research dialogue

issue no. 80 june 2004

80

TIAA-CREF INSTITUTE

tiaa-crefinstitute.org

WHAT HAPPENED TO TIAA-CREF PARTICIPANT PREMIUM AND ASSET ALLOCATIONS FROM 2000 TO 2004?

Jacob S. Rugh, TIAA-CREF Institute

Employees are increasingly responsible for their retirement security. As a retirement savings vehicle, defined contribution (DC) plans continue to flourish despite recent volatility in the financial market. As DC plans become more prevalent, both the interest in and importance of understanding individual pension asset allocations continue to grow. Using data on TIAA-CREF premium-paying participants, this report describes how individuals with 403(b) DC retirement plans have managed their portfolios in the volatile market from 2000 to 2004. This article updates the data and analysis presented in *Research Dialogue* no. 65 (Ameriks, 2000) and examines how TIAA-CREF participant asset allocations have changed since the stock market peaked in 2000.

in this issue

>>> EXECUTIVE SUMMARY

As a retirement savings vehicle, defined contribution (DC) plans continue to flourish despite recent volatility in financial markets. Using data on TIAA-CREF 403(b) DC plan participants, this report describes how individuals have shifted their asset allocations in the volatile market from June 2000 to March 2004. Major findings from the report are summarized below.

- On the whole, participants appear to have remained cautious, despite the recent end to the bear market. From 2000 to 2002, the average participant contribution to equity fell from 64.1% to 54.9%; as of March 2004, the average contribution to equity was still only 54.9% of premiums.
- In terms of the stock of participant assets, equity allocation dropped from 63.0% to 50.0% of assets from June 2000 to September 2002. Since then, equity allocations have only rebounded slightly, by 3.8 percentage points, to 53.8% as of March 2004.
- In 1992, only 8.4% of participants allocated 100% of premiums to equity; by 2000, this share had risen to 30.5%. As of March 2004, however, the fraction stands at 17.7% of participants, the same level as 1995.
- Participants have diversified their contributions into real estate during the bear market but not so much into fixed income. The fraction of participants contributing any premiums to the real estate asset class has nearly tripled since 2000, from 12.0% of participants in 2000 to 33.4% of participants as of March 2004.
- While the younger age groups allocate slightly more to the other three asset classes besides guaranteed, particularly equities, the difference in equity allocations between the youngest and oldest group narrowed from 18 to 13 percentage points between 2000 and 2004. Also, the youngest—not the oldest—age groups allocate the most to fixed income and real estate.
- While approximately 90% of participants who entered prior to 2001 held some equity accumulations as of March 2004, that proportion has since fallen to less than 80% of those entering in 2003. This may point to diversification out of equities on the part of new entrants to the participant population.
- The average participant held nearly 90% of assets in the TIAA Traditional Account and CREF Stock Account in 1992, 70% in 1997, and only 57% by March 2004, a level that has remained steady since 2001.
- Men on average hold slightly more (about 3 percentage points more) in equity and slightly less in guaranteed, fixed income, and real estate than do women, but both have made proportionately similar changes to asset allocations since 2000.

>>> TIAA-CREF ASSET CLASSES

TIAA-CREF participants can choose to allocate their pension savings among four basic asset classes: (1) guaranteed, (2) equity, (3) fixed income, and (4) real estate. As of March 2004, there were 10 investment accounts and 18 mutual funds associated with these four asset classes. Table 1 shows the total assets in each of these accounts and representative asset classes and their relative share of total assets as of March 31, 2004. The table also shows the inception date for each investment account.

Established in 1918, the TIAA Traditional Annuity Account—the guaranteed asset class—was the sole investment option prior to 1952. TIAA returns the principal, a guaranteed interest rate, plus additional interest (formerly known as dividends) as declared in advance. Additional interest has been declared and earned by TIAA participants every year since 1948. Because TIAA invests in long-term, relatively illiquid investments, withdrawals and transfers must be spread over ten years.

The CREF Stock Account was initially offered by CREF in 1952 as the equity asset class. In April 1988, a third

Table 1 Asset Classes, Inception Dates, and Total Assets Under Management for TIAA-CREF Pension Accounts and Retirement Class Mutual Funds, As of March 31, 2004

Asset Class and Account Name	Date of Inception	Assets ($ mil.)	% of Total	
Guaranteed				
TIAA Traditional Annuity (assets estimated)	April 23, 1918	$150,243	49.0%	49.0%
Equity				
CREF Stock	July 1, 1952	$101,883	33.2	44.4%
CREF Social Choice*	March 1, 1990	$6,223	2.0	
CREF Global Equities	May 1, 1992	$8,737	2.8	
CREF Growth	April 29, 1994	$11,182	3.6	
CREF Equity Index	April 29, 1994	$7,818	2.5	
TIAA-CREF Retirement Class Equity Mutual Funds (17)	October 1, 2002	$389	0.1	
Fixed Income				
CREF Money Market	April 1, 1988	$6,697	2.2	4.9%
CREF Bond Market	March 1, 1990	$5,447	1.8	
CREF Inflation Linked Bond	May 1, 1997	$2,992	1.0	
Real Estate				
TIAA Real Estate	October 2, 1995	$5,207	1.7	1.7%
TIAA-CREF Retirement Class Real Estate Securities Mutual Fund	October 1, 2002	$72	0.0	

* The CREF Social Choice Account is a balanced account. It held 60% stocks as of 03/31/2004.

Source: TIAA-CREF SEC Financial Reporting and Corporate Actuarial.

Note: All variable products reported on the SEC (net) assets reporting basis.

Note: The data source for this table includes all pension and retirement class mutual fund assets and is different from the information in the following tables, which summarize data for premium-paying TIAA-CREF participants only.

asset class—fixed income—was introduced with the inception of the CREF Money Market. The remaining pension accounts listed in Table 1 were all introduced between 1990 and 1997, including the TIAA Real Estate Account (1995), which represents a fourth asset class. In 2002, TIAA-CREF began to offer retirement class shares for 18 of its institutional mutual funds, 17 of which invest in equities and one in real estate securities.

Taken together, total TIAA-CREF pension assets were split roughly 44%/56% into equities and non-equities as of March 2004. This split represents a reversal since the last formal asset allocation analysis in June 2000, when assets were split approximately 57%/43% on an equities/non-equities basis (Ameriks, 2000).

>>> PREMIUM ALLOCATIONS

Table 2 shows the proportion of TIAA-CREF premium-paying participants[1] that allocated their premiums to each of the four asset classes at the end of each year

Table 2 Premium Allocations to TIAA and CREF Accounts, by Asset Classes, 1992 - March 31, 2004 (Percent of participants with RA or GRA contracts)

Allocation Pattern	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	3/2004
100% Guaranteed	18.1%	16.1%	14.2%	13.0%	11.2%	8.6%	7.4%	6.7%	6.1%	6.5%	7.5%	7.1%	6.8%
0-99% Guaranteed	67.3	65.2	63.3	60.9	56.5	53.2	51.0	48.5	47.6	50.1	54.8	57.5	57.9
0% Guaranteed	14.6	18.7	22.5	26.2	32.3	38.2	41.6	44.8	46.3	43.4	37.8	35.5	35.4
100% Equity	8.4	11.5	15.0	17.7	22.2	23.5	26.0	29.6	30.5	25.7	20.0	17.8	17.7
0-99% Equity	66.3	65.2	64.6	63.0	61.8	60.2	58.7	55.8	55.4	58.7	61.9	65.1	65.9
0% Equity	25.3	23.3	20.5	19.3	16.1	16.3	15.3	14.6	14.1	15.6	18.1	17.2	16.4
100% Fixed Income	3.8	3.8	3.5	3.9	4.2	4.6	4.9	5.4	5.7	6.3	6.8	6.6	6.4
0-99% Fixed Income	21.9	24.5	23.8	24.2	23.8	23.8	24.7	25.2	24.8	26.6	26.0	26.6	27.1
0% Fixed Income	74.2	71.7	72.7	72.0	72.0	71.6	70.3	69.4	69.5	67.1	67.2	66.8	66.5
100% Real Estate	--	--	--	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.3
0-99% Real Estate	--	--	--	0.1	0.7	2.3	5.8	9.0	12.0	18.1	26.5	32.1	33.4
0% Real Estate	--	--	--	99.9	99.2	97.6	94.1	90.9	87.9	81.7	73.3	67.6	66.4

Source: TIAA-CREF Institute, based on DA master file.

Percentages may not add to 100 because of rounding. Statistics shown are as of December 31 of each year unless otherwise indicated.

since 1992, and March 2004. For each year and asset class, the three categories—100%, 0-99%, and 0%—will always total to 100 percent of participants because an individual participant must either have all, some, or none of his or her premiums allocated to each asset class.

At least three long-term trends stand out amongst the data presented here. First, the proportion of participants choosing to allocate all premiums to the equity asset class increased dramatically during the bull market, but has fallen rapidly since 2000. In 1992, only 8.4% of participants allocated 100% of premiums to equity; by 2000, this share had risen to 30.5% of participants. Since 2000, however, the fraction has nearly fallen by half, to only 17.7% as of March 2004, the same level as 1995. This trend suggests that in the recent bear market since 2000, participants have diversified away from 100% equity allocations, but participants appear to not have abandoned the equity asset class altogether. The fraction of participants that contributed 0-99% of premiums to equity actually increased from 55.4% in 2000 to 65.9% as of March 2004. This trend is similar to that among other DC plan participants observed by Utkas (2003).

Second, participants have diversified their contributions into real estate during the bear market but not so much to fixed income, a trend that continues unabated in spite of more recent gains in stock and bond markets. The fraction of participants contributing 0-99% of premiums to the real estate asset class has nearly tripled since 2000, from 12% of participants to 33.4% of participants as of March 2004. Average premium allocations among the fixed income asset class have remained surprisingly flat over time, with about two-thirds of participants still not remitting any premiums to that asset class as of March 2004. Since 1993, about 1 in 4 participants have allocated 0-99% to fixed income, with slight increases since 2000 (from 24.8% to 27.1%)—a sharp contrast to trends seen in the real estate asset class.

The third trend concerns premium allocations to the guaranteed asset class. Over time, the percent of participants allocating premiums within each category has

Table 3 Average Premium Allocations, 1992 - March 31, 2004 (Data for premium-paying participants with RA or GRA contracts)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	3/2004
Asset Class													
Guaranteed	50.8%	46.6%	42.7%	39.6%	34.9%	30.6%	27.7%	24.9%	23.1%	24.4%	27.2%	27.6%	27.1%
Equities	39.5	43.8	48.3	51.2	55.3	59.1	61.0	63.0	64.1	59.4	54.9	54.3	54.9
Fixed Income	9.7	9.7	9.0	9.2	9.8	9.8	10.4	10.8	10.9	13.2	14.0	13.6	13.3
Real Estate	--	--	--	0.0	0.2	0.5	1.0	1.4	1.9	3.0	4.0	4.6	4.7
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Investment Account													
TIAA Traditional	50.8	46.6	42.7	39.6	34.9	30.6	27.7	24.9	23.1	24.4	27.2	27.6	27.1
CREF Stock	36.5	36.7	35.7	35.1	34.5	33.3	32.2	30.8	29.0	27.2	26.3	26.5	26.8
Money Market	8.0	7.4	6.6	6.8	7.2	7.3	7.4	7.9	8.0	8.8	8.3	8.3	8.1
Bond Market	1.7	2.3	2.4	2.5	2.5	2.5	2.9	2.7	2.5	3.4	4.1	3.8	3.6
Social Choice	2.6	4.5	4.4	4.5	4.7	5.0	5.4	5.4	5.0	4.9	4.7	4.7	4.7
Global Equities	0.4	2.6	7.4	7.2	7.3	7.6	7.1	7.0	7.9	7.3	6.8	6.7	6.8
Growth Account	--	--	0.7	3.3	6.3	9.4	11.2	13.9	16.3	14.2	11.8	11.0	10.8
Equity Index	--	--	0.2	1.1	2.4	3.8	5.1	5.9	5.9	5.8	5.3	5.2	5.4
Real Estate	--	--	--	0.0	0.2	0.5	1.0	1.4	1.9	3.0	4.0	4.6	4.7
Inflation-linked Bond	--	--	--	--	--	0.0	0.1	0.2	0.4	0.9	1.6	1.6	1.5
Retirement Mutual Funds	--	--	--	--	--	--	--	--	--	--	0.0	0.2	0.3
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: TIAA-CREF Institute, based on DA master file.
Percentages may not add to 100 because of rounding. Statistics shown as of December 31 of each year unless otherwise indicated.

been remarkably stable, with the exception of 100% guaranteed (which has fallen over time, yet not so much since 2000). The fraction of participants with 0-99% of premiums allocated to the guaranteed asset class rose from 47.6% in 2000 to 57.9% in March 2004.

Average Premium Allocations

Table 3 shows the average premium allocations of participants since 1992. The trend over time may be characterized as a decrease in premiums to guaranteed in favor of equity-based accounts, and, in the past five years, in favor of fixed income and real estate as well. In 1992, the average premium allocations to guaranteed and equity were 50.8% and 39.5%, respectively. By 2000, the average allocations had more than switched to 23.1% guaranteed and 64.1% equity, after the bull market peaked earlier that year.

The long-term trend of decreases to guaranteed and increases to equity from 1992 to 2000 has reversed in the last four years, but this reversal slowed markedly in 2003. From 2002 to 2003, the average premium allocation to guaranteed rose from 27.2% to 27.6%, or only 0.4 percentage points. This contrasts with increases of 2.8 percentage points in 2002 and 1.3 percentage points in 2001. The average premium allocation to equity fell from 54.9% in 2002 to 54.3% in 2003, or only 0.6 percentage points. This was a much

Table 4 Conditional Average Premium Allocations: Participants with Any Premiums to Each Corresponding Account, 1992 - March 31, 2004 (Data for premium-paying participants with RA or GRA contracts)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	3/2004
Asset Class													
Guaranteed	59.5%	57.3%	55.1%	53.6%	51.5%	49.4%	47.3%	45.0%	43.1%	43.1%	43.7%	42.7%	42.0%
Equities	52.3	56.1	59.7	62.3	66.1	69.4	70.8	72.5	73.2	69.3	67.0	65.5	65.6
Fixed Income	39.7	39.1	37.5	38.2	40.3	41.5	41.4	41.9	42.1	42.9	42.7	40.9	39.6
Real Estate	--	--	--	28.2	24.4	22.2	17.3	15.2	14.7	15.3	14.8	14.2	14.1
Investment Account													
TIAA Traditional	59.5	57.3	55.1	53.6	51.5	49.4	47.3	45.0	43.1	43.1	43.7	42.7	42.0
CREF Stock	50.2	50.6	49.3	48.9	48.7	47.9	46.7	45.3	43.3	41.3	39.5	38.8	38.9
Money Market	38.7	39.3	38.5	40.2	44.1	47.0	48.5	51.1	52.2	53.3	51.2	52.6	52.4
Bond Market	25.1	24.3	22.9	22.4	22.0	21.8	22.2	20.7	19.9	21.7	22.4	20.7	19.9
Social Choice	36.8	37.8	34.5	33.4	33.2	33.0	32.9	32.3	31.3	30.9	30.3	30.3	30.2
Global Equities	32.4	35.6	38.2	33.1	30.6	28.8	26.4	24.7	24.1	22.5	21.2	20.6	20.6
Growth Account	--	--	31.6	34.0	34.8	36.0	35.0	36.2	36.7	33.1	29.4	27.5	27.0
Equity Index	--	--	22.9	26.8	28.1	29.0	30.1	29.9	28.7	28.6	27.7	27.6	27.6
Real Estate	--	--	--	28.2	24.4	22.2	17.3	15.2	14.7	15.3	14.8	14.2	14.1
Inflation-linked Bond	--	--	--	--	--	17.8	15.4	14.5	16.2	20.9	25.1	21.5	20.1
Retirement Mutual Funds	--	--	--	--	--	--	--	--	--	--	0.0	44.3	44.2

Source: TIAA-CREF Institute, based on DA master file.

Statistics shown as of December 31 of each year unless otherwise indicated.

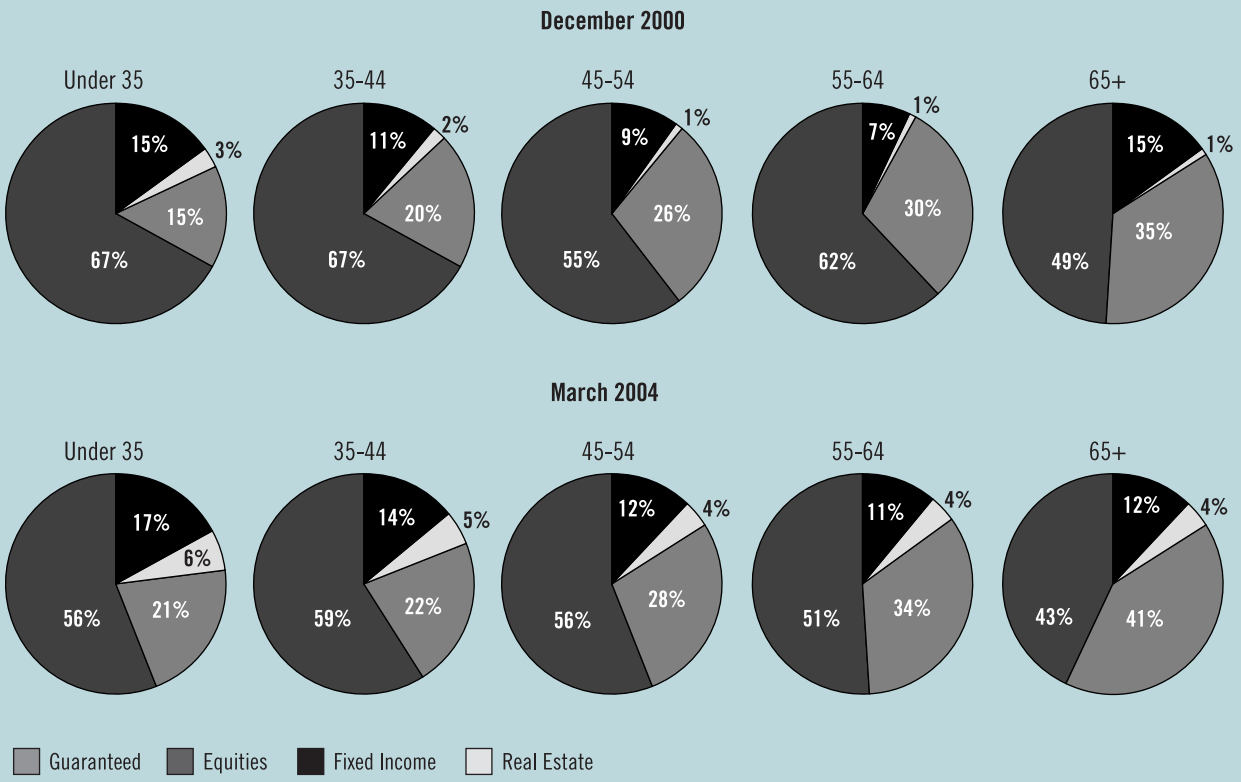
smaller decline than in 2002 or 2001, when the average allocation to equity fell by 4.5 and 4.7 percentage points, respectively.

During the bull market through 2000, the average fixed income allocation remained essentially about 10 percent. After 2000, it jumped to 13.2% in 2001, corresponding with the end of the bull market. The average premium allocation to fixed income has stayed between 13% and 14% for the past three years, a plateau that perhaps reflects a shift in participant behavior. The average premium allocation to real estate rose from 4% in 2002 to 4.7% as of March 2004, a sizeable increase of 0.7 percentage points, but a smaller one than in 2002, when it rose by 1 percentage point.

Conditional Average Premium Allocations

Table 4 shows the conditional average premium allocations for participants since 1992. In other words, it shows the average premium allocations only for participants with premiums to each corresponding account and asset class. Participants with no current premiums to a particular account or asset class are not included in the tabulations for that account or asset class. For example, the conditional allocation to real estate asset class represents only roughly 1 in 3 participants as of March 2004, whereas the conditional allocation to the equities represents nearly 84% of participants.

Figure 1 Premium Allocations by Age



Source: TIAA-CREF Institute, based on DA master file.

Over the period 1992 to March 2004, participants with premiums to the guaranteed asset class have lowered their average premium allocations to guaranteed from 59.5% in 1992 to 42% as of March 2004. Since 1992, the trend for equities has been mixed, as the conditional allocation rose from 52.3% in 1992 to a peak of 73.2% in 2000, and has since fallen to 65.5% in 2003. This figure rose slightly in the first quarter of 2004, and only time will tell if this marks a new shift in participant behavior.

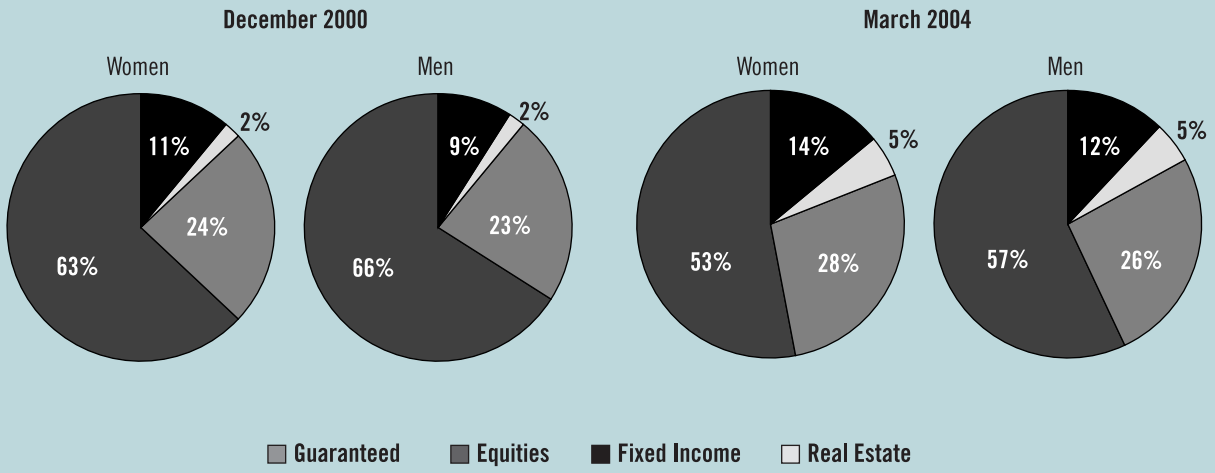
The trend for fixed income has been flat for the same time period, hovering between 38% and 43% of average allocations for participants with premiums. Since its introduction in 1995, the conditional premium allocation to real estate has actually fallen steadily and leveled off at about 14% to 15% over the past four years. This may reflect the use of sample portfolio allocations on the contract for newer participants who entered since 2001; all four of the sample portfolios feature an allocation of 10% to the TIAA Real Estate account.[2]

Premium Allocations by Age

Figure 1 shows the average participant premium allocation by asset class for the five different age cohorts as of December 2000 and March 2004. The pie charts show that older participants tend to allocate more premiums to guaranteed while the younger age groups allocate slightly more to the other three asset classes, particularly equities. In 2000, the difference in equity allocations between the youngest (under 35) and oldest group (65 or older) was 18 percentage points; by 2004, that gap had narrowed to 13 percentage points.

It is interesting to note that the youngest and next youngest (35 to 44) groups both allocated over two-thirds of premium contributions to equities in 2000, but 56% and 59% in 2004, respectively. Time effects

Figure 2 Premium Allocations by Gender



Source: TIAA-CREF Institute, based on DA master file.

work in tandem with age effects, and together the two may offer an explanation as to why the under 35-age group currently has a lower equity allocation than the 35-44 age group. Namely, the youngest group will likely contain more participants who chose an initial allocation during the bear market of 2000-2003, and thus, may have allocated fewer premiums to equity. This illustrates the potential for a cohort effect as described by Poterba and Samwick (1997).

While both the oldest and youngest age groups increased allocations to guaranteed by 6 percentage points, the average remains about twice as high (41% versus 21%) for participants age 65 and over. Finally, the pie charts also show that the greatest usage of fixed income and real estate asset classes prevails among the youngest—not the oldest—age groups.

Premium Allocations by Gender

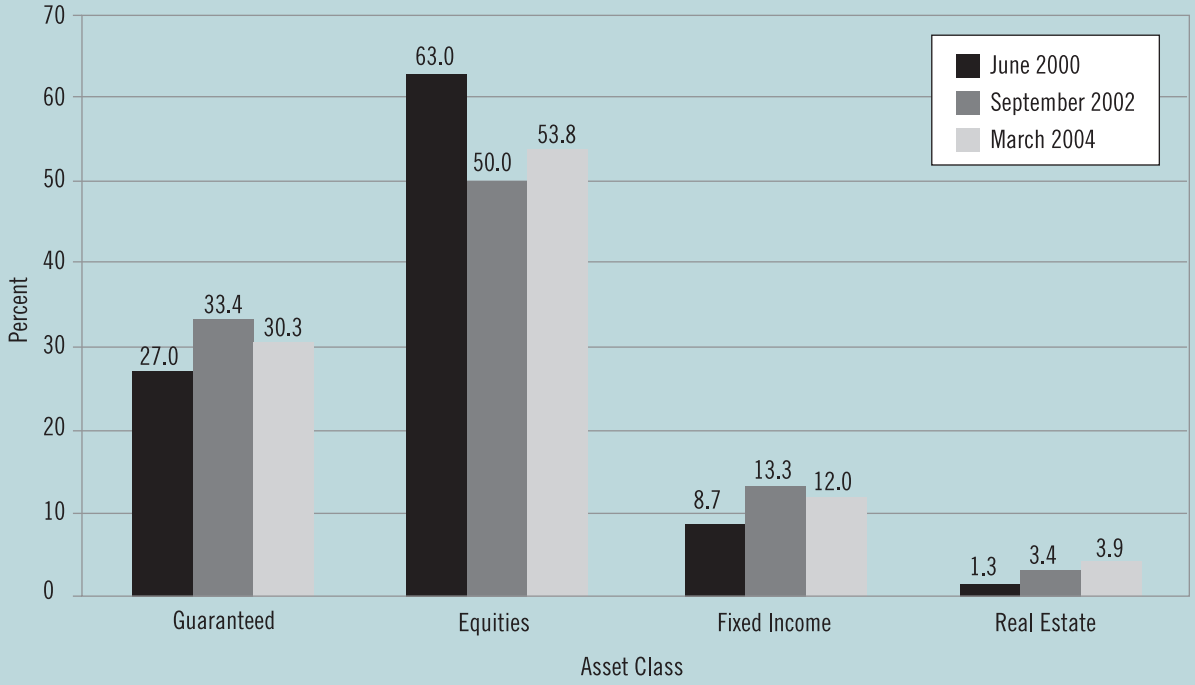
Figure 2 shows a snapshot of the average participant premium allocation by gender as of December 2000 and March 2004. The data in the pie charts reveal that while men allocate slightly more to equities than women, both groups have lowered equity exposure by 9 to 10 percentage points over the past four years. One possible explanation as to why the aggregate data show lower equity contributions among both men and women in March 2004 may be that newer participants have chosen their initial allocation during the volatile, if not downward, market since the year 2000.

Comparing the left two charts to the right two charts shows that these declines in equity contributions were almost equally spread across the remaining three asset classes, each of which increased by 3 to 4 percentage points. Moreover, men and women allocate roughly the same proportion of their premium contributions to these three asset classes—guaranteed, fixed income, and real estate.

>>> ASSET ALLOCATIONS

The remainder of the article focuses on the average participant asset allocation, or the portfolio of participant retirement assets, rather than the flow of premiums, or contributions, as discussed up to this point. Changes in asset allocation are a product of several factors: changes in premium allocations, new entrants to the participant population, net transfers, and changes in account performance. Because market performance is effectively uncontrollable on the part of participants, changes in asset allocation are not directly comparable to changes in premium contribution allocation.

Figure 3 Average Asset Allocation by Asset Class: June 2000, September 2002, and March 2004



Source: TIAA-CREF Institute, based on DA master file.

Average Asset Allocations

Figure 3 presents the average participant asset allocation at three points in time during the last four years: June 2000, September 2002, and March 2004. The first two points in time were chosen because they correspond, respectively, to the peak and trough of the most recent stock market cycle. The bar graphs show that the drop in equity allocation from June 2000 to September 2002 was an astounding 13 percentage points, from 63% to 50% of assets. Since September 2002, equity allocations have only rebounded slightly, by 3.8 percentage points to 53.8% as of March 2004. Figure 3 also shows that, after increasing rapidly in 2001-2002, fixed income allocations and real estate allocations have leveled off considerably, and even fallen somewhat in the case of fixed income, since the stock market rebound in late 2002.

Asset Class and Account Ownership

Table 5 shows the percent of participants with any assets in each of the four asset classes and ten retirement accounts and equity-based retirement class mutual funds from 1992 to March 2004.

During this time period, the proportion of participants with any accumulations in the guaranteed asset class has fallen, from 91.3% in 1992 to 68.4% in 2000. Yet this trend has since reversed, as the guaranteed ownership rate rose to 75.1% in March 2004. The fraction of participants with any accumulations in equity has risen over time and remained between 87% and 89% since 1997. Participation in the CREF Stock account has remained remarkably steady, with about 3 of 4 participants holding accumulations in that account in every year since 1992. Participant ownership of the CREF Growth account has been remarkably stable, remaining at roughly 47% per year since 2001, the stock market notwithstanding. This suggests participants as a whole have lowered equity exposure without completely withdrawing from the asset class.

The fraction of participants with any accumulations in

Table 5 Percent of Participants with Assets in TIAA-CREF Accounts, 1992 - March 31, 2004 (Data for premium-paying participants with RA or GRA contracts)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	3/2004
Asset Class													
Guaranteed	91.3%	88.7%	85.9%	83.0%	79.2%	75.7%	72.9%	70.3%	68.4%	69.3%	73.0%	74.9%	75.1%
Equities	78.0	80.0	82.2	83.3	84.9	87.0	88.1	88.9	89.5	88.3	87.0	87.5	87.8
Fixed Income	26.9	27.4	27.4	27.8	27.7	29.4	32.2	33.2	33.3	37.8	41.1	42.2	42.8
Real Estate	--	--	--	0.1	0.9	3.0	6.7	10.4	14.3	20.9	29.8	35.7	37.0
Investment Account													
TIAA Traditional	91.3	88.7	85.9	83.0	79.2	75.7	72.9	70.3	68.4	69.3	73.0	74.9	75.1
CREF Stock	75.6	75.5	75.5	75.1	74.8	75.1	74.8	74.3	73.9	73.6	73.8	75.0	75.5
Money Market	23.6	22.1	20.9	20.7	20.0	20.6	21.4	21.9	21.7	23.2	23.6	23.5	23.4
Bond Market	6.8	9.3	10.8	11.7	12.2	13.9	16.2	16.5	16.4	19.7	22.4	22.8	23.0
Social Choice	6.8	11.3	12.7	13.6	14.6	17.3	18.8	19.6	19.3	19.4	19.3	19.4	19.5
Global Equities	1.3	7.4	18.9	21.5	24.2	29.5	30.9	32.8	37.2	38.1	38.6	39.5	39.9
Growth Account	--	--	2.4	9.4	17.1	27.5	33.9	40.9	47.6	48.2	47.1	47.2	47.1
Equity Index	--	--	0.7	3.9	8.2	14.1	18.6	21.9	23.4	24.1	23.8	23.8	24.1
Real Estate	--	--	--	0.1	0.9	3.0	6.7	10.4	14.3	20.9	29.8	35.7	37.0
Inflation Linked Bond	--	--	--	--	--	0.1	0.9	1.7	2.8	5.2	7.9	9.3	9.9
Retirement Mutual Funds	--	--	--	--	--	--	--	--	--	--	0.0	0.6	0.9

Source: TIAA-CREF Institute, based on DA master file.
Statistics shown as of December 31 of each year unless otherwise indicated.

fixed income has risen slowly over time from 26.9% in 1992 to 42.8% in March 2004, with most of that increase occurring since 2000, when the fraction was 33.3% of participants. Participation in the real estate asset class rose rapidly since its inception in 1994 to 14.3% in 2000, and especially quickly over the past four years, to 37% of participants in March 2004. As more new entrants enter the participant population, this figure may continue to rise in part because they have tended to elect a sample portfolio with real estate premium allocations.[3]

Table 6 shows the percent of participants with assets in the ten retirement accounts and in any of the equity-based retirement class mutual funds for 13 mutually exclusive cohorts of participants: those who submitted their first premium (entered) prior to 1985, those who entered from 1985 to 1989, 1990 to 1994, and each of the past ten years, 1995 to 2004. The data are as of March 2004.

The percent of participants from each cohort that have any accumulations in the guaranteed asset class seems to mirror the time-series, cross-sectional figures in Table 5, declining gradually for newer participants, and then rising for participants who entered after the bull market ended in 2000. Sixty-one percent of participants who entered in 2000 had some assets in guar-

Table 6 Percent of Participants with Assets in TIAA-CREF Accounts, By Year of Entry, As of March 31, 2004 (Data for premium-paying participants with RA or GRA contracts)

	Pre-1985	1985-89	1990-94	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Asset Class													
Guaranteed	92.9%	91.9%	79.4%	67.5%	60.6%	57.0%	59.4%	58.3%	60.6%	70.1%	77.7%	74.2%	64.5%
Equities	92.4	89.8	89.8	90.2	90.8	90.7	90.7	90.2	88.5	84.5	83.2	79.8	72.6
Fixed Income	32.6	38.2	47.9	46.6	46.6	46.1	46.4	46.5	43.6	46.2	39.8	41.5	56.3
Real Estate	22.8	21.8	22.6	24.1	25.2	28.8	38.0	40.9	43.5	55.2	65.0	63.7	56.2
Investment Account													
TIAA Traditional	92.9	91.9	79.4	67.5	60.6	57.0	59.4	58.3	60.6	70.1	77.7	74.2	64.5
CREF Stock	87.9	84.7	77.8	72.3	70.4	68.2	70.0	69.3	68.8	70.8	73.5	70.6	63.7
Money Market	16.0	23.5	26.4	24.3	23.5	23.8	22.6	24.2	23.8	25.8	22.9	23.9	29.2
Bond Market	16.5	16.6	29.2	29.0	29.4	29.0	29.3	27.1	23.8	25.1	20.3	17.4	21.2
Social Choice	13.9	15.6	29.5	27.8	27.4	28.0	26.6	24.5	19.6	16.3	12.3	10.2	8.5
Global Equities	28.9	30.6	41.1	48.0	46.2	47.4	45.6	46.3	51.6	45.6	42.3	37.4	28.3
Growth Account	32.3	36.1	40.6	54.8	60.1	62.7	64.1	66.4	66.8	54.9	46.3	40.5	30.0
Equity Index	19.8	20.7	23.3	31.3	35.8	37.1	38.5	36.9	30.4	24.7	16.0	11.6	10.2
Real Estate	22.8	21.8	22.6	24.1	25.2	28.8	38.0	40.9	43.5	55.2	65.0	63.7	56.2
Inflation Linked Bond	10.6	8.2	8.6	8.6	8.6	9.0	11.9	13.0	12.8	11.4	8.2	9.3	14.4
Retirement Mutual Funds	0.9	0.8	0.8	0.8	0.7	0.8	0.9	0.8	0.8	0.7	0.6	1.7	2.8

Source: TIAA-CREF Institute, based on DA master file.

anteed, compared to 74.2% of those who entered in 2003. While approximately 90% of participants who entered prior to 2001 held any equity accumulations as of March 2004, that fraction has since fallen: only 84.5%, 82.3% and 79.8% of those entering in the past three years (2001-03), respectively, had any equity accumulations. These data may point to diversification out of equities on the part of new entrants to the participant population, a trend also manifested in other data in this article.

For the fixed income asset class, there is little variation by year of entry from 1990 to 2003, ranging from about 40% to 46% of all participants. Finally, the increase in participation in the real estate asset class seen in Table 5 appears to be largely the effect of new entrants. As of March 2004, participation among entrants prior to 1997 did not exceed 25%, but for the new entrants in 2002 and 2003, participation was 65.0% and 63.7%, respectively.

Average Allocations by Asset Class and Investment Account

Table 7 shows the average asset allocations for participants from 1992 to March 2004. The average asset allocation to the guaranteed asset class has fallen steadily since 1992, from 53% to 30.3% in March 2004. This represents a decline of 2.5 percentage points since 2002, when the average allocation was 32.8%, but still substantially higher than 27.0% alloca-

Table 7 Average Asset Allocations, 1992 - March 31, 2004 (Data for premium-paying participants with RA or GRA contracts)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	3/2004
Asset Class													
Guaranteed	53.0%	49.9%	48.1%	43.2%	39.2%	34.3%	30.7%	27.4%	27.6%	29.3%	32.8%	30.5%	30.3%
Equities	38.4	41.5	43.6	48.4	52.4	57.1	59.8	62.3	60.9	56.5	50.5	53.7	53.8
Fixed Income	8.6	8.6	8.4	8.5	8.4	8.2	8.7	9.2	9.7	11.7	13.2	12.1	12.0
Real Estate	0.0	0.0	0.0	0.0	0.2	0.4	0.8	1.1	1.7	2.5	3.5	3.7	3.9
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Investment Account													
TIAA Traditional	53.0	49.9	48.1	43.2	39.2	34.3	30.7	27.4	27.6	29.3	32.8	30.5	30.3
CREF Stock	36.1	36.4	34.6	36.2	36.3	36.4	35.7	34.3	31.5	28.4	25.3	27.3	27.4
Money Market	7.1	6.6	6.2	6.2	6.1	5.9	6.0	6.8	6.9	7.8	7.9	7.5	7.4
Bond Market	1.5	2.0	2.1	2.3	2.2	2.3	2.6	2.3	2.5	3.3	4.0	3.4	3.3
Social Choice	2.1	3.5	3.7	4.1	4.3	4.8	5.1	5.0	4.9	4.8	4.6	4.5	4.6
Global Equities	0.2	1.6	4.8	5.2	5.7	6.2	6.0	6.7	6.8	6.3	6.0	6.5	6.6
Growth Account	--	--	0.4	2.2	4.4	7.0	9.1	11.7	12.7	11.9	9.9	9.8	9.7
Equity Index	--	--	0.1	0.7	1.6	2.8	4.0	4.7	5.0	5.1	4.7	4.9	4.9
Real Estate	--	--	--	0.0	0.2	0.4	0.8	1.1	1.7	2.5	3.5	3.7	3.9
Inflation-linked Bond	--	--	--	--	--	0.0	0.1	0.2	0.4	0.7	1.2	1.2	1.3
Retirement Mutual Funds	--	--	--	--	--	--	--	--	--	--	0.0	0.6	0.7
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: TIAA-CREF Institute, based on DA master file.
Percentages may not add to 100 because of rounding. Statistics shown as of December 31 of each year unless otherwise indicated.

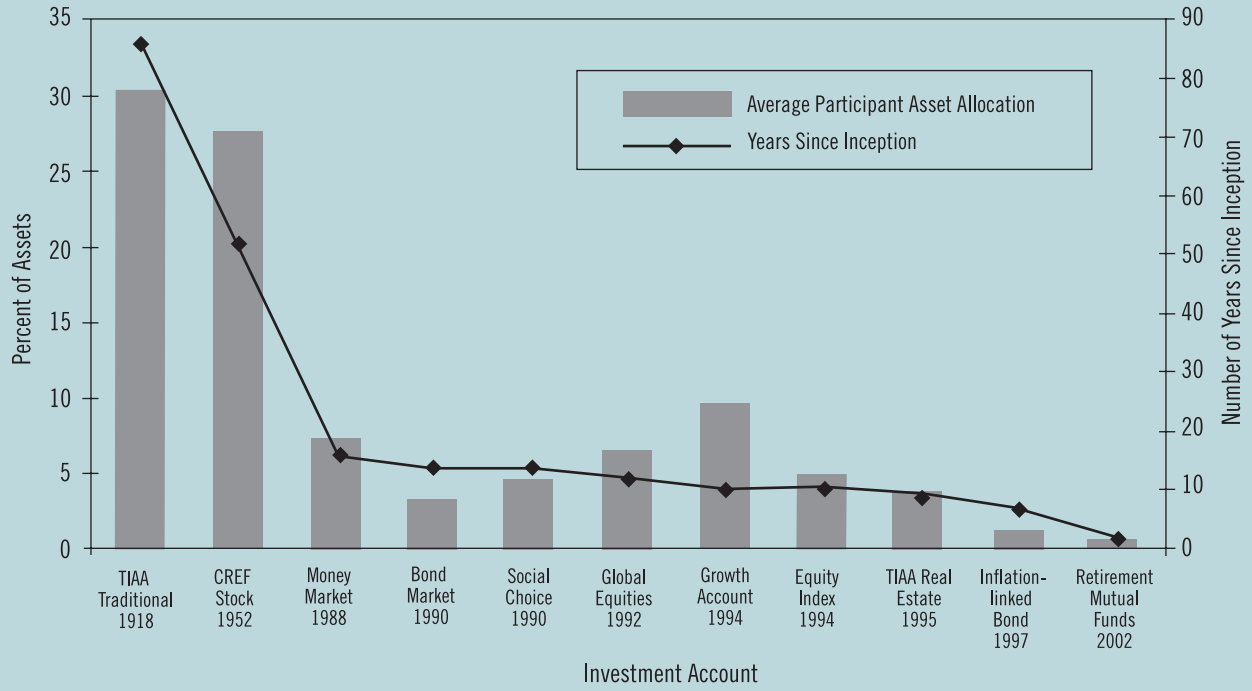
tion as of June 2000 (Ameriks, 2000), just after the stock market peak. By contrast, the average participant allocation to equities has risen over time, from 38.4% in 1992 to 63.0% in June 2000 (Ameriks, 2000). The bear market abruptly reversed this steady rise, and the average equity allocation fell to 50.5% in 2002. However, it rose again, by 3.3 percentage points since year-end 2002, to 53.8% as of March 2004.

The average fixed income allocation has also risen over time, from a much lower baseline level, from 8.6% in 1992 to 13.2% in 2002. Yet fixed income allocations declined to 12.1% in 2003. Finally, the average participant allocation to real estate has more than tripled since 1999 from 1.1% to 3.9% in March 2004. Yet the average only increased by 0.4 percentage points in the past 15 months, indicating a possible deceleration in the rate of growth.

Participant Inertia and Allocation Strategies

To better understand changes in individual asset allocations, it is important to consider the issue of asset allocation changes, or lack thereof, among new entrants to the participant population. New participants are asked to select an initial contribution allocation on their individual retirement contract

Figure 4 Average Participant Asset Allocation by Account and Number of Years from Account Inception, March 31, 2004



Source: TIAA-CREF Institute, based on DA master file.

application. After they make their initial selection, a majority of participants do not make any changes to these allocations. For example, Ameriks and Zeldes (2001) followed a sample of TIAA-CREF participants over a period of ten years and found that only 47% made changes to their existing premium contribution allocations over that period.[4]

In spite of the remarkable volatility in equity markets, participant inertia with respect to contribution allocation during 1997 to 2002 persisted. A recent analysis of TIAA-CREF participants by Rugh (2003) found that among a cohort followed from 1997 to 2002, only 38% of premium-paying participants made any changes to their equity premium contribution allocations. This finding is consistent with earlier research by Samuelson and Zeckhauser (1988) who found that a large majority of TIAA-CREF participants made no changes to their contribution allocations over a considerably longer period of time (12 years). It also builds on findings by Madrian and Shea (2001) on the lasting effects of inertia among 401(k) participants.

Figure 4 shows the relationship between average asset allocation and the number of years since investment account inception. The chart plots the average participant asset allocation to each investment account on the left axis and the number of years since account inception on the right axis. The chart shows that the longer the asset class has been available, the higher the percentage allocated to it. This relationship between the two measures appears to be unambiguous, but the story of how participant allocations have evolved is somewhat less straightforward.

Over the past twelve years, the average participant asset allocation has shifted away from the original two accounts: TIAA Traditional and CREF Stock. Notwithstanding, they continue to represent more than half of the average participant asset allocation. Over time participants have slowly moved away from the guaranteed asset class and CREF Stock, often favoring one over the other, thereby interrupting this trend during some periods. According to Table 7, participants on average held nearly 90% of assets in

the TIAA Traditional Account and CREF Stock Account in 1992, 70% in 1997, and only 58% by March 2004, a level that has remained steady since 2001. This trend in part reflects the effects on asset holdings of a shift in contribution flows away from TIAA Traditional and CREF Stock into other investment accounts, particularly equity-based accounts during the bull market and, more recently, the real estate asset class. Finally, the trend away from TIAA Traditional and CREF Stock and towards more diverse allocations may also undermine the theory of status quo bias as found by Samuelson and Zeckhauser (1988) among TIAA-CREF participants from 1981 to 1986.

Benartzi and Thaler (2001) argue that the variety and arrangement of investment options offered to participants can influence individual portfolio elections, leading to naïve diversification. In particular, they argue and present data which show that, given increasingly more choices, individuals will choose to spread their investment equally over all asset classes, known as the "1/n strategy" to asset allocation. The data here lend mixed support to this theory. First, the average asset allocation to the guaranteed asset class remains higher than the theory would suggest (which perhaps may be due to the fact that transfers out of the guaranteed asset class are restricted). Second, the average asset allocation to equity was in line with the predicted average under the "1/n" model as 5 out of 10 accounts are equity-based. Third, average asset allocation to fixed income and to real estate seem to fall below the expected outcome of the theory of naïve diversification. While both the theory of status quo bias, along with the theory of naïve diversification, are useful in explaining much of the change in asset allocation over the last 12 years, they do not tell the whole story.

Asset Allocations by Age

Table 8 shows the average asset allocations by age groups of participants as of June 2000 and March 2004. The age categories are the same as those used in Figure 1, with the exception of one fewer age category in the June 2000 population, where data on those ages 55 to 64 were not available. The data in this table illustrate time effects and cohort effects on asset allocations. Additionally, the discrepancies across age groups may not only reflect attitudes toward risk, but also changes in account and market performance.

With respect to the guaranteed asset class, participants under age 35 allocated 21.7% in March 2004, higher than in June 2000, when they allocated 16.2%; for those ages 35 to 44, their allocation remained essentially the same, rising slightly from 24.1% to 24.4% of assets. However, these average allocations are much lower than participants ages 55 to 64 and those age 65 or older, who allocated 38.4% and 43.5%, respectively, to guaranteed as of March 2004.

In terms of equity allocations, the youngest age group, with the furthest to fall from the 2000 peak of 68.7%, declined markedly to 56.0% by March 2004. Interestingly, despite this large decline, the average asset allocation for those under age 35 to the CREF Stock account remained unchanged at 24% of assets. Most of the decline in equity allocations among the youngest age group may be attributed to large declines in the other equity-based accounts. Among the older age groups, the declines in equity allocations were roughly similar, ranging from a decrease of 7 to 9 percentage points.

The bottom two rows of the table reveal that the proportion of participants that allocate all assets to equity or all assets to guaranteed fell across age groups, but more so among younger participants. Again, these data may bear out the notion that newer, usually younger, participants who entered during the bear market may have entered the population with more diverse asset allocations.

Asset Allocations by Gender

Table 9 shows the average asset allocations by gender in June 2000 and March 2004. Men on average hold slightly more in equity and slightly less in guaranteed, fixed income, and real estate than do women. Among the four asset classes, the differences in allocation between men and women have remained the same in March 2004 as in June 2000, with the exception of equities, which spread has increased marginally. These differences have historically been small and men and women have tended to shift allocations in much the same way over time.

For example, the equity allocations of both men and women have fallen by roughly the same amount amidst the volatile stock market of the past four years. For the equity asset class, the allocation for women fell from 62.0% in June 2000 to 52.5% in March 2004, or

Table 8 Average Asset Allocations by Age, June 2000 and March 2004 (Data for premium-paying participants with RA or GRA contracts)

	June 2000				March 2004				
	Under 35	35-44	45-54	55+	Under 35	35-44	45-54	55-64	65+
Asset Class									
Guaranteed	16.2%	24.1%	30.4%	34.4%	21.7%	24.4%	32.8%	38.4%	43.5%
Equities	68.7	65.3	61.6	57.6	56.0	58.4	53.2	49.6	43.7
Fixed Income	12.8	9.3	7.1	7.1	16.1	12.9	10.8	9.2	10.1
Real Estate	2.3	1.3	0.9	0.9	6.0	4.3	3.2	2.8	2.6
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Investment Account									
TIAA Traditional	16.2	24.1	30.4	34.4	21.7	24.4	32.8	38.4	43.5
CREF Stock	24.0	30.6	36.1	39.6	24.0	25.4	28.3	30.9	30.9
Money Market	9.5	6.5	5.0	5.4	11.8	8.0	6.2	4.8	5.8
Bond Market	2.9	2.6	2.0	1.6	3.1	3.8	3.4	3.0	2.7
Social Choice	5.8	6.1	4.6	2.8	3.9	5.6	5.0	3.6	2.4
Global Equities	9.3	8.0	6.0	4.5	8.7	8.2	6.0	4.5	3.1
Growth Account	22.0	15.2	10.9	7.8	12.7	12.5	8.7	6.4	4.1
Equity Index	7.6	5.4	4.0	2.8	5.1	6.1	4.8	3.9	2.8
Real Estate	2.3	1.3	0.9	0.9	6.0	4.3	3.2	2.8	2.6
Inflation-Linked Bond	0.4	0.2	0.2	0.2	1.2	1.2	1.2	1.4	1.6
Retirement Mutual Funds	--	--	--	--	1.7	0.6	0.4	0.3	0.3
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	Percent of Participants Allocating 100% Assets in Equities and 100% Assets in Guaranteed								
All Equity	28.7	21.0	15.8	11.9	8.3	12.4	9.8	8.0	6.4
All Guaranteed	3.8	4.8	5.8	7.7	1.4	2.8	4.6	6.2	9.8

Source: TIAA-CREF Institute, based on DA master file.

Percentages may not add to 100 because of rounding. Data for 55-64 and 65+ age groups not available for June 2000.

9.5 percentage points lower in 2004 than 2000. For men, the equity allocation fell from 64.6% to 55.7%, a slightly smaller decrease of 8.9 percentage points.

More revealing, perhaps, is the proportion of men and women allocating 100% in equities, as shown at the bottom part of the table. For women, the fraction that allocated all to equity fell by a little more than half, from 19% of women in June 2000 to 9.1% in March 2004; for men, it fell by slightly less than half, from 18.4% in June 2000 to 10.4% in March 2004. Therefore, while in the middle of 2000, irrespective of gender, nearly one in five participants held all assets in equity-based accounts, by March 2004, only one in ten did.

Men and women had higher guaranteed asset allocations in March 2004 than in June 2000; they rose from 27.7% to 31.0% for women and from 26.5% to 29.7% for men. Fixed income allocations rose substantially

Table 9 Average Asset Allocations by Gender, June 2000 and March 2004 (Data for premium-paying participants with RA or GRA contracts)

	June 2000		March 2004	
	Women	Men	Women	Men
Asset Class				
Guaranteed	27.7%	26.5%	31.0%	29.7%
Equities	62.0	64.6	52.5	55.7
Fixed Income	9.1	7.6	12.5	10.9
Real Estate	1.3	1.3	4.0	3.7
Total	100.0	100.0	100.0	100.0
Investment Account				
TIAA Traditional	27.7	26.5	31.0	29.7
CREF Stock	31.5	35.5	26.2	29.2
Money Market	6.5	5.3	7.8	6.4
Bond Market	2.4	2.1	3.5	3.2
Social Choice	5.6	4.1	5.0	4.1
Global Equities	6.9	6.8	6.6	6.6
Growth Account	13.1	13.8	9.2	10.2
Equity Index	5.0	4.5	4.8	5.0
Real Estate	1.3	1.3	4.0	3.7
Inflation-Linked bond	0.2	0.2	1.2	1.3
Retirement Mutual Funds	--	--	0.7	0.6
Total	100.0	100.0	100.0	100.0
All Equity	19.0	18.4	9.1	10.4
All Guaranteed	6.1	5.0	4.3	4.0

Source: TIAA-CREF Institute, based on DA master file.
Percentages may not add to 100 because of rounding.

(mostly during 2001 and 2002) to 12.5% for women and 10.9% for men by March 2004. Real estate allocations have roughly tripled for both groups to about 4% of assets in March 2004; for this asset class, men and women appear to allocate assets nearly the same way.

Asset Allocations by Accumulation Quintile

Table 10 shows the average asset allocations by accumulation quintiles as of June 2000 and March 2004.

The data reveal at least three interesting trends over the past four years and some important differences in how changes in asset allocation vary by account size.

First, although all previous data presented have shown an increase in guaranteed allocations among all participants, the table shows that allocations to guaranteed among the middle accumulation quintile actually fell over the past four years, from 29.7% to 26.6% of assets. However, the other four quintiles did indeed have higher allocations in March 2004 than in June 2000.

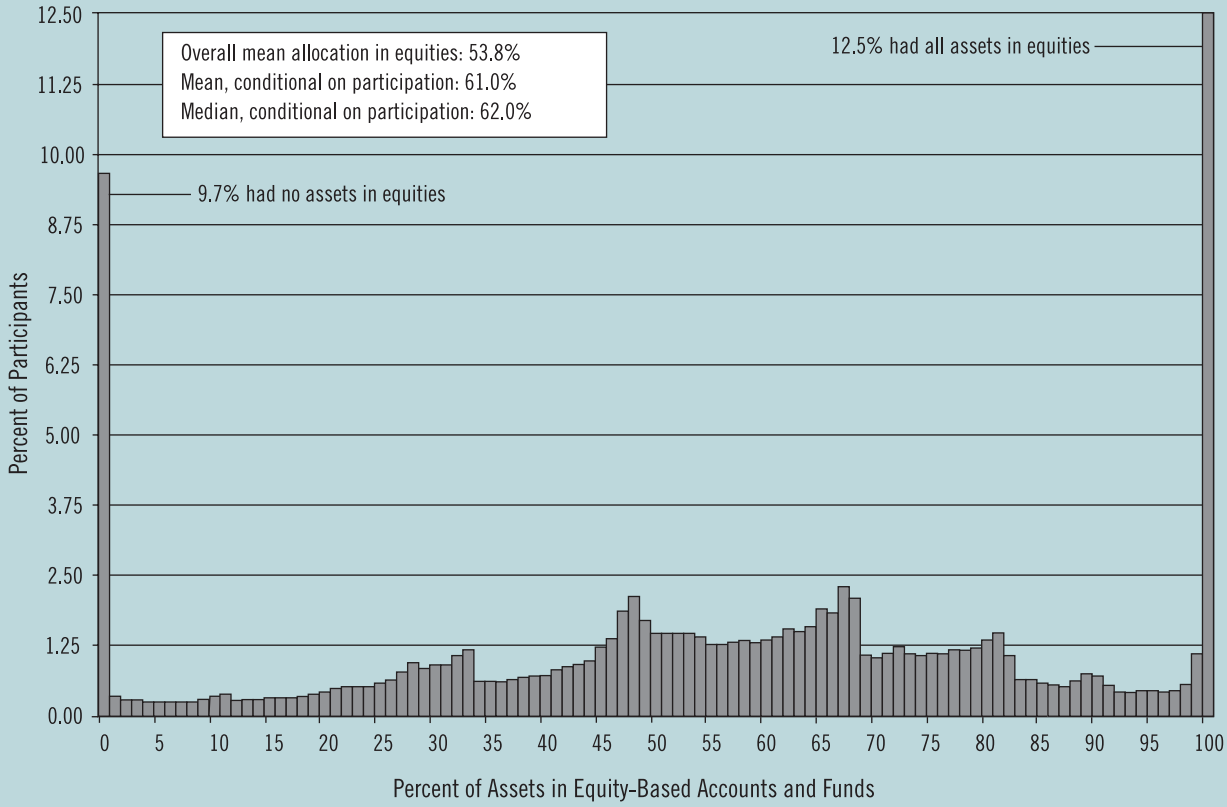
Table 10 Average Asset Allocations by Accumulation Quintile, June 2000 and March 2004 (Data for premium-paying participants with RA or GRA contracts)

	June 2000					March 2004				
	Lowest Quintile	2nd Quintile	3rd Quintile	4th Quintile	Highest Quintile	Lowest Quintile	2nd Quintile	3rd Quintile	4th Quintile	Highest Quintile
Asset Class										
Guaranteed	18.1%	22.8%	29.7%	32.8%	31.5%	26.1%	24.0%	26.6%	34.3%	40.5%
Equities	60.4	65.3	62.6	62.4	64.6	46.0	56.7	58.6	55.2	52.7
Fixed Income	18.5	10.5	7.2	4.4	3.1	21.3	13.6	11.2	8.4	5.1
Real Estate	3.2	1.5	0.6	0.4	0.7	6.6	5.5	3.5	2.0	1.7
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Investment Account										
TIAA Traditional	18.1	22.8	29.7	32.8	31.5	26.1	24.0	26.6	34.3	40.5
CREF Stock	20.1	24.1	30.9	40.2	50.5	22.2	23.0	24.1	29.2	38.7
Money Market	14.7	7.0	4.7	2.9	2.1	17.0	8.1	5.5	3.8	2.1
Bond Market	3.1	3.3	2.4	1.5	0.9	3.0	4.0	4.3	3.5	2.0
Social Choice	6.0	6.9	6.2	3.8	1.4	3.2	5.2	6.3	5.6	2.6
Global Equities	7.7	8.8	8.1	5.8	3.9	6.5	8.4	8.1	6.3	3.6
Growth Account	19.4	18.3	13.0	9.5	6.9	8.3	13.7	13.1	8.7	4.6
Equity Index	7.2	7.2	4.5	3.0	2.0	3.2	6.2	6.9	5.2	3.1
Real Estate	3.2	1.5	0.6	0.4	0.7	6.6	5.5	3.5	2.0	1.7
Inflation-Linked Bond	0.7	0.2	0.1	0.1	0.1	1.4	1.5	1.3	1.1	1.1
Retirement Mutual Funds	--	--	--	--	--	2.7	0.1	0.2	0.2	0.2
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Percent of Participants Allocating 100% Assets in Equities and 100% Assets in Guaranteed										
All Equity	27.8	27.1	19.3	12.3	7.1	2.7	14.7	15.8	10.6	4.7
All Guaranteed	6.1	6.6	7.0	5.4	2.7	1.3	4.4	5.1	5.5	4.3

Source: TIAA-CREF Institute, based on DA master file.
Percentages may not add to 100 because of rounding.

Second, while all five quintiles had lower equity allocations after the bear market, the decrease varies widely by accumulation size. The equity allocation for the lowest quintile, for example, fell from 60.4% to 46.0% from June 2000 to March 2004, a difference of over 14 percentage points. For the middle, or third, quintile, the equity allocation fell by only 4 percentage points, from 62.6% in March 2000 to 58.6% in June 2000. Some of this variation across quintiles may be attributed to differences in asset allocation by investment account, particularly the CREF Growth account; for this account, the allocation for the lowest quintile declined substantially, from 19.4% to 8.3%, but edged up slightly for the middle quintile, from 13.0% to 13.1%.

Figure 5 Accumulation Allocation to Equities, March 31, 2004



Source: TIAA-CREF Institute, based on DA master file.

Third, the average asset allocation to real estate is inversely related to accumulation size. In other words, as account size increases, the allocation to real estate, on average, tends to decrease. This trend was less pronounced in June 2000, when the real estate asset class was only five years old. By March 2004, the lowest accumulation quintile held 6.6% in real estate, about twice as much as four years earlier. The allocations to real estate for the next four quintiles, in order, were 5.5%, 3.5%, 2.0%, and 1.7%. The negative correlation between real estate allocations and account size suggests that newer participants are more likely to have a higher allocation in real estate than older participants. How much of this relationship is due to new applications (which feature automatic contributions to real estate) or the search for returns in a volatile market remains unclear.

Distribution of Asset Allocations to Equities

Figure 5 shows the distribution of average participant accumulation allocations to equities as of March 2004; equities are the total of all five equity-based CREF pension accounts and the 17 equity-based TIAA-CREF Retirement Class mutual funds. The bottom axis measure the average allocation to equities rounded to the nearest whole percent, and the left axis measures the fraction of participants with each particular allocation to equities. The graph shows that as of March 31, 2004, 9.7% of all premium-paying participants had no assets in equities, and 12.5% had all assets in equities. The rest of the graph is broadly distributed with peaks just under 50% of assets and just over 65% of assets. The distribution is relatively smooth because the mean

and median allocations to equities for all participants with equity accumulations are nearly the same, 61.0% and 62.0% of assets, respectively.

>>> CONCLUDING REMARKS

Since 2000, TIAA-CREF premium-paying participants have shifted away from all-equity premium allocations and have seen their asset allocations fluctuate amidst a volatile market. To the extent that participants have lowered equity contributions during the recent bear market, they have remained cautious in the ensuing bull market since late 2002. Consequently, participants have slowly diversified into other asset classes like real estate and across a broader array of equity-based accounts as they seek to ensure their retirement savings.

Some of the changes over the past four years mark a continuation of previous trends, such as the increased investment in real estate, while others, such as the steep decline in equity allocations and the increases in guaranteed contributions, signify a departure from historical trends. The recent bear market may have suddenly interrupted some long-term patterns of asset allocation, but afterward changes in participant allocation appear to have reverted to their characteristically slow and steady pace. In the end, only after a considerably longer period of time, perhaps five years or more, will we completely understand and identify the changes in asset allocations brought on by this time of stock market decline and ensuing volatility in participant portfolios.

>>> ENDNOTES

[1] Unless otherwise indicated, all tabulations of "participant" data in this report are for this sub-population of participants only, i.e. premium-paying individuals who own at least one RA or GRA contract. We use data on all contracts owned by these individuals when calculating accumulations, premiums, and allocations.

[2] For new participants in California, each sample portfolio contains an allocation to the CREF Bond Market Account instead of the TIAA Real Estate Account.

[3] See Rugh (2003) for a more detailed discussion of the impact of plan design on real estate asset class ownership rates.

[4] Similarly, Ameriks and Zeldes (2001) found that 72% made no changes to their existing asset accumulation allocation.

>>> REFERENCES

Ameriks, John. 2000. "Trends in TIAA-CREF Participant Premium and Asset Allocations: 1986-2000." TIAA-CREF *Research Dialogue*, No. 65.

Ameriks, John and Stephen P. Zeldes. 2001. "How Do Household Portfolio Shares Vary with Age?" TIAA-CREF Institute Working Paper Series.

Benartzi, Shlomo and Richard H. Thaler. 2001. "Naïve Diversification Strategies in Defined Contribution Savings Plans." *American Economic Review*, March, 88(1), 79-98.

Madrian, Brigitte and Dennis F. Shea. 2001. "The Power of Suggestion: Inertia in 401(k) Participation and Savings Behavior." *Quarterly Journal of Economics* 116: 1149-1525.

Poterba, James M. and Andrew A. Samwick. 1997. "Household Portfolio Allocation over the Life-Cycle," NBER Working Paper Series, No. 6185.

Rugh, Jacob S. 2003. "Participant Contribution and Asset Allocations During the Bull and Bear Market: Evidence from TIAA-CREF." *Benefits Quarterly*, 4th Quarter, 55-67.

Samuelson, William and Richard Zeckhauser. 1988. "Status Quo Bias in Decision Making." *The Journal of Risk and Uncertainty*, March, 1(1), 7-59.

Utkas, Stephen P. 2003. "Participant Report Card for 2002: The Impact of the Bear Market on Retirement Savings Plans." The Vanguard Center for Retirement Research, February.

TIAA-CREF **INSTITUTE**

730 Third Avenue
New York, NY 10017-3206
Tel 800.842.2733 ext 6363
tiaa-crefinstitute.org

PRESORTED
STANDARD
U.S. POSTAGE PAID
TIAA-CREF