretically that a capitalization-weighted index will underperform a non-

¹ While the correct plural of index is indices, finance industry practice is to use “indexes”.

capitalization weighted index of similar risk, with the degree of underperformance related to the amount of noise (ie. price fluctuations independent of changes in firm fundamentals) in stock prices.

Currently, industry views are divided between those who believe fundamental indexing represents a paradigm shift in indexing, for example, Siegel (2006) and those proponents of traditional indexing such as Bogle and Malkiel (2006) who see the performance of fundamental indexing reflecting nothing more than the strong performance of the well-documented²value premium, and to a lesser extent, the size premium, over recent decades.

This project will evaluate the performance of fundamental indexation, relative to traditional indexation, in the Australian context. A key research question is how much of the (excess) return of the fundamental indexes is due to factor exposure, and how much above this is added by the technique of fundamental indexing

2. Significance and Innovation

The nature of this research is consistent with research program areas of the Melbourne Centre for Financial Studies. Specifically, its focus is the index fund sector of the Australian financial market and the outcomes will be important to practitioners in determining both their hedging and investment strategies.

The research is significant because it addresses a highly topical and controversial issue. While industry debate continues, largely in the United States, a number of funds management companies have introduced indexed funds benchmarked to fundamental indexes³.

The outcome of this analysis will be significant and innovative because:

1. It will strengthen our understanding of the Australian stock market;
2. It will investigate a *topical* and *controversial* issue in the funds management industry. The findings will be important to investors and fund managers in determining their investment strategies;
3. It will develop and use a new data set, and thereby avoid data mining problems;
4. It will result in international conference presentations and extend the existing literature with publications in quality international refereed journals.

²See, for example, Fama and French (1992) and Davis, Fama and French (2000).

³ Both Pimco and Nomura Securities announced suites of equity products based upon the fundamental indexing concept in August 2005; the FTSE Group and Research Associates introduced a fundamental index series covering 24 global markets in November 2005. Wisdomtree introduced 6 US domestic and 14 international dividend weighted fundamental indexes in June 2006. In Australia, October 2006 saw the launch of a fundamental index product by State Street Global Advisers and FTSE announced the establishment of an Australian office in response to increased interest in its growth weighted indices.

3. Description of Approach

1. Data collection: annual data on fundamental measures of company size such as such as book value of equity, gross sales, cash flow, gross dividends, gross revenue and total employment is required;
2. Index construction: companies will be ranked by the above metrics on an annual basis and indexes comprising the top, 50, 100, 200 and 300 companies constructed;
3. Relative performance analysis: the returns on the indexes constructed in 2. above will be compared with the capitalization-weighted ASX counterparts;
4. Investigating influence of risk factors: to explore the influence of factor exposures, regressions of the indexes on risk factors, including value and growth factors , will be conducted to estimate the risk factor loadings. The influence of these risk factors on the return generated by the indexes will be quantified, and the influence, if any, of the fundamental indexation technique estimated.
5. Investigate index performance in different market conditions: depending on data availability, the impact of stockmarket bull and bear markets and economic expansions and contractions on index performance will be investigated; and
6. Estimate the impact of transaction costs: US studies reveal that fundamental indexes are characterised by a greater transaction costs because of the higher level of rebalancing required by these weighting measures.

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