What conditions would make your appropriate allocation differ from that recommended for the "typical" family? An expanded portfolio view can help you answer the question.

An Expanded Portfolio View Includes Real Estate and Human Capital

By Charles Delaney and William Reichenstein

It is widely agreed that the asset allocation decision is the most important one an investor will make. How you split your investment assets among stocks, bonds, and cash is generally more important than your choice of stock fund.

Moreover, there is wide agreement about how most families should allocate their assets during each stage of their life cycle. Table 1 presents a summary of recommended asset mixes from four sources: two of the three largest families of mutual funds and two best-selling books on investments. These recommendations are by-and-large similar. That is, there exists a general consensus about an appropriate asset mix for most families at each stage of their life cycle.

For now, we note three features common to the recommendations. First, the recommended asset mixes are limited to stocks, bonds, and cash. Second, they do not explicitly consider the family's other assets such as a house or a family-owned business, or its liabilities. Third, the advice invariably carries a disclaimer, such as "your own circumstances may dictate a substantially different allocation."

In this article, we examine some of the circumstances that would dictate a substantially different allocation. In other words, when is the consensus asset mix not right for your family? Specifically, we ask what impact the family's other assets and liabilities should have on its allocation of investment assets. In addition, we ask how the family's human capital—i.e., income prospects—should affect the allocation decision.

We begin by describing a fictitious family—the Coles—with typical family concerns. We then look at their current allocation of investment assets. Next, we expand their portfolio in steps to include (a) their house and mortgage and other tangible assets and liabilities and (b) their human capital. In each step, we ask how these other assets and liabilities should affect their allocation of investment assets.

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The Coles

Bill and Betty Cole, both 40, have two boys, eight and eleven. They live in Midland, Texas, a quiet community of about 80,000, in the Texas oil patch. They own a $200,000 home with a $160,000 fixed-rate mortgage. Bill, vice president of operations at Texas Oil Field Rentals, earns a base salary of $60,000 a year and receives a year-end bonus that varies from zero to $15,000 based on firm profits. Bill has $200,000 in a 401(k) plan. There is no other company pension plan. The current allocation of 401(k) assets has $154,000 in a growth stock fund and $46,000 in a U.S. corporate bond fund. Betty, a registered nurse, is currently a homemaker and does not plan to reenter the work force. They have $20,000 in a bank checking account. They have no other debt and no other major assets.

The Investment Portfolio

Table 2 presents the Coles' investment portfolio as it is traditionally defined. They have $154,000 in stocks (70%), $46,000 in bonds (21%) and $20,000 in cash (9%). This asset mix is in line with the recommendations in Table 1. For example, Malkiel recommends that the Coles invest 60% or $132,000 in stocks. Vanguard recommends that they keep an emergency reserve of at least three to six months living expenses, or about $20,000, in cash, and 80% of the rest, or $176,000, in stocks.

To repeat, the Coles investment mix fits the recommended mix for most 40-year-old couples without unusual circumstances.

A Broader Portfolio

Table 3 presents the Coles' portfolio that has been expanded to include their house and mortgage. Table 4 presents three views of the Coles' asset mix, where the asset classes are bonds (including checking accounts), stocks, and real estate.

The balance-sheet view looks at the entire balance sheet. It treats the mortgage as a short position in long-term bonds; the Coles "issued" a $160,000 mortgage bond and used the proceeds to help finance the $200,000 home. The equity-only view considers only the $40,000 equity in the house; it ignores

**Table 1.
A Sampling of Asset Mix Recommendations**

	Cash (%)	Bonds (%)	Stocks (%)
Vanguard Retirement Investing Guide			
Ages 20-49	0	20	80
Ages 50-59	0	40	60
Ages 60-74	20	40	40
Ages 75+	20	60	20
T. Rowe Price Retirement Planning Kit (Part 3)			
High Risk	0	20	80
Medium Risk	10	30	60
Low Risk	20	40	40
"Wall Street Journal Guide to Planning Your Financial Future"			
Years Until Needed: 30	5	15	80
Years Until Needed: 12	10	30	60
Years Until Needed: 5	20	40	40
"A Random Walk Down Wall Street," by Burton G. Malkiel			
Age: Mid-20s	5	25	70
Age: About 40	5	35	60
Age: Mid-50s	5	45	50
Age: About 70 & beyond	10	60	30

Notes:
The Vanguard Retirement Investing Guide (Irwin Press, 1995) recommends asset mixes for retirement assets. The mixes ignore an assumed cash reserve equal to at least three to six months' worth of living expenses.

The high, moderate, and low risk portfolios of the T. Rowe Price Retirement Planning Kit are discussed as generally suitable for those who are, respectively, a long time from retirement, several years from retirement, and nearing retirement.

"The Wall Street Journal Guide to Planning Your Financial Future" (Lightbulb Press Inc.) was written by Kenneth M. Morris, Alan M. Siegel, and Virginia B. Morris. The guide also says, "Financial experts may recommend that you have as much as 80% of your total portfolio in stocks (or stock mutual funds) while you are in your 20s and 30s . . .However, as you get older, say in your 50s and 60s, the percentage of stocks in your portfolio is usually scaled back to 60% or sometimes less."

Burton Malkiel's recommendations assume the family owns their own home.

$160,000 of the $200,000 of real estate assets and the $160,000 mortgage. The no-house view considers only the investment portfolio and ignores the values of both the house and mortgage.

Let's compare the Coles' asset mix according to the balance-sheet and no-house views. The balance-sheet view says they have 77% of net worth in real estate and –36% in bonds. The no-house view, which is also the investment portfolio, says they have nothing in real estate and 30% in bonds. These differences are huge!

What is the Coles' true asset mix? Without question, the balance-sheet view reflects their true mix. It is the only view that can measure the sensitivity of the family's net worth to changes in inflation, interest rates, and other economic factors because it is the only view that considers all family assets and liabilities.

Before the 1980s, real estate prices were relatively stable or slowly rising. In this environment, a family could ignore the real estate component of its portfolio. Today, however, real estate values have become much more volatile. Homeowners in parts of Texas, New Jersey, California, and elsewhere have seen their home values plummet 20% or more. If the value of the Coles' home drops 20%, their net worth will decline $40,000. If it rises 20%, their net worth will rise $40,000. The balance-sheet view recognizes that the Coles' largest asset is indeed their home. Their true exposure to real estate is $200,000.

Some 40 years ago, Harry Markowitz espoused a simple idea, one for which he eventually received the Nobel Prize in economics. He said a good portfolio requires more than a collection of good assets. We also must consider the correlations among assets; that is, we want to combine assets whose returns do not vary closely together. When he developed portfolio theory, he had in mind a mutual fund, which has negligible debt. So Markowitz only considered the asset side of the portfolio. We can extend Markowitz's idea to address the family portfolio. The upshot is that a good family portfolio requires consideration of the correlations among all assets and liabilities; the entire balance sheet must be considered.

The no-house view looks at the traditional investment portfolio. It ignores the Coles' largest asset, their home, and it ignores all of their liabilities.

The equity-only view considers only the $40,000 equity in the Coles' home. It ignores $160,000 of real estate value and a like amount of mortgage. This treatment is inconsistent with the way we treat other leveraged assets. Suppose the Coles borrow $5,000 to buy $12,000 of Disney stock. A financial analyst would recognize that they have a $12,000 exposure to Disney and owe $5,000. The analyst would not view this as a $7,000 exposure to Disney. Yet, this is precisely

**Table 2.
The Coles' Investment Portfolio**

Growth Stocks	$154,000	70%
Bonds	$46,000	21%
Cash	$20,000	9%
Total	$220,000	100%

Table 3.
The Coles' Broader Portfolio

Growth Stocks	$154,000	Mortgage	$160,000
Bonds*	$66,000		
House	$200,000	Net Worth	$260,000
Total Assets	$420,000	Combined	$420,000

** Bonds include the corporate bond fund and cash—that is, all interest-earnings assets.*

the myopia advocated by the equity-only approach. Moreover, ignoring $160,000 of debt-financed real estate exposure would be a worse oversight than ignoring a $5,000 exposure to Disney stocks.

If the balance sheet view is correct, why is most financial advice limited to the allocation of the $220,000 in the traditional investment portfolio? Have financial advisers missed the boat? We don't think so. We believe the unstated logic of most financial advisers is something like the following: "Stocks, bonds, and real estate are distinctly different types of assets. The returns on these asset types do not vary closely together. Following Markowitz, a family would ideally own some of each. Most families, like the Coles, already have a large real estate exposure. Thus, we recommend that their other assets be devoted to stocks and bonds."

This line of thinking produces the following investment implications:

- If you do not own a house (or have some other real asset exposure), you should consider allocating part of your investment portfolio to real estate, perhaps by investing in equity REITs (real estate investment trusts), or real estate mutual funds that hold shares of REITs.
- If you do own a house, you should devote most or all of your investment assets to stocks and bonds.
- For many families, especially the young, most of their wealth is invested in their home. They should try to devote their other investments to assets whose returns are weakly correlated or, ideally, negatively correlated with the value of their home. To repeat, returns on stocks and bonds have been weakly correlated with returns on real estate.

Other Major Assets and Liabilities

The Coles currently do not have other major assets and liabilities. However, if they did, they could affect the allocation of investment assets. Some examples follow.

- For example, suppose Betty Cole will receive the assets in a trust that holds $300,000 of high-grade bonds. This bond exposure outside of the retirement portfolio means that more, perhaps all, of the retirement assets can be allocated to stocks.
- Suppose Bill becomes part-owner of a risky business. The riskiness of these other assets suggests holding a less-risky investment portfolio.
- Suppose Betty and Bill's children are 17 and 18 instead of eight and eleven, and will enter college the next two falls. They plan to pay for tuition by borrowing against their 401(k) plan assets. The tuition costs look like a five-year debt obligation. Betty and Bill may decide to match this liability by moving a like amount of 401(k) assets into short- to intermediate-term bonds.

The Extended Portfolio

Table 5 presents the Coles' extended portfolio. In addition to their stocks, bonds, and real estate, it adds their human capital, where human capital is the present value of future income. Expanded net worth is the sum of the traditionally-defined net worth plus the human capital. This table does not include specific dollar amounts because it is difficult to estimate the value of human capital. Nevertheless, human capital is clearly the dominant asset for most young and middle-aged families.

Some of the implications from considering the Coles' human capital follows:

- They should insure Bill's human capital with life and disability insurance. Term life provides the cheapest way for a family to insure human capital. In fact, it may be the only way a young family can afford to properly insure its human capital. Disability insurance also is advisable. Unfortunately, its prohibitive cost keeps it out of the reach of many families.
- As a nurse, Betty could return to the workplace at any time. So, the Coles could decide to carry less life insurance on Bill. In essence, Betty's human capital could be activated if needed.
- The Coles could buy life insurance on Betty. If she plans to return to the workforce, they many want to insure against a loss of her future income. Even if she doesn't plan to return, they may want to protect, as best as possible, against the loss of her household contribution.
- For young and middle-aged families, investment assets may be a trivial fraction of their expanded net worth. So, assuming their human capital is insured, they may be comfortable holding an all-stock investment portfolio. For example, consider a 32-year-old physician with a $120,000 a year practice, but few investment assets. In a recent article, some of the finance profession's best scholars say, in essence, that the

Table 4.
Three Views of the Coles' Net Asset Mix

	Balance-Sheet View		Equity-Only View		No-House View	
	$ (000)	%	$ (000)	%	$ (000)	%
Stocks	154	59	154	59	154	70
Bonds*	–94	–36	66	25	66	30
Real Estate	200	77	40	15	0	0
	260	100	260	100	220	100

** Bonds include the corporate bond fund and cash—that is, all interest-earning assets.*

Table 5.
The Coles' Extended Portfolio

Stocks	
Bonds	
House	
Other Assets	Liabilities
Human Capital	Expanded Net Worth
Total Assets	Combined

doctor could invest all of his investment assets in stocks. He could offset disastrous stock returns for the first few years by saving a little more of the $120,000 each year, working a little more each year, or delaying retirement. In essence, someone who has the flexibility to choose how much or how long to work later in life can invest more of his money in stocks and other risky assets than if he has no such flexibility. Retired individuals have exhausted their human capital. So, their investment portfolio must be less risky than the investment portfolio of someone with substantial human capital.

- The Coles should consider the riskiness of their human capital. Betty's skills are consistently in demand and salaries are relatively secure; her human capital is a relatively low-risk asset. In contrast, the value of Bill's stock options and even the value of his $60,000 base salary depend in part on the health of Texas Oil Field Rentals. What would be the value of his human capital at another firm or, in case of any industry collapse, in another industry? Do his talents transfer to another firm or industry, or are they firm- and industry-specific? If he is an accounts receivables manager, his talents would transfer elsewhere. However, as vice president of operations, his talents are probably not easily transferred. Everything else the same, the riskier the family's human capital, the less risk they should have in their investment portfolio.
- Bill Cole should be reluctant to invest in Texas Oil Field Rentals' common stock. He does not want his human capital and financial capital tied to the vagaries of the same firm. In the early 1980s, Braniff Airways filed bankruptcy and closed operations. On the day they were forced to stop flying, a TV reporter visited a pub frequented by Braniff employees. She asked one of the newly unemployed if he had any investments to tide him over between jobs. He answered, "Yes, 10,000 shares of Braniff stock."
- Similarly, stock option and profit-sharing plans are designed to motivate employees by aligning their interest with those of the firm's stockholders. Bill Cole's option plan may allow, but not require, him to buy 1,000 shares of the firm's stock at $40 on June 30, two years hence. He profits if the stock price rises above $40. If it ends below $40, he will let the option expire. If the stock price at expiration exceeds $40, Bill should not turn down the opportunity to buy an undervalued asset. However, he should strongly consider selling his shares immediately or as soon as the option contract allows. He should not make the same mistake as the Braniff employee by investing his human capital and financial capital in the same firm.

A Common Economic Factor

Finally, a family should ask whether its extended portfolio is particularly sensitive to a single economic factor. To illustrate the idea, assume we are looking at the Cole family in the early 1980s.

The price of oil is $37 a barrel and, according to the experts, the major question is how much, not whether, the price will rise. Texas Oil Field Rentals leases equipment used to drill deep wells. Business booms when oil prices rise, since it becomes profitable to retrieve the deep oil.

Oil prices collapse. Texas Oil Field Rental's business, along with that of other firms in the industry, virtually shuts down overnight. At $20 a barrel, it is no longer profitable to retrieve the deep oil at a cost of $27 a barrel. Bill's job is, at best, in jeopardy. Texas Oil Field Rentals' stock price plummets, making Bill's stock options worthless.

The oil price collapse wreaks havoc in the local economy. The downward spiral devastates real estate prices in this oil-patch economy. Bad debt at Texas banks soar, forcing them into bankruptcy.

In short, the values of Bill's stock options, his base salary, and their home are sensitive to the same economic factor. The Coles' financial plight would be even worse if their investment portfolio contains primarily stocks of local banks and oil-producing firms.

How could the Coles reduce their exposure to oil price risk? They could buy assets that do well when oil prices drop. For example, airline stocks generally do well when oil prices fall, as do hotel chains (travel increases), and trucking firms. Bond prices also may rise due to a drop in inflation. At the least, they should avoid any other assets that are hurt by a drop in oil prices.

By looking at their expanded portfolio, the Coles could recognize their true exposure to oil prices before the price collapse, and they could use their investment portfolio to reduce this exposure or perhaps they could choose a less risky portfolio.

The financial health of most families is not as sensitive as that of the Coles' to a single economic factor. Moreover, it is not always easy to recognize a family's true sensitivity before the fact. Families living in towns dominated by a single employer—for instance, military-base towns—or a single product or industry—such as farming towns—should recognize that they have this unique exposure and consider adjusting their investment portfolio accordingly.

Summary and Conclusion

We began this article by asking, "What is the appropriate asset mix for the investment portfolio?" There is wide agreement about an appropriate asset mix for families without "unusual circumstances." But what are these unusual circumstances and do they apply to your family?

We believe a good way to answer this question is to look at

your total portfolio of assets and liabilities and then your expanded portfolio:

- Do you own a house or otherwise have a real estate exposure? If not, you probably want some real estate in your investment portfolio. If you already own real estate, you probably want to devote the investment portfolio to stocks and bonds.
- Do you have other substantial assets? If they look a lot like a bond, then you can increase the stocks in your investment portfolio. If your other assets are risky, you could opt for less risk in the investment portfolio.
- Also look at your family's liabilities, including anticipated liabilities, such as the cost of a college education. If the liabilities are large, you could partially offset them by holding bonds in the investment portfolio. If the liabilities are due soon, you could hold short-term bonds.
- Consider your family's human capital. Be sure to insure it. For young and middle-aged families, it is probably their most valuable asset. Your family's human capital not only includes the income potential of the currently employed, it also includes a value for the human capital of a non-employed spouse. If your skills transfer across firms, then they are not firm-specific; if they do not transfer well across firms, then they are firm-specific. If they are firm-specific, do not invest your financial capital with the same firm.
- Finally, consider whether your family's real estate and human capital are particularly sensitive to a single economic factor. If they are, you may want to choose an investment portfolio that will hedge this exposure or choose a less risky investment portfolio.

Thinking about these issues is not always easy. But it should help you better understand your true financial position and the true risks to your family's financial security.

It will also help you answer the question, "Is the usual recommended mix of investment assets appropriate for our family?"

Investor Web-Sightings

Sites we've found on the World Wide Web that may be of interest to individual investors:

Department of the Treasury
http://www.ustreas.gov
Investors can obtain information on savings bond rates and redemption values through this site. It also reports auction results for T-bills, notes and bonds. A section called frequently asked questions (FAQ) provides answers to the common questions investors have about savings bonds. A list of Federal Reserve Banks that handle savings bonds transactions is given, with addresses and phone numbers; a few have links directly to web sites. Computer programs for calculating bond worth and maintaining records of savings bonds can be downloaded.

Hoover's Online
http://www.hoovers.com
This site provides company profiles on over 10,000 firms. Searching can by done by name, ticker, location, or industry. Links are provided to other sites with information on that company. A section on initial public offerings (IPOs) is also available. Other features include an industry focus, rankings of firms, lists of popular business books, and links to free business information.

Nasdaq
http://www.nasdaq.com
This site gives current stock quotes for both national market and small-cap stocks. A link to the EDGAR database provides easy access to SEC-filed reports. An index activity page provides a breakdown of the different Nasdaq indexes, such as industrial, transportation, banking, and the Nasdaq 100, with a brief description of the index and a current listing of the individual stocks that comprise it.

Nelson Investment Management Network
http://www.nelnet.com
This site covers the institutional investment management industry. One section shows lists of the top-ranked investment management firms, excerpted from "Nelson's World's Best Money Managers." Links to home pages of investment management firms include mutual fund companies. Statistics and commentary on the institutional investment management industry are updated monthly.