PASSIVELY AGGRESSIVE: INDEX FUNDS AND TECH EXPOSURE

By John Markese

Do you need to turbo charge your portfolio with more tech stocks or run for cover and dump your tech holdings? Before you do anything, you first need to determine what your overall portfolio exposure to technology really is and see how it compares to the overall market averages.

The new economy/old economy debate has many investors asking: Do I need more tech exposure or less? The technology exposure conundrum has some investors racing off to increase their technology holdings and others diving for cover, kicking anything technology-related out of their portfolios.

But this tug-of-war has distracted investors from the real question they should be asking: Just what is my current portfolio weighting in technology?

INDEX FUNDS: THE BASELINE

To answer that question, we'll start with an unmanaged portfolio of stocks—index funds.

Index funds eliminate the portfolio manager/fund selection decision. They also remove the active management actions of a fund manager that may quickly and dramatically change sector weightings—in technology, for example, our focus in this article.

That doesn't mean, however, that sector weightings never change in an index fund. Changing market valuations will alter index sector exposures even though an index fund is passively managed. For example, in 1990 the Standard & Poor's 500 index had a sector weighting in technology of 7%. Today, about a third of the S&P 500 is in technology due to swelling technology stock prices and the fact that the S&P 500 is a value-weighted index.

The simplest way to form a portfolio of mutual funds that is low-cost, tax-efficient and diversified is to use solely index funds. An index approach offers a platform to examine the technology exposure in each index class—how to form a diversified portfolio of index funds, how to gauge overall portfolio exposure to technology stocks, and how adjustments to index allocations within the portfolio will impact technology exposure and, ultimately, portfolio risk. Lastly, the technology exposure of these index funds will allow you to benchmark the technology exposure of actively managed funds.

INDEX FUND TECH EXPOSURE

Table 1 lists index funds and identifies the particular index each follows, along with performance, risk and technology exposure statistics. These funds represent all the major, broad index categories and a few ways to slice and dice each. When there is more than one fund representing precisely the same index, only one index fund is represented—for example there are at least 10 S&P 500 indexes followed in the AAII *Quarterly Low-Load Mutual Fund Update,* but only the Vanguard 500 index is reported (differences in expense ratios would likely be the only item separating S&P 500 index funds).

Index definitions are given in the accompanying box; overlaps, subsets and gaps in the indexes are more obvious than the index names would imply. The S&P 500 is part of the Schwab 1000; the Schwab Small Cap 1000, the Russell 2000 and the S&P 600 Small Cap all go after the same subset—small-cap stocks—but cover somewhat different ground along with overlapping coverage. The definition of "small-cap" is loose, and portfolios of 600, 1000 and 2000 stocks will be different, as will how each index is adjusted or

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TABLE 1. TECHNOLOGY EXPOSURE, AMONG REPRESENTATIVE INDEX FUNDS

Fund	Ticker	Index	Technology Exposure* (%)	Annualized Performance** 1 yr. (%)	3 yr. (%)	5 yr. (%)	Risk** Beta	Std. Dev.	R^2
Vanguard 500 Index	VFINX	S&P 500	33	17.9	27.3	26.6	1.00	17.4	1.00
Vanguard Growth Index	VIGRX	S&P 500/ BARRA Growth	47	25.2	35.8	32.2	1.00	18.3	0.92
Vanguard Value Index	VIVAX	S&P 500/ BARRA Value	9	9.7	18.1	20.6	0.99	18.2	0.90
Dreyfus Mid-Cap Index	PESPX	S&P 400 Mid Cap	23	37.1	26.5	23.3	1.00	20.9	0.70
Galaxy II Small Co	ISCIX	S&P 600 Small Cap	27	30.5	14.2	16.3	0.77	21.0	0.40
Schwab Small-Cap Index	SWSMX	Schwab Small Cap 1000	22	40.9	19.1	17.4	0.81	21.8	0.42
Vanguard Small-Cap Index	NAESX	Russell 2000	28	39.4	18.8	18.2	0.75	22.9	0.33
Schwab 1000	SNXFX	Schwab 1000	30	20.1	27.5	26.1	0.98	17.3	0.98
Vanguard Extended Mkt Index	VEXMX	Wilshire 4500	25	50.3	28.5	24.6	0.84	22.2	0.43
Vanguard Total Stk Mkt Index	VTSMX	Wilshire 5000	31	23.9	27.2	25.5	0.95	17.2	0.93
Rydex OTC	RYOCX	Nasdaq 100	74	105.3	76.8	58.7	1.19	31.4	0.43
Vanguard European Stock Index	VEURX	MSCI Europe	9	19.3	21.2	21.3	0.70	16.7	0.53
Vanguard Pacific Stock Index	VPACX	MSCI Pacific	14	41.2	9.7	2.9	0.81	23.2	0.37
Vanguard Emg Mkts Stock Index	VEIEX	MSCI Emg Mrkts	5	42.2	0.7	7.0	1.27	31.7	0.48
Schwab Intl Index	SWINX	Schwab Intl	10	29.7	18.3	14.8	0.76	17.0	0.61

**Source: Morningstar.com*
***Source: AAII* Quarterly Low-Load Mutual Fund Update *and* The Individual Investor's Guide to Low-Load Mutual Funds; *performance data thru March 31, 2000.*

Index Descriptions

MSCI Europe
Composed of 547 companies from 15 European countries.

MSCI Pacific
Composed of 420 companies from five Pacific market countries.

MSCI Emerging Markets
Composed of 911 companies from 26 emerging market countries.

Nasdaq 100
The 100 largest and most active non-financial domestic and international issues listed on The Nasdaq Stock Market based on market capitalization.

Russell 2000
The 2,000 smallest companies in the Russell 3000 index (the 3,000 largest U.S. companies).

S&P 500
Composed of 500 stocks representing major industry sectors and all large NYSE stocks plus some major Amex and Nasdaq stocks.

S&P 500/BARRA Growth Indexes
Companies of the S&P 500, MidCap 400 and SmallCap 600 indexes with the higher price-to-book ratios.

S&P 500/BARRA Value Indexes
Companies of the S&P 500, MidCap 400 and SmallCap 600 indexes with the lower price-to-book ratios.

S&P MidCap 400
Composed of 400 domestic stocks chosen for market size, liquidity, and industry group representation.

S&P SmallCap 600
Composed of 600 domestic stocks chosen for market size, liquidity, and industry group representation.

Schwab 1000
Consists of the stocks of the 1,000 largest, publicly traded U.S. companies based on market capitalization.

Schwab Small Cap 1000
Consists of the stocks of the second 1,000 largest, publicly traded U.S. companies based on market capitalization.

Schwab International
Consists of the stocks of the 350 largest publicly traded companies in countries with developed securities markets based on market capitalization.

Wilshire 5000
Represents all U.S.-headquartered equity securities with readily available price data (over 7,000 stocks).

Wilshire 4500
Constructed using the Wilshire 5000 securities with the companies in the Standard & Poor's 500 index removed.

reconfigured over time. The Wilshire 5000 index covers just about all the domestic common stock categories (and is represented by Vanguard's Total Stock Market fund) while the Wilshire 4500 tracks the Wilshire 5000 less the S&P 500.

The technology exposure in Table 1 varies significantly by index. Among domestic funds, it ranges from 9% for the Vanguard Value Index (the 250 of the 500 S&P index stocks that are classified as value stocks), to the 74% exposure of the Rydex OTC (a fund that tracks the Nasdaq 100 which, in turn, is dominated by a few technology stocks such as Microsoft and Cisco).

Where can you find out how much your fund has invested in technology?

Funds provide annual and semi-annual reports that are a snapshot of the fund's portfolio, listing all stocks, and for actively managed funds, a breakdown by sector. Morningstar, Value Line and other third-party fund sources include sector weightings in their fund summaries. And on the Web, fund technology exposure is available on the Morningstar site at www.morningstar.com by typing in the fund ticker and selecting Sector Weightings on the left-hand side of the page under Portfolio. In addition, many fund families provide annual reports for their funds on their own Web sites. So, you have no excuse if you don't know your portfolio's exposure to technology. The box at the end of this article provides a listing of Internet sources for fund sector weightings.

TABLE 2. TECHNOLOGY EXPOSURE OF ALTERNATIVE INDEX PORTFOLIOS

Domestic	Technology Exposure (%)
Vanguard 500 Index	33.0
Dreyfus Mid-Cap Index	23.0
Galaxy II Small Co	27.0
Equal-Weighted Portfolio	**27.4**
Vanguard 500 Index	33.0
Vanguard Ext Market Index	25.0
Equal-Weighted Portfolio	**29.0**
Schwab 1000	30.0
Schwab Small-Cap Index	22.0
Equal-Weighted Portfolio	**26.0**
Vanuard Total Stk Mkt Index	31.0
Equal-Weighted Portfolio	**31.0**
International	
Vanguard European Stk Idx	9.0
Vanguard Pacific Stk Idx	14.0
Vanguard Emg Mrkts Stk Idx	5.0
Equal-Weighted Portfolio	**9.2**
Schwab Intl Index	10.0
Equal-Weighted Portfolio	**10.0**

RISK AND RETURN

The performance figures for these index funds, at least domestically, tell the tale of large-cap success and large-cap technology success, over the last five years. Small-cap and value indexes were generally laggards. Because of all the factors buffeting the market over the last five years, technology and its relationship to return are most evident at the extremes. In second place on two counts—tech exposure and return—the Vanguard Growth Index fund, at a current 47% technology exposure, returned 32.2% on average annually for the last five years. Meanwhile, in first place on the same two counts, Rydex OTC, with 74% current technology exposure, returned 58.7% on average annually over the last five years.

When it comes to portfolio risk, because of all the currents swirling around the market, technology exposure doesn't translate to risk exposure one-for-one. But the Rydex OTC fund, invested in the Nasdaq 100, with a 74% technology exposure, does have the highest risk of any of these index funds. Two risk statistics are presented: beta, a measure of relative risk, and standard deviation, a measure of absolute risk. Beta measures a fund's return volatility over the last three years relative to the S&P's 500 index of large, liquid domestic stocks representing all major sectors of the economy. A beta of 1.00 means that the fund is as volatile as the S&P 500, a beta of 0.75, as in the case of the Vanguard Small-Cap Index, indicates a fund only three quarters as volatile as the S&P 500. Rydex OTC, with a beta of 1.19, is 19% more volatile.

But beta only explains volatility relative to the market. Style, stock selection, sector weightings, and timing decisions all can add risk unrelated to stock market moves. And the less diversified the fund the less meaningful is beta as a risk measure. The measure R-squared (R^2) reveals just how much of the total variation in a fund's return is explained by market gyrations. An R-squared of 1.00 indicates all risk is market risk, and therefore beta is useful and meaningful in risk analysis. The lower the R-squared, however, the less reliable is the beta measure. For example, the Rydex OTC fund has a beta of 1.19, but an R-squared of only 0.43, meaning that beta only explains 43% of the fund's variation in return. So this beta may not be meaningful. As it turns out, beta in this case underestimates risk because the Rydex OTC fund is almost a technology sector fund, and not as well diversified as the S&P 500.

Standard deviation captures return volatility—risk—no matter what the source, but the standard deviation is in a form that is more difficult to interpret. Using the Rydex OTC example, its standard deviation is 31.4%, meaning that two-thirds of all its annual returns would fall in the range from its average return plus

TABLE 3. EXAMPLES OF PORTFOLIO TECHNOLOGY EXPOSURE

Fund		Weight in Portfolio* (%)		Technology Exposure* (%)			Weighted Portfolio Technology Exposure
Short-Term U.S. Govt Bond Index		40	×	0	=		0.0
Vanguard Total Stock Market Index		50	×	31	=		15.5
Schwab Intl Index	+	10	×	10	=	+	1.0
Total		**100%**					**16.5%**
Short-Term U.S. Govt Bond Index		20	×	0	=		0.0
Vanguard Total Stk Mkt Index		50	×	31	=		15.5
Schwab Int'l Index		10	×	10	=		1.0
Rydex OTC Index	+	20	×	74	=	+	14.8
Total		**100%**					**31.3%**
Short-Term U.S. Govt Bond Index		10	×	0	=		0.0
Vanguard Total Stk Mkt Index		40	×	31	=		12.4
Schwab Intl Index	+	10	×	10	=	+	1.0
Rydex OTC Index	+	40	×	74	=	+	29.6
Total		**100%**					**43.0%**

**Percentages are by market value of fund and market value of technology stocks within a fund.*

31.4% to its average return less 31.4%, a tremendously wide variation representing greater risk. By comparison, the Vanguard 500 Index fund has a standard deviation of 17.4%. Rydex OTC is almost twice as volatile, about as volatile as Vanguard Emerging Markets Stock Index with a 31.7% standard deviation—another example where beta underestimates true risk.

PORTFOLIOS

Table 2 shows portfolios of index funds that all accomplish the same diversification and coverage. Domestically, these combinations average about a 28% exposure to technology and internationally about a 10% technology exposure. These figures, however, are premised on an equal investment in each fund, something that may not be optimal, appropriate or representative for every investor.

Table 3 shows how to estimate technology exposure for a portfolio and how varying portfolio compositions will translate to different technology exposures and therefore risk.

The first portfolio in Table 3 is a well-diversified, conservatively weighted mix of index funds that has a weighted technology exposure of 16.5%, just over half the exposure of the broad domestic stock market.

The second portfolio adds an index fund dominated by technology, not unlike most aggressive growth funds, and reduces the bond index fund investment. Technology exposure rises to 31.3%, just about the average for the broad stock market.

The third is a very aggressive mix of funds with a significantly reduced investment in fixed income and a 40% commitment to the Rydex OTC index fund that is equal to the 40% commitment to the total stock market index fund. Adding an aggressive fund with high technology exposure to an already diversified portfolio, and weighting the technology fund heavily, quickly boosts exposure to technology, and to risk, without adding to diversification. The technology stocks that dominate the Rydex OTC index already contribute significantly in terms of stock value weight to the Vanguard Total Stock Market Index.

CHECK YOUR SETTINGS

Before you run off and pack your portfolio with more technology stocks, or liquidate some of your acrobatic tech funds, take the time to determine what your overall portfolio exposure to technology really is and how it compares to the overall market average and the various market segments.

Don't twist dials and pull levers until you know what setting you want and to what those levers are attached.

And remember, technology makes it all much more simple to analyze now. ◆

Internet Sources for Fund Sector Weightings

The following Web sites provide free mutual fund data, including current percentage breakdown of portfolio by sector.

CBS MarketWatch
www.cbsmarketwatch.com
Type in fund ticker and select ***Fund Profile*** from list of choices on left-hand side.

Morningstar.com
www.morningstar.com
Type in fund ticker and select ***Sector Weightings*** on the left-hand side of the page under Portfolio.

Quicken.com
www.quicken.com
Type in fund ticker and select ***Holdings*** from list of choices on left-hand side. The ***Fund Evaluator*** allows you to compare the percentage sector holdings of multiple funds side by side.

Stockpoint
www.stockpoint.com
Go to Funds area and type in fund ticker. Look for ***Sector Distribution*** column.