

Report for Congress

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Employer Stock in Retirement Plans: Investment Risk and Retirement Security

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Patrick J. Purcell
Specialist in Social Legislation
Domestic Social Policy Division

Company Stock in Retirement Plans: Investment Risk and Retirement Security

Summary

The financial losses suffered by participants in the Enron Corporation's 401(k) retirement plan received wide publicity and prompted questions about the laws and regulations that govern these plans. In the wake of the Enron bankruptcy, numerous bills were introduced in the 107th Congress with the intent of protecting workers from the financial losses that employees risk when they invest a large proportion of their retirement savings in securities issued by their employers. Enron is not the only company whose employees and retirees have seen the value of their retirement accounts reduced by a plunge in the company's stock price. Employees of Rite Aid, Lucent Technologies, Nortel Networks, Qwest Communications, the Williams Companies, Provident Financial Corporation, IKON Office Solutions, Global Crossing, and WorldCom also have had their retirement accounts substantially reduced by sharp drops in the price of the companies' stock.

This CRS Report begins by describing the shift from traditional defined benefit pensions to defined contribution plans – like the 401(k) – that has occurred over the last 20 to 25 years. It then summarizes recent research findings on the extent to which employees' retirement savings are invested in employer stock. The third section of the report outlines the provisions of federal law that define an employer's duty to manage its retirement plan in the best interest of the plan's participants. The report concludes with a summary of pension reform legislation passed by the House of Representatives in April 2002 and a description of several pension reform bills that were introduced in the Senate in 2002.

Neither the Employee Retirement Income Security Act (ERISA) nor the Internal Revenue Code limit the proportion of assets in a defined contribution plan that can be invested in "qualifying employer securities," called "employer stock" or "company stock." Experts state that individuals who concentrate assets in employer stock assume unnecessary risk, because for any expected rate of return from employer stock there is a diversified portfolio that will provide *the same rate of return* with less investment risk. Although some employees might realize substantial gains by investing their retirement accounts in employer securities, all market participants will in the aggregate earn the market rate of return. There will be winners among workers who choose to invest heavily in employer stock, but there also will be losers.

A CRS analysis of forms filed with the Securities and Exchange Commission by 278 firms showed that, on average, company stock comprised 38.0% of the assets in their defined contribution plans. The median concentration of company stock was 24.7%. Both figures are higher than the 10% to 20% that many investment advisors recommend as the maximum exposure to a single firm's securities. A statistical analysis showed that three variables had positive and statistically significant relationships to the percentage of plan assets invested in company stock: (1) making the company matching contribution with company stock, (2) an average annual total return on company stock that exceeded the return on the S&P 500 over the previous three years, and (3) the size of the company measured in terms of total assets.

Contents

Introduction	1
I. Overview of Employer-sponsored Retirement Plans	1
The two types of retirement plan	1
Reasons for the shift to DC plans	3
ERISA and the decline of the defined benefit plan	3
The Revenue Act of 1978 and the rise of the “401(k)”	4
II. The Role of Company Stock in Retirement Plans	6
Company stock and investment risk	6
Company stock and investment choice	7
Employee ownership vs. retirement income security	8
How much company stock is in retirement plans	8
CRS analysis of the S.E.C. Form 11-K	10
Multivariate analysis	14
III. ERISA and Company Stock in Retirement Plans	15
Fiduciary duties under ERISA	16
Who is a fiduciary under ERISA?	16
Fiduciary responsibility in an employee-directed plan	18
Employer stock in an ERISA § 404(c) plan	19
IV. Bills in the 107 th Congress	22
H.R. 3762	22
Senate bills	23
Appendix A: Regression Results	28
Form of the model and summary statistics	28
References:	33

List of Tables

Table 1. Retirement Plans and Participants, by Type of Plan	2
Table 2. Company Stock in Defined Contribution Plans	10
Table 3. Company Stock Concentration by Firm Characteristics	13
Table A-1. Regression Analysis of Company Stock in 2000	31
Table A-2. Mean and Median Employment, Revenues, and Assets in 2000 ...	32

Company Stock in Retirement Plans: Investment Risk and Retirement Security

Introduction. The financial losses suffered by participants in the Enron Corporation's 401(k) retirement plan received wide publicity and prompted questions about the laws and regulations that govern these plans. In the wake of the Enron bankruptcy, numerous bills were introduced in the 107th Congress to protect workers from the financial losses that employees risk when they invest a large proportion of their retirement savings in securities issued by their employers. Enron is not the only company whose employees and retirees have seen the value of their retirement accounts reduced by a plunge in the company's stock price. Employees of Rite Aid, Lucent Technologies, Nortel Networks, Qwest Communications, the Williams Companies, Provident Financial Corporation, IKON Office Solutions, Global Crossing, and WorldCom also have had their retirement accounts substantially reduced by sharp drops in the price of the companies' stock.

This CRS report begins by describing the shift from traditional defined benefit pensions to defined contribution plans – like the 401(k) – that has occurred over the last 20 to 25 years. It then summarizes recent research findings on the extent to which employees' retirement savings are invested in employer stock. The third section of the report outlines the provisions of federal law that define an employer's duty to manage its retirement plan in the best interest of the plan's participants. The report concludes with a summary of pension reform legislation passed by the House of Representatives in April 2002 and a description of several pension reform bills that were introduced in the Senate in 2002.

I. Overview of Employer-sponsored Retirement Plans

The two types of retirement plan. Over the past two decades, the proportion of American workers who participate in employer-sponsored retirement plans has remained relatively steady. In 1979, 46% of all workers participated in employer-sponsored retirement plans, while in 2000, an estimated 47% of all workers participated in such plans.¹ Although the overall rate of participation in employer-sponsored retirement plans has changed very little over this time, there has been a shift in the distribution of plans and participants from *defined benefit* plans to *defined contribution* plans. (See **Table 1**). In a defined contribution plan, it is usually up to the employee to decide whether or not to participate, how much to contribute to the plan, and how to invest these contributions. Consequently, workers today bear more of the responsibility of providing for their retirement than when defined benefit plans were the dominant form of plan.

¹ Retirement plan participation rates for the civilian workforce age 16 and older in 1979 and 2000 are based on the April 1979 and March 2001 Current Population Surveys, respectively.

Table 1. Retirement Plans and Participants, by Type of Plan

Year	Defined benefit plans	DB plan participants (thousands)	Defined contribution plans	DC plan participants (thousands)
1979	139,489	29,440	331,432	17,489
1980	148,096	30,133	340,805	18,893
1985	170,172	29,024	461,963	33,244
1990	113,062	26,344	599,245	35,488
1995	69,492	23,531	623,912	42,662
1996	63,657	23,262	632,566	44,625
1997	59,499	22,745	660,542	47,979
1998	56,405	22,994	673,626	50,335

Source: U.S. Department of Labor, Pension & Welfare Benefits Administration.

Employers sponsor retirement plans voluntarily, but those who choose to do so must abide by the requirements of the *Employee Retirement Income Security Act of 1974* (P.L. 93-406), popularly known as ERISA. In order for a plan to be tax-qualified – that is for contributions to the plan and investment earnings on those contributions to be eligible for deferral of federal income taxes – the plan must also comply with the relevant sections of the *Internal Revenue Code of 1986*. Employer-sponsored retirement plans are legally classified as either *defined benefit* plans or *defined contribution* plans. In a defined benefit or “DB” plan, the retirement benefit is usually paid as a lifelong annuity based on the employee’s length of service and average salary in the years immediately preceding retirement. DB plans are funded by employer contributions to a pension trust. The contributions and investment earnings must be equal to the benefits that workers accrue each year. In a defined benefit plan, the *investment risk* is borne by the employer. If the value of the pension trust is not equal to the present value of the plan’s accrued obligations, the plan’s sponsor is required to make up this shortfall – called an *unfunded liability* – through additional contributions over a period of years. Defined benefit plans are insured up to certain limits by the Pension Benefit Guaranty Corporation (PBGC). Defined contribution plans are not insured by the PBGC.

The Internal Revenue Code designates plans that provide *individual accounts* for each participant and that pay benefits based solely on the contributions to the accounts and subsequent investment gains or losses as *defined contribution* plans.² The most common defined contribution plan is the 401(k), named for a section of the Internal Revenue Code that was added by the *Revenue Act of 1978* (P.L. 95-600). Under ERISA and the tax code, a 401(k) plan is both a “defined contribution plan” and an “individual account plan.” In a 401(k) plan, the employee as well as the employer can make pre-tax contributions to his or her account. Typically, the participants can allocate the investment of their account balances among a menu of investment options selected by the employer and/or a plan administrator appointed by the employer. Employer stock (also called company stock) is often one of those

² Any plan that does not fit this definition is classified as a defined benefit plan. See 26 U.S.C. § 414(i) and § 414(j).

options. In a defined contribution plan, the participant's retirement benefit consists of the balance in the account, which is the sum of all the contributions that have been made plus interest, dividends, and capital gains (or losses). The participant usually has the choice of receiving these funds in the form of a life-long annuity, as a series of fixed payments over a period of years, or as a lump sum.

In recent years, many large employers have converted their traditional DB plans to hybrid plans that have characteristics of both defined benefit and defined contribution plans. The most popular of these hybrids has been the *cash balance plan*. A cash balance plan looks like a defined contribution plan in that the accrued benefit is defined in terms of an account balance. The employer (but not the employee) makes contributions to the plan and pays interest on the accumulated balance. However, in a cash balance plan, the account balances are merely a record of the participant's accrued benefit. They are not *individual accounts owned by the participants*. Legally, therefore, a cash balance plan is a defined benefit plan.

Reasons for the shift to DC plans. Some analysts consider the decline in the number of defined benefit plans to be an unintended consequence of the passage of ERISA in 1974. Likewise, the growth in the number of defined contribution plans is sometimes said to be, at least in part, an unexpected result of an amendment to the Internal Revenue Code that was included in the *Revenue Act of 1978*.

ERISA and the decline of the defined benefit plan. *The Employee Retirement Income Security Act of 1974* was passed by Congress to protect the interests of pension participants and beneficiaries in the private sector.³ ERISA was enacted in response to instances in which pension funds had been mishandled or plans had become insolvent. It also addressed certain obstacles to receipt of pension benefits such as onerous age and length-of-service requirements. ERISA established standards for private pension plans that make it more likely that pension participants will receive the pension benefits that they have earned. For example, ERISA requires defined benefit pension plans to be “fully funded.” This means that the assets held by the pension fund must equal the present value of the benefits owed to current retirees and to employees who have “vested,” i.e., who have earned the right to receive benefits when they retire. If the assets in the pension fund lose value or appreciate more slowly than vested benefits, the employer is responsible for the shortfall. To maintain its fully-funded status, the plan must grow each year – through employer contributions and investment earnings – by an amount equal to the increase in the present value of the benefits accrued by the plan's participants. The legal requirement to keep the plan fully funded means that the employer is *at risk* for the full value of the benefits that have been earned by the plan participants. Any assets in excess of the amount needed to pay benefits are the property of the employer, although these assets are subject to a federal excise tax of up to 50% if they are used for any other purpose than to provide pensions or retiree health benefits.

In addition to the financial risk assumed by an employer that sponsors a DB plan, there are ongoing administrative expenses for maintaining the plan's records,

³ Legally, *both* defined benefit plans and defined contribution plans are *pension* plans. ERISA applies to both kinds of plan, although it prescribes separate rules for each type.

processing changes in information for plan participants, assuring that the plan remains in compliance with relevant regulations, and paying insurance premiums to the Pension Benefit Guaranty Corporation (PBGC). Estimating the present value of the benefits that have been earned under the plan requires an actuary to forecast the ages, lengths of service, and salaries of the plan sponsor's employees many years in the future. If at any point the plan becomes "under-funded," the firm must restore it to fully-funded status over a period of years or risk losing its tax-qualified status, a consequence that can result in substantial taxes and penalties. Furthermore, if a pension plan develops an unfunded liability, this liability must be displayed in the firm's financial statements.⁴ The standards established under ERISA have made workers' pensions more secure; however, many employers – especially small employers – have said that the cost of complying with ERISA has made DB plans prohibitively expensive to administer.

The Revenue Act of 1978 and the rise of the "401(k)". The decline in the number of DB plans began at nearly the same time that the number of defined contribution plans – particularly "401(k)" plans – began to rise rapidly. Section 401(k) was added to the Internal Revenue Code by the *Revenue Act of 1978*, but it was not until 1981 – after regulations had been published by the IRS – that the first 401(k) plan was established. Defined contribution plans existed before the *Revenue Act of 1978*, but it was only after the advent of the 401(k) that DC plans overtook traditional defined benefit pensions in number of plans, participants, and total assets. Earlier defined contribution plans had been funded exclusively by employer contributions. In a 401(k) plan, however, the employee as well as the employer can make contributions with pre-tax income.⁵ The ability of *both* the employer and the employee to contribute on a pre-tax basis and the *voluntary nature* of employee participation are defining characteristics of the 401(k) plan.⁶ These characteristics place much responsibility on the participant, who must decide whether or not to participate in the plan, how much to contribute, and how to invest the contributions.

Defined contribution plans are relatively less burdensome to administer than defined benefit plans because they do not require actuarial forecasts of future employment, salaries, and benefit obligations. Nor is the cost of funding a DC plan as variable and unpredictable as the cost of funding a DB plan. Because the benefit provided by the plan is equal to the account balance, a DC plan is by definition fully funded at all times. In a DC plan, the employer makes no promise about the amount of benefits to be paid during retirement. The firm merely commits itself to making contributions of a certain amount or a certain percentage of pay during the employee's tenure with the employer. These contributions are sometimes conditioned on the employee also making contributions. Defined contribution plans are not insured by the PBGC, and so the firm pays no PBGC insurance premiums.

⁴ The reverse is also true. Should the plan become over-funded, the excess assets can be entered on the firm's balance sheet. Financial reporting of pension fund liabilities is governed by the Financial Accounting Standards Board's statement 87 and statement 132.

⁵ The option to defer current cash income and to deposit that amount into an individual account is the reason that the 401(k) is sometimes called a *cash or deferred arrangement*.

⁶ A growing number of firms are enrolling all eligible employees in their 401(k) plans, so that the default condition is for the employee to be enrolled with the option to quit the plan.

In a DC plan it is the *employee* who bears the risk that the contributions to the plan and subsequent investment earnings will be sufficient to provide an adequate income during retirement. If the contributions made to the account by the employer and the employee are too small, or if the securities in which the account is invested lose value or increase in value too slowly, the employee risks having an income in retirement that cannot sustain his or her desired standard of living. If this situation occurs, the worker might choose to delay retirement. The principal kinds of defined contribution plan are listed in **Exhibit 1**.

Exhibit 1. Principal Types of Defined Contribution Plans

- A. Qualified plans under Internal Revenue Code § 401(a)
 - 1. *Money purchase pension plans*
 - a. Traditional money purchase plans
 - b. Target benefit plans
 - c. Thrift plans (other than profit sharing plans)
 - 2. *Profit sharing plans*
 - a. Traditional profit sharing plans
 - b. Thrift plans
 - c. Cash or deferred arrangements (I.R.C. § 401(k))
 - 3. *Stock bonus plans*
 - a. Traditional stock bonus plans
 - b. Employee stock ownership plans (ESOPs)
 - 4. *Voluntary employee contributions under qualified plans*
- B. Tax-deferred annuities under I.R.C. § 403(b)
- C. Deferred compensation plans for state and local governments and tax-exempt organizations under I.R.C. § 457
- D. Individual retirement accounts (IRAs and SIMPLE plans) under I.R.C. § 408
- E. Non-qualified plans (Plans that do not qualify under the Internal Revenue Code)

Source: McGill And Grubbs, *Fundamentals of Private Pensions*, 6th edition.

II. The Role of Company Stock in Retirement Plans

Company stock and investment risk. As noted earlier, a fundamental characteristic of defined contribution retirement plans is that the *employee* bears the investment risk, which is defined as the risk of loss inherent in the purchase of stocks, bonds, and other financial assets. An investor who understands the risk and return characteristics of stocks and bonds, and who has a well-defined set of preferences for one set of risk-and-return characteristics versus another, will be able to allocate his investments in a way that balances his tolerance for risk with the expected rate of return from each kind of investment. For example, an informed investor understands that the risk of loss associated with holding a single stock is always greater than the risk of loss associated with holding a well-diversified stock portfolio of the same value. Recent research seems to indicate, however, that many 401(k) plan participants have a poor understanding of investment risk. As a result, they may make choices about the allocation of their investments that are not well-informed decisions.⁷

⁷ Benartzi & Thaler, "How Much Is Investor Autonomy Worth?" *Journal of Finance*, 2002.

When an individual chooses to allocate a large proportion of his or her total assets to a single security – such as employer stock – instead diversifying among a range of stock and bond mutual funds, that person is assuming *more risk than is necessary* to achieve a particular expected rate of return. Some workers who invest in employer stock may do so out of loyalty or because they enjoy the feeling of being an owner-employee. Others may believe that their employers' stock will outperform the overall market over some particular time horizon. Nevertheless, for any given expected rate of return, there exists a diversified portfolio of assets that will provide *the same expected rate of return with less risk* to the investor than a portfolio concentrated in company stock. Economists have estimated that a portfolio invested in the stock of a single firm listed on the New York Stock Exchange is, on average, twice as risky in terms of price volatility as a well-diversified portfolio of stocks.⁸ A portfolio invested in a single firm listed on the NASDAQ – with its more volatile stock prices – was three-and-a-half times as risky as a well-diversified portfolio.

There is no governmental insurance plan for defined contribution plans as there is for defined benefit plans.⁹ There is, however, a financial mechanism through which investors can purchase a form of insurance against the possibility that a particular security will drop in value. By purchasing an option known as a “put,” an investor can insure against the possibility of a security declining in value within a period of time that is specified in the option contract. If the stock falls below the value defined in the contract, the seller of the option must pay the investor the amount guaranteed by the contract. The price of the put option, therefore, is much like an insurance premium. If the stock price does *not* fall by the specified amount, the investor loses the amount that he or she paid to purchase the option contract; however, if the price of the stock collapses and has not recovered by the date specified in the option contract, the investor is assured of getting back the amount guaranteed in the option contract. An option could be designed to guarantee the purchaser the better of the actual rate of return on a company's stock or the rate of return of a stock market index. Such options, however, would likely be priced beyond the reach of all but the most affluent investors.¹⁰ Moreover, not all company stocks have underlying options that trade on an exchange.

Company stock and investment choice. Many public policy analysts have studied the extent to which defined contribution plans are invested in employer

⁸ Lisa Meulbroek, “Company Stock in Pension Plans: How Costly Is It?” Harvard Business School Working Paper 02-058, March 2002. Meulbroek emphasizes that “the cost of holding company stock . . . is a function not of the level risk of holding a single-stock portfolio, but the lack of compensation received for bearing that risk.”

⁹ Defined benefit pension plans are insured up to certain limits by the Pension Benefit Guaranty Corporation (PBGC), a publicly chartered corporation that was established by the *Employee Retirement Income Security Act of 1974* (P.L. 93-406). For more information, see CRS Report 95-118, “The Pension Benefit Guaranty Corporation: A Fact Sheet.”

¹⁰ Krishna Ramswamy, “Company Stock and DC Plan Diversification,” prepared for the Pension Research Council Conference at the University of Pennsylvania, April 2002. He estimates that the premium for an option contract guaranteeing the better of the rate of return on the stock or the rate of return of a well-diversified portfolio would be about \$178 per year for each \$1,000 of stock held, a cost that “will appear prohibitive to most investors.”

stock and have attempted to identify the reasons that employers and employees take on this risk. One hypothesis is that many participants in 401(k) plans divide their contributions proportionally among all the investment options offered by the plan.¹¹ In a plan with six investment options, for example, many participants will direct one-sixth of their contributions to each fund. The investment choices of workers who follow this “1/n” investment strategy do not appear to be strongly sensitive to the kind of investment options offered (whether equity funds or bond funds) and, consequently, “the array of funds offered to plan participants can have a surprisingly strong influence on the assets they end up owning.”¹² Research has found that when company stock is offered as an investment option, it comprises a substantial proportion of plan assets. For example, in a sample of 170 large plans, plan assets were split almost evenly between equities (stocks) and fixed-income investments (bonds) in the 103 plans that did not offer company stock as an investment choice. In the 67 plans that allowed employees to invest in company stock, however, 42% of the plan assets were invested in company stock, 29% in other equities and 29% in fixed-income investments.¹³

Another recent study found that employees’ tendency to purchase company stock is strongly influenced by the stock’s past performance.¹⁴ Employees may tend to “excessively extrapolate” past gains into the future, leading them to invest relatively more heavily in employer stock than employees of firms whose stock has experienced average or below-average performance. Workers whose employers make matching contributions in the form of company stock also appear to be more likely to purchase company stock than workers who are able to direct the company’s matching contribution to investments of their own choice. Economists have suggested that employees see the company’s choice to make its matching contribution with company stock as a form of “implicit investment advice.” Workers may interpret it as an endorsement of the company’s stock as an appropriate investment for their retirement account. Although the past performance of company stock appears to have a substantial effect on workers’ investment choices, economists generally agree that past gains are a poor predictor of a stock’s future performance, and that “chasing past returns is not an optimal strategy” for investors to follow.¹⁵

¹¹ Shlomo Benartzi and Richard Thaler, “Naive Diversification Strategies in Defined Contribution Savings Plans,” *American Economic Review* (91, 1), March 2001, pp. 79-98.

¹² Benartzi and Thaler, 2001, page 81.

¹³ Benartzi and Thaler, 2001, page 95. This finding is supported by the Employee Benefit Research Institute (EBRI) and Investment Company Institute (ICI) data base representing more than 35,000 plans. These data show that in 2000, 70.4% of assets in plans that did not offer employer stock as an investment option were invested in equity funds. In plans that offered company stock as an option, 44.6% of plan assets were invested in equity funds and 31.8% in company stock. See EBRI Issue Brief 239, November 2001, Table 5, page 10.

¹⁴ Shlomo Benartzi, “Excessive Extrapolation and the Allocation of 401(k) Accounts to Company Stock,” *Journal of Finance* (56, 5), October 2001.

¹⁵ Paul Sengmuller, “Performance Predicts Asset Allocation: Company Stock in 401(k) Plans,” Columbia University, Department of Economics, April 2002, page 31.

Employee ownership vs. retirement income security. Olivia Mitchell of the University of Pennsylvania and Steven Utkus of The Vanguard Group have estimated that 23 million people have access to company stock through defined contribution retirement plans. Of this number, they estimate that 11 million hold concentrated stock positions exceeding 20 percent of account balances. Of these, 5 million hold positions exceeding 60 percent of account balances.¹⁶ Mitchell and Utkus suggest that because holding a high concentration of company stock increases portfolio risk, such concentrations “will produce greater extremes in realized retirement wealth as well as lower median wealth, than would a system of more diversified investments.”¹⁷ Moreover, they find that the growth of defined contribution plans that include large concentrations of company stock has “gradually blurred the distinction between plans designed to enhance employee ownership and plans designed to maximize retirement security.”¹⁸ While some employees might realize substantial gains by investing their retirement accounts in employer securities, the authors observe that “investing in a single stock must be a zero-sum game across investors, with all participants in the aggregate earning the market return.”¹⁹ In short, while there will certainly be winners among workers who choose to invest their retirement accounts in employer stock, there will just as certainly be losers, too.

How much company stock is in retirement plans. The most comprehensive source of data on ownership of employer securities in defined contribution plans is the Form 5500, which tax-qualified plans with 100 or more participants must file each year with the Internal Revenue Service. In 1998, 52,278 defined contribution plans of all types with 100 or more participants filed the Form 5500. Among these plans, 16.6% of total assets consisted of employer securities.²⁰ Among 401(k) plans with 100 or more participants, employer securities comprised 15.3% of total plan assets in 1998.²¹ More recently, the *Employee Benefit Research Institute* (EBRI) and the *Investment Company Institute* (ICI) reported on company stock held by the 35,367 plans represented in the EBRI/ICI data base. They reported that in 2000, company stock comprised 18.6% of the total assets held in 401(k) plans. Among plans that held any company stock, it accounted for 31.8% of plan assets.²²

¹⁶ Olivia S. Mitchell and Steven P. Utkus, “Company Stock and Retirement Plan Diversification,” Pension Research Council Working Paper 2002-4, April 2002, page 2.

¹⁷ Mitchell and Utkus, (2002), page 2.

¹⁸ Mitchell and Utkus, (2002), page 9.

¹⁹ Mitchell and Utkus, (2002), page 29.

²⁰ In 1998, there were 52,278 defined contribution plans with 100 or more participants. The plans had 47.9 million total participants and 40.7 million active participants. Assets totaled \$1.645 trillion, of which \$273.2 billion were employer securities. (U.S. Dept. of Labor, 2002, page 26 for assets; page 66 for number of plans, and pages 71 and 74 for participants.)

²¹ Assets of 401(k)-type plans with 100 or more participants totaled \$1.353 trillion, of which \$207.6 billion were employer securities. (U.S. Department of Labor, 2002, page 54)

²² Sarah Holden and Jack VanDerhei, “401(k) Plan Asset Allocation, Account Balances and Loan Activity in 2000,” EBRI Issue Brief Number 239, November 2001, page 10.

Both the IRS Form 5500 and the EBRI/ICI data base represent plans of all sizes; however, company stock is not uniformly distributed among small and large plans. The EBRI/ICI data show that among plans with 5,000 or more participants, company stock comprised 25.6% of total plan assets. Among plans with 5,000 or more participants that held any company stock, it comprised 33.6% of plan assets. Likewise, the *Profit Sharing/401(k) Council of America* (PSCA) reports that in 2000, company stock accounted for 39.2% of assets in the defined contribution plans of the 909 firms that responded to the PSCA's annual survey.²³ Thirty-one percent of the plans in the PSCA survey had 1,000 or more participants and 58% had 200 or more participants. A survey conducted by the *Institute of Management and Administration* (IOMA) in 2001 found that among a sample of 220 – mainly large – firms, company stock made up 36.1% percent of DC plan assets.

To further study how firm size, plan design, and the concentration of company stock in the firm's retirement plan are related, CRS analyzed company filings of the S.E.C. Form 11-K. CRS examined data for all of the defined contribution plans sponsored by 278, predominantly large, firms. This analysis confirms that the concentration of company stock in defined contribution plans is substantial among large, publicly traded corporations.²⁴ On average, company stock comprised 38.0% of the assets in these firms' defined contribution plans. (See **Table 2.**)

Table 2. Company Stock in Defined Contribution Plans

Source	Year	Sample Size	Company stock as a percentage of assets
I.R.S. Form 5500	1998	52,278 plans	16.6%
EBRI/ICI Data Base	2000	35,367 plans ^a	18.6%
Profit Sharing/401(k) Council	2000	909 firms ^b	39.2%
CRS analysis of S.E.C. Form 11-K	2000	278 firms ^b	38.0%
IOMA/DC Plan Investing	2001	220 firms ^b	36.1%

^a In plans that held company stock, it accounted for an average of 31.8% of plan assets.

^b Many large firms sponsor more than one defined contribution retirement plan.

CRS analysis of the S.E.C. Form 11-K. We studied the defined contribution plans of 261 firms that were included in either the *Fortune 500* or the *Standard & Poor's 500* and that filed a Form 11-K electronically with the S.E.C. in 2001. We also included the plans of 16 firms that were not in either of these indices that we selected randomly from the S.E.C.'s EDGAR database.²⁵ Many firms filed more than one Form 11-K because they sponsored more than one defined contribution plan. In those cases, we summed plan assets over all plans. For plan-specific characteristics, we used those of the plan with the greatest total assets.

²³ *44th Annual Survey of Profit Sharing and 401(k) Plans*, Profit Sharing 401(k) Council of America, Chicago, October 2001.

²⁴ The Form 11-K must be filed annually with the S.E.C. by firms that allow employees voluntarily to purchase company stock through an employer-sponsored savings plan.

²⁵ EDGAR (Electronic Data Gathering Analysis and Retrieval) can be accessed at [<http://www.sec.gov/edgar/searchedgar/webusers.htm>].

Characteristics of the firm, such as employment, revenues, and total corporate assets were taken from the S.E.C. Form 10-K that the firm filed in 2001.²⁶ We excluded plans that covered primarily employees outside the United States and plans that were pure Employee Stock Ownership Plans (ESOPs) or Employee Stock Purchase Plans. We included ESOPs that had a 401(k) salary deferral feature. (These plans are popularly known as “KSOPs”). In 2000, the firms in our sample employed 12.9 million workers, or an average of 46,340 employees per firm. They had average revenues of \$13.438 billion and average corporate assets of \$22.327 billion in 2000. (Medians are reported in the Appendix). The sample firms’ defined contribution plans had \$423.6 billion in total assets as of the end of fiscal year 2000.

Company stock accounted for 38.0% of the assets held by the defined contribution plans of the firms in our sample. The average (or mean), however, is skewed by high concentrations of stock in a relatively small number of firms. The *median* concentration of company stock was 24.7%. (In half of all firms in the sample, company stock comprised more than 24.7% of plan assets, and in the other half, company stock was less than 24.7% of plan assets). Still, even this figure is considerably higher than the 10% to 20% that many investment advisors recommend as the maximum exposure to a single firm’s securities in a well-diversified investment portfolio. Some workers own stock outside their 401(k) retirement plan – which could reduce the percentage of their total financial assets invested in company stock – but many do not. Moreover, the data in **Table 3** reflect only the company stock owned through 401(k) plans and so-called “KSOPs” (ESOPs with a 401(k) feature.) They do not take account of company stock owned through traditional ESOPs, Employee Stock Purchase Plans, or acquired through company stock options.

In an analysis of 11-K forms filed in 1993, Benartzi (2001) found higher concentrations of company stock among firms that made their matching contributions with company stock and also among firms whose stock had outperformed a major stock market index over a long period. The CRS analysis of 11-k forms filed in 2001 found similar results in both cases. Among the 146 firms in the sample that required all or part of the firm’s matching contribution to the DC plan to be made with company stock, company stock made up 45.4% of plan assets, compared with 27.2% in firms that allowed the employee to direct the investment of the company match.²⁷ The median concentrations of company stock were 35.7% and 12.1%, respectively, in these firms.

We measured each company’s stock performance as the ratio of its average annual total return over a three-year period (1997 through 1999) to the average annual total return of the S&P 500 over the same three years. Of the 66 firms in the sample that “beat the market” over the three-year period, company stock comprised 49.7% of average plan assets in 2000, compared with 31.1% among the 212 firms

²⁶ The Form 10-K is a detailed financial report that must be filed annually with the S.E.C. by all firms whose stock is offered for sale to the public.

²⁷ This group includes a small number of firms that made no matching contribution in 2000.

whose three-year average annual total return was less than the S&P 500.²⁸ The median concentrations of company stock were 40.1% and 21.0%, respectively, among these firms.

Mitchell and Utkus (2002) suggest that an employer who also offers a defined benefit plan might be more willing to tolerate high concentrations of company stock in the company's DC plan because the DB plan offers employees a measure of security in the event that the company's stock were to collapse. Likewise, "long-term employees with a valuable DB benefit providing a guaranteed income stream . . . might reasonably seek greater single-stock risk in the DC plan with company stock."²⁹ The data from the 11-K forms studied by CRS do not reveal a direct correlation between company stock in a firm's DC plans and its sponsorship of a DB plan. Of the 278 firms in the sample, 205 sponsored a DB plan.³⁰ The mean concentration of company stock was actually *lower* among these firms (36.3%) than among the firms that did not sponsor a DB plan (51.6%). The median concentration of company stock, however, differed very little between the two groups of firms: 24.8% among those that also sponsored a defined benefit plan and 23.7% among those that had only a DC plan. These median concentrations differed only slightly from the median concentration among the full sample of 278 firms, which was 24.7%

Table 3 also shows the concentration of company stock in relation to company size, measured in terms of employees, total company assets, and total company revenues.³¹ Evidence is mixed on the relationship between the number of employees in the firm and the concentration of company stock in the firm's defined contribution plans. The mean concentration of company stock was higher in firms with more employees than the sample median (39.0% vs. 32.6%), but the median concentration was higher among firms with *fewer* than the median number of employees (27.9% vs. 22.3%). The relationship between company size and the concentration of company stock was strongest when company size was measured in terms of total assets.³² Among the firms for which company assets exceeded the sample median, the mean concentration of company stock in the firms' defined contribution plans was 39.8%, compared to 26.8% among firms with company assets less than the sample median. The median concentration of company stock among firms in the upper half of the asset distribution (33.0%) was nearly twice that of firms in the lower half of the distribution (17.3%).

²⁸ A stock's total rate of return accounts for price changes, stock splits, and dividends. From 1997 through 1999, the average annual total rate of return on the S&P 500 Index was 25.6%.

²⁹ Mitchell and Utkus (2002), page 27.

³⁰ We classified a firm as offering a DB plan if the 10-K form it filed in 2001 indicated that it sponsored a defined benefit plan covering "most" or "substantially all" of its employees.

³¹ In most cases, firms reported the total number of employees as of the end of the firm's fiscal year. A relatively few firms reported the number of full-time equivalent employees. Most firms do not report the number of plan participants on the Form 11-K.

³² For the full sample, the correlation coefficient between revenues and assets was 0.626.

The bottom panel of **Table 3** shows the concentration of company stock relative to the location of the firm, defined as the region of the United States in which its principal offices are located. The mean concentration of company stock is somewhat lower in companies with headquarters in the Midwest and South than among firms with headquarters in the East or West. The median concentration is lowest among firms in the Midwest. However, in a regression analysis (discussed in the next section), the firm's location was not a statistically significant variable in relation to company stock concentration when other characteristics of the firm and of the firm's defined contribution plans were taken into account.

Table 3. Company Stock Concentration by Firm Characteristics

Company characteristic:	Number of companies:	Company stock as a percentage of total DC plan assets:	
		Mean	Median
All companies in sample	278	38.0%	24.7%
<i>Company matching contribution:</i>			
Match given as company stock	146	45.4%	35.7%
All other companies	132	27.2%	12.1%
<i>Company stock performance:</i>			
Three-year average total return exceeded S&P 500	66	49.7%	40.1%
Three-year average total return lagged the S&P 500	212	31.1%	21.0%
<i>Type of retirement plan sponsored:</i>			
Company had only a DC plan	73	51.6%	23.7%
Company also had a DB plan	205	36.3%	24.8%
<i>Number of employees in 2000:</i>			
Company had fewer workers than the sample median ¹	139	32.6%	27.9%
Company had more workers than the sample median ¹	139	39.0%	22.3%
<i>Total company revenues in 2000:</i>			
Company's revenues were less than the sample median ²	139	34.1%	22.8%
Company's revenues were more than the sample median ²	139	38.6%	29.0%
<i>Total company assets in 2000:</i>			
Company assets were less than the sample median ³	139	26.8%	17.3%
Company assets were more than the sample median ²	139	39.8%	33.0%
<i>Location of firm's principal offices:</i>			
Northeast	71	43.0%	28.3%
Midwest	78	36.0%	17.2%
South	82	35.7%	28.4%
West	47	40.3%	32.0%

Source: Company filings of Forms 10-k and 11-K with the S.E.C. in 2001.

Notes:

1. Sample median was 18,750 employees.
2. Sample median was \$5.341 billion in total revenue.
3. Sample median was \$7.316 billion in total assets.

Multivariate analysis. The data displayed in **Table 3** indicate that the concentration of company stock is higher in firms that (1) make their matching contributions with company stock, (2) have experienced better-than-average stock performance, and (3) are relatively large in terms of total assets. In other words, all three of these variables are *positively correlated* with the proportion of the

company's DC plan that is invested in company stock. However, statistics that show the relationship between only two variables at a time can sometimes be misleading because *many* variables might simultaneously influence a firm's decision to contribute stock to a retirement plan or a worker's decision to purchase company stock. Some of these variables may have strong interaction effects on each other.

We can control for the interaction effects among variables by employing *multi-variate regression analysis*. This procedure measures the extent to which changes in one or more *independent variables* are associated with changes in a *dependent variable* (also called the *response variable*). Regression analysis shows how a specific change in each independent variable is associated with a change in the dependent variable *when all of the other independent variables remain fixed at their mean values*. A properly specified model will show whether the dependent variable and a particular independent variable increase or decrease together or whether they move in opposite directions, and whether the change in the dependent variable is large or small. One must be careful, however, not to infer that a change in the value of an independent variable *causes* a change in the dependent variable. The dependent variable might be affected by some other factor or factors that are not included in the regression model, but that change simultaneously with one or more of the independent variables included in the model. The possibility of having omitted a potentially important variable is especially acute in the social sciences where controlled experiments are not often possible.

Summary of the regression results. In this model, the *dependent variable* is the percentage of a firm's total defined contribution plan assets invested in company stock at the end of fiscal year 2000, as reported on the Form 11-K that the firm filed with the S.E.C. in 2001.³³ We included six independent variables that economic theory or previous empirical research suggested might be related to the concentration of company stock. (Complete results of the regression analysis are shown in the Appendix). In this case, the results of the multi-variate analysis confirmed what the simple descriptive statistics shown in **Table 3** had revealed. Three variables were shown to have a positive and statistically significant relationship to the percentage of a company's DC plan assets invested in company stock. They were: (1) making the company matching contribution with company stock, (2) an average annual total return on company stock that exceeded the return on the S&P 500 over the previous three years, and (3) the size of the company measured in terms of total assets.

More than half of the firms in the sample (146 out of 278) made all or part of their matching contributions with company stock in 2000. The regression results indicate that, with all other variables held at their mean values, the concentration of company stock would be 17.7 percentage points higher at a firm that made its matching contribution with company stock than at a firm that did not. The performance of the company stock – expressed as the ratio of the average annual rate of total return on company stock from 1997 through 1999 to the average annual rate of total return of the S&P 500 index over the same three-year period – also had a

³³ For most firms, the 11-K filed in 2001 reported the status of the DC plan for the fiscal year that ended in 2000. For some firms, 2001 filings cover fiscal years that ended in 2001.

positive and statistically significant relationship to the concentration of company stock in the sample firms' defined contribution plans. The results suggests that, other things being equal, the concentration of company stock would be 5.3 percentage points higher at a firm where the 3-year rate average of return on company stock was twice the rate of return of the S&P 500 when compared with a firm where the 3-year rate average of return on company stock was the same as the return on the S&P 500.³⁴ Finally, the regression results indicate that even among the relatively large firms in our sample, the concentration of company stock increases with company size. The effect is not especially dramatic, however. Among the 278 firms in this sample, a 10% increase in total company assets is associated with an increase in the concentration of company stock of only 0.4 percentage points.

III. ERISA and Company Stock in Retirement Plans

The widely publicized financial losses suffered by participants in the Enron Corporation's 401(k) plan prompted many Members of Congress to question whether the laws and regulations that govern these plans need to be re-examined.³⁵ To ensure that the assets of pension trust funds are diversified beyond the assets of the company itself, Congress limited the amount of employer stock that can be held in a defined benefit plan to 10% of plan assets when it passed ERISA in 1974.³⁶ This reduces the risk that a pension fund would become insolvent as a result of the company that sponsors the plan going bankrupt. Congress has generally exempted defined contribution plans from limits on investing in employer stock³⁷ except for certain plans that require salary deferrals equal to more than 1% of employee pay to be used for purchasing employer stock.³⁸ Some participants in Enron's 401(k) plan – in which 62% of the assets consisted of Enron stock at the end of 2000 – have charged that the plan's administrators violated their duty as *fiduciaries* by allowing participants to continue investing in Enron stock and continuing to make the company's matching contributions with Enron stock even after they knew – or should have known – that the company was in serious financial trouble.³⁹ Several plan

³⁴ Because we are looking at the concentration of company stock at a point in time, we cannot say how much of this 5.3 percentage point excess of company stock is attributable to additional employee purchases and how much is due to the fact that, absent periodic re-balancing of portfolios, a higher rate of return on any security will lead to that security comprising a larger proportion of an investor's portfolio.

³⁵ See *The Enron Bankruptcy and Employer Stock in Retirement Plans*, CRS Report for Congress RS21115, March 11, 2002 by Patrick J. Purcell.

³⁶ See 29 U.S.C. § 1107(a).

³⁷ See 29 U.S.C. § 1104(a)(2) and § 1107(b). ERISA § 404(a)(2) states that “in the case of an *eligible individual account plan* . . . the diversification requirement of paragraph (1)(C) and the prudence requirement (only to the extent that it requires diversification) of paragraph (1)(B) is not violated by acquisition or holding of qualifying employer real property or qualifying employer securities.” [Emphasis added].

³⁸ See 29 U.S.C. § 1107(b)(2).

³⁹ A *fiduciary* is an individual, company, or association responsible for managing another's assets. The responsibilities of an ERISA fiduciary are defined at 29 U.S.C. §§ 1101-1114.

participants have filed suit against Enron in federal district court seeking restitution for the losses they sustained to their retirement account balances.⁴⁰

Fiduciary duties under ERISA. Section 404(a)(1) of ERISA (29 U.S.C. § 1104(a)(1)) requires a plan fiduciary to act “solely in the interest of the participants and beneficiaries” of the plan “for the exclusive purpose of providing benefits to participants and their beneficiaries and defraying reasonable expenses of administering the plan.” The fiduciary must carry out his or her responsibilities “with the care, skill, prudence, and diligence under the circumstances then prevailing that a prudent man acting in a like capacity and familiar with such matters would use in the conduct of an enterprise of a like character and with like aims.”

Although ERISA generally does not limit the amount of company stock that can be held in a DC plan, the plan sponsor still has a *fiduciary duty* to manage the plan in the best interest of the participants – including the obligation to select investment options that are appropriate for a retirement plan – and to monitor these investment options to assure that they remain suitable investments for plan participants. If a plan offers company stock as an investment option or makes matching contributions with company stock, the employer must make a disinterested assessment as to whether the stock is an appropriate investment for the plan’s participants. This can sometimes put company officers who are plan fiduciaries in a difficult situation. Mitchell and Utkus (2002) state that, “the employer as fiduciary stands in a somewhat tenuous if not contradictory position in the oversight of company stock” because if the firm encounters difficulties, its executives “could be in the incongruous position of removing company stock from the retirement plan, while simultaneously seeking to inspire confidence in the company” among outside investors.⁴¹

Who is a fiduciary under ERISA? Section 3(21)(A) of ERISA (29 U.S.C. § 1002(21)(A)) defines as a *fiduciary* any person who:

- (1) exercises any discretionary authority or discretionary control respecting the management of the plan or exercises any authority or control respecting the management or disposition of its assets, or
- (2) renders investment advice to plan participants or administrators for a fee or other compensation, or has the authority or responsibility to do so, or
- (3) has any discretionary authority or discretionary responsibility in the administration of such plan.

Thus, a fiduciary under ERISA is defined in terms of *managing* and *administering* the plan, rather than by job title. A person is a fiduciary of the plan only to the extent that he or she has the authority and responsibility to perform the functions of plan management and administration that ERISA defines as those of a fiduciary. Thus, the officers and directors of a company may or may not be fiduciaries of the plan, depending on their authority and responsibility to manage and administer the plan. Moreover, a company officer or director who does not act as

⁴⁰ *Tittle v. Enron Corp.*, S.D. Texas, No. H-01-3913; *Rinard v. Enron Corp.*; and *Kemper v. Enron Corp.* These three suits have since been consolidated under *Tittle v. Enron*.

⁴¹ Mitchell and Utkus (2002), page 22.

a fiduciary in the normal course of business might be considered a fiduciary with respect to a particular action that carries with it the duties and responsibilities of a plan fiduciary. With respect to that action, the company officer or director is a fiduciary under ERISA. This *functional* definition of a fiduciary – that a fiduciary *is* as a fiduciary *does* – was affirmed by the Supreme Court in *Varity Corporation v. Howe* in 1996, wherein the Court ruled that:

In relevant part, the statute says that a “person is a fiduciary with respect to a plan,” *and therefore subject to ERISA fiduciary duties*, “to the extent” that he or she “exercises any discretionary authority or discretionary control respecting management” of the plan, or “has any discretionary authority or discretionary responsibility in the administration” of the plan. ERISA § 3(21)(A)⁴² [Emphasis added.]

Company officer or plan fiduciary: which comes first? A plan fiduciary under ERISA must act “solely in the interest of the participants and beneficiaries.” If actions taken in the best interest of plan participants also were *always* in the best interest of the firm’s management, then no conflicts would arise between the roles of plan fiduciary and company officer. However, such conflicts of interest do sometimes arise. An attorney who specializes in ERISA has noted that “ironically, even if you are acting in the good faith of the company, you may not be acting in the best interests of the plan participants. There is often an inherent tension. You must manage a pension plan for the benefit of participants and not for the company. These are mutually exclusive.”⁴³

An example of the conflict that can occur between the interests of a firm’s management and the interests of the participants in its retirement plan is provided by a recently settled lawsuit between a bank and its employees.⁴⁴ In two class action lawsuits, current and former employees of the bank alleged that the company used the proprietary funds in its 401(k) plan to increase the bank’s profits at the expense of plan participants. The plan participants charged that the firm sponsoring the plan engaged in self-dealing when it used its 401(k) plan to boost its profits by forcing them to invest exclusively in funds managed by the bank and by charging improper fees for plan participation. In March 2001, a judge granted preliminary approval to a settlement in which the bank agreed to pay \$26 million to the plaintiffs and to make structural changes in its 401(k) plan.⁴⁵

Fiduciary responsibility in an employee-directed plan. Section 404(c) of ERISA (29 U.S.C. 1104(c)) provides that if a plan permits a participant or

⁴² The Court also recognized that to decide whether an action falls within the definition of a “fiduciary” act, a judge must “interpret the statutory terms which limit the scope of fiduciary activity to discretionary acts of plan ‘management’ and ‘administration’” because “these words are not self defining . . .” *Varity v. Howe*, (94-1471), 516 U.S. 480 (1996)

⁴³ Ann Longmore of Willis Global Financial and Executive Risks, as quoted by Russ Banham in. “Defending Your 401(k),” *CFO Magazine*, April 1, 2000.

⁴⁴ *Franklin v. First Union Corporation* (U.S. District Court, Eastern District of Virginia).

⁴⁵ “Court Approves First Union Settlement,” *Employee Benefit Plan Review*, Vol. 55, No. 12, June 2001, page 42.

beneficiary “to exercise control over the assets in his account,” the participant will be responsible for any investment losses that may result from his investment choices. The plan’s fiduciaries will be relieved of responsibility for investment losses that result from the participants’ investment decisions. The federal regulations that interpret ERISA § 404(c) specify that a plan qualifies for relief from responsibility for investment losses only if it provides the participant (1) the opportunity to exercise control over the assets in his or her account, and (2) the opportunity to choose from a broad range of investment alternatives.⁴⁶ A participant or beneficiary is deemed to have access to a broad range of investment alternatives if he has a reasonable opportunity to:

- (A) materially affect the potential return on the portion of the individual account with respect to which he is permitted to exercise control and the degree of risk to which such amounts are subject;
- (B) choose from at least three investment alternatives
 - (1) each of which is diversified;
 - (2) each of which has materially different risk and return characteristics;
 - (3) which in the aggregate enable the participant . . . to achieve a portfolio with aggregate risk and return characteristics at any point within the range normally appropriate for the participant or beneficiary; and
 - (4) each of which when combined with investments in the other alternatives tends to minimize through diversification the overall risk of a participant’s or beneficiary’s portfolio; and
- (C) diversify the investment of that portion of his individual account with respect to which he is permitted to exercise control so as to minimize the risk of large losses, taking into account the nature of the plan and the size of participants’ or beneficiaries’ accounts.⁴⁷

Exercising control over investments. The relief from liability for investment losses available to a fiduciary under ERISA § 404(c) applies “only with respect to a transaction where a participant or beneficiary has exercised independent control in fact with respect to the investment of assets in his individual account.”⁴⁸ A participant’s or beneficiary’s exercise of control is *not* independent in fact if “a plan fiduciary has concealed material non-public facts regarding the investment from the participant or beneficiary, unless the disclosure of such information by the plan fiduciary to the participant or beneficiary would violate any provision of federal law or any provision of state law which is not preempted” by ERISA.⁴⁹ Thus, the regulation relieves the fiduciary from the obligation to disclose to plan participants

⁴⁶ 29 C.F.R. § 2550.404c-1(b)(1). Significantly, the regulation allows for the possibility of investing the entire value of an individual account in a single security, as shown in an example published with the regulation: “A participant, P, independently exercises control over assets in his individual account plan by directing a plan fiduciary, F, to invest 100% of his account balance in a single stock. P is not a fiduciary with respect to the plan by reason of his exercise of control and F will not be liable for any losses that necessarily result from P’s investment instruction.” (See 29 C.F.R. § 2550.404c-1(f)(5)).

⁴⁷ 29 C.F.R. § 2550.404c-1(b)(3).

⁴⁸ 29 C.F.R. § 2550.404c-1(c)(1)

⁴⁹ 29 C.F.R. § 2550.404c-1(c)(2)

and beneficiaries important financial information about the company only if that disclosure would violate another federal law, such as the Securities Act of 1933.

The section 404(c) regulations further state that relief from fiduciary liability is contingent upon the participant having the opportunity to obtain “sufficient information to make informed decisions with regard to investment alternatives available under the plan.”⁵⁰ Thus, an employer that allows plan participants to invest in a particular mutual fund, for example, would have to provide participants with the same information generally available to the public, such as the fund’s most recent prospectus. However, while the regulation requires plan fiduciaries to provide information that is necessary for participants to make informed investment decisions, a “fiduciary has no obligation . . . to provide *investment advice* to a participant or beneficiary under an ERISA section 404(c) plan.”⁵¹ [Emphasis added.]

An important caveat. Relief from responsibility for investment losses through ERISA § 404(c) is available to a plan’s fiduciaries only *after* they have met their obligation to select appropriate investment alternatives from which plan participants may choose. The Department of Labor’s regulation for ERISA § 404(c)

emphasizes . . . that the act of designating investment alternatives . . . in an ERISA Section 404(c) plan is a fiduciary function to which the limitation on liability provided by Section 404(c) is not applicable. All of the fiduciary provisions of ERISA remain applicable to both the initial designation of investment alternatives and investment managers and the ongoing determination that such alternatives and managers remain suitable and prudent investment alternatives for the plan. Therefore, the particular plan fiduciaries responsible for performing these functions must do so in accordance with ERISA.⁵²

Employer stock in an ERISA § 404(c) plan. Because employer stock is not a *diversified* investment, it cannot be one of the three “core” investment options required by ERISA § 404(c). A plan that offers qualifying employer securities as an investment option must offer at least three other diversified investment options in order to qualify under section 404(c). Nevertheless, while ERISA § 404(c) requires a plan to offer participants the *opportunity* to diversify their investments, it does not require participants actually to do so. In fact, the Labor Department’s regulations state that in a defined contribution plan, “ERISA’s ‘diversification’ requirement, and ERISA’s ‘prudence’ requirement as it applies to diversification, are not violated by the acquisition of up to 100% of qualifying employer securities, if the plan so provides.”⁵³ However, this exemption from ERISA’s prudence requirement applies to defined contribution plans *only as it relates to diversification*. In all other aspects of plan management and administration – including the selection of investment

⁵⁰ 29 C.F.R. § 2550.404c-1(b)(2).

⁵¹ 29 C.F.R. § 2550.404c-1(c)(4)

⁵² “Final Regulation Regarding Participant Directed Individual Account Plans (ERISA Section 404(c) Plans),” *Federal Register*, vol. 57, no. 198, October 13, 1992, page 46922.

⁵³ G. M. Morrison and A. L. Scialabba, “Using Employer Stock in a 401(k) Retirement Plan,” *Journal of Pension Planning and Compliance*, vol. 25, no. 3; Fall 1999, page 56.

options – the plan fiduciaries are bound by ERISA to act with “care, skill, prudence, and ... diligence.”

Although ERISA does not limit the proportion of assets in a defined contribution plan that can be invested in employer stock, “the fiduciaries of a plan must act prudently if they decide to permit employer stock as an investment alternative available to participants under the plan.”⁵⁴ Furthermore, if employer stock is offered as an investment alternative, the plan fiduciaries must ensure that “information provided to shareholders of such securities is provided to participants and beneficiaries with accounts holding such securities.”⁵⁵ The fiduciaries also must continue to evaluate the suitability of company stock as an investment option because “neither the statute nor the regulation eliminates the fiduciary’s underlying responsibility with regard to the selection and monitoring of the plan’s investment options.”⁵⁶ In the event that the employer stock fund in a participant-directed plan does not meet all of the requirements under ERISA § 404(c), only the employer stock portion of the plan will fail to qualify under section 404(c). The other investment funds of the plan will qualify for liability protection under section 404(c) to the extent that they satisfy the section 404(c) requirements.⁵⁷

Fiduciary duty and employer stock. Enron is not the only company to have been sued in recent years by participants in an employer-sponsored retirement plan in which participants had invested in company stock. Rite Aid, Lucent Technologies, Nortel Networks, Qwest Communications, Williams Companies, Providian Financial Corporation, IKON Office Solutions, WorldCom, and Xerox all have been involved in lawsuits in which plan participants alleged that plan fiduciaries breached their duties with respect to investment in employer stock.⁵⁸ As these cases

⁵⁴ Morrison and Scialabba (1999), page 54.

⁵⁵ 29 C.F.R. § 2550.404(c)-1(d)(2).

⁵⁶ Thomas S. Gigot, “401(k) Plan Litigation under ERISA,” *Journal of Pension Planning and Compliance*, vol. 27, no. 3 (Fall 2001), page 65.

⁵⁷ “A plan which otherwise qualifies as an ERISA section 404(c) plan would not cease to be an ERISA section 404(c) plan merely because a particular non-core investment alternative offered under the plan (e.g., an employer security investment alternative) fails to meet the requirements for section 404(c) relief. Accordingly, to the extent that an employer security investment alternative fails to comply with the requirements of paragraph (d)(2)(ii)(E)(4), the fiduciaries of a plan which otherwise meets the requirements of section 404(c) would lose section 404(c) protection and would be responsible as fiduciaries only with respect to transactions involving the employer security investment alternative.” “Final Regulation Regarding Participant Directed Individual Account Plans (ERISA Section 404(c) Plans),” *Federal Register*, vol. 57, no. 198, October 13, 1992, page 46928.

⁵⁸ Rite Aid and IKON Offices Solutions announced in May 2002 that they had reached settlement agreements in *Kolar v. Rite Aid Corp. et al.*, E.D. Pa., 01-cv-1229, and *Whetman, et al. v. IKON Office Solutions, Inc.*, E.D. Pa, Docket No. 00-87. Of the other cases referred to, three involve Global Crossing: *McAllister v. Winnick*, *Ramkissoon v. Winnick*, and *Johnson v. Winnick*. The others are *Van Nes v. Williams Companies, Inc.*; *Brooks v. Qwest Communications International, Inc.*; *Kauffmann v. Nortel Networks Corp.*; *Reinhart v. Lucent Technologies*; *Spindler v. Providian Financial Corp.*; *Rambo v.* (continued...)

indicate, when the employer's stock suffers a precipitous decline in value the "loss of retirement savings can . . . trigger claims that the plan's fiduciaries breached their duties of care and loyalty by allowing the plan to continue buying company stock, or by failing to sell company stock, as the company's financial condition deteriorated."⁵⁹ If an employer both allows participants to purchase employer stock voluntarily and makes its matching contributions with employer stock, the participants could assert that (1) the company breached its fiduciary duty by continuing to make its stock available as an investment option after the plan administrators knew (or should have known) that it was likely to decline in value substantially, and/or (2) that any terms of the plan that prevented participants from diversifying out of company stock represented a breach of fiduciary duty.

Reflecting on the recent lawsuits that have alleged breaches of fiduciary duty with respect to employer securities in defined contribution retirement plans, two attorneys who specialize in ERISA recently observed that:

ERISA requires that plan fiduciaries prudently monitor the investments in 401(k) plans, including employer stock. Although the standard for that review may not be clear, at the least the fiduciaries must periodically review the investment for its suitability for participant direction and cannot ignore evidence indicating that the employer stock is no longer appropriate for the plan. More likely, the fiduciaries have an affirmative duty to investigate the quality of the stock as an ongoing investment, to hire independent experts when needed, and to act on the results of those activities.⁶⁰

Recent employer actions. Some firms that require employees to hold employer securities until a certain age (typically 50 or 55) or until they leave the company recently have announced plans to reduce or remove those restrictions. A survey by Hewitt Associates of 280 companies with an average of 22,000 employees found that 38% invest the employer's matching contributions all or partly in company stock. Of that number, 86% place some type of restriction on diversification of the matching account in company stock. However, 62% indicated in the survey that they have, or are likely to, ease existing restrictions on diversification of company matching contributions out of the company stock fund in 2002.⁶¹

IV. Bills in the 107th Congress

H.R. 3762. The collapse of Enron Corporation's stock in 2001 left thousands of the firm's employees with significantly reduced retirement account balances. The plight of those whose retirement savings were virtually wiped out received substantial coverage by the news media. In the first few months of 2002, numerous

⁵⁸ (...continued)
WorldCom and Patti v. Xerox.

⁵⁹ Gigot (2001), page 68.

⁶⁰ F. Reish and J. Faucher, "The Enron and Lucent Cases: Responsibilities for Employer Stock," *Journal of Pension Benefits*, vol. 9, no. 3 (Spring 2002), pages 59-60.

⁶¹ Press release,
[<http://www.hewitt.com/hewitt/resource/newsroom/pressrel/2002/04-22-02.htm>].

bills were introduced in Congress that would reform the oversight and regulation of employer-sponsored retirement plans, all with the intention of preventing “another Enron.”⁶² On April 11, 2002 the House of Representatives passed **H.R. 3762**, the “Pension Security Act of 2002,” by a vote of 255 - 163.

The main provisions of the bill would:

- require plans to provide participants with periodic benefit statements,
- provide protection to participants from suspensions, limitations, or restrictions on their ability to diversify their investments in the plan,
- direct the Secretary of Labor to develop a program to educate and inform plan fiduciaries of their duties and obligations,
- provide plan participants with the right to sell employer stock no more than three years after they receive it,
- allow employers voluntarily to offer investment advice through the retirement plan’s service provider, and
- prohibit company owners, officers or directors from trading any employer securities or derivatives during a period when retirement plan participants are restricted in their ability to direct investments under the plan.

Periodic benefit statements. *Defined benefit* plans would be required to provide active plan participants with a statement, at least once every three years, that informs them of their total accrued benefits, their total vested (nonforfeitable) benefits, and the date on which benefits will become vested. *Defined contribution* plans (except for ESOPs that do not include either employee contributions or employer matching contributions) would be required to provide participants with quarterly statements of their total accrued benefits, their total vested (nonforfeitable) benefits, and the date on which benefits will become vested. The statement must include the value of investments allocated to employer securities and an explanation of any limitations or restrictions on the participants’ ability to direct investments in the account. It must also inform the participant of the importance of maintaining a well-diversified investment portfolio, including a discussion of the risk of holding more than 25% of one’s assets in single security, such as the employer’s stock.

Protection during “blackout” or “lockdown” periods. Companies sometimes suspend transactions in their 401(k) accounts, most commonly when they are changing plan administrators, installing new software, or performing other routine administrative tasks that require a temporary suspension of account activity. H.R. 3762 would require defined contribution plans to provide written notice to participants at least 30 days before any action that would suspend, limit, or restrict their ability to direct their investments under the plan for at least 3 consecutive business days. The notice must state the reason for the restriction of account activity and its expected length, identify the affected investments, and advise the participants to evaluate their investment decisions accordingly. The Secretary of Labor would

⁶² For more information, see CRS Report RL31319, “Employer Stock in Retirement Plans: Bills in the 107th Congress,” by Patrick J. Purcell.

be required to issue model notices and would be authorized to issue regulations identifying exceptions to the notice requirement. The bill specifies that relief from fiduciary liability ERISA § 404(c) would not apply during a lockdown that is unreasonable in length or is not preceded by required notice to plan participants.⁶³

Diversification out of company stock. Defined contribution plans of publicly traded companies (other than ESOPs that hold neither employee contributions nor employer matching contributions) would be required to provide participants with the right to sell company stock held in their accounts no later than 3 years after the end of the plan year during which the stock is allocated to their accounts. Stock allocated to employee accounts prior to enactment could be sold in 20% annual increments, reaching 100% in 2007. Upon enactment of the bill, participants would have the right to sell immediately all employer stock purchased with their own contributions. Plans would be required to offer at least three investment options in addition to employer stock and to allow participants the opportunity to trade shares no less frequently than quarterly.

Senate bills. In the Senate, jurisdiction over employer-sponsored retirement plans is shared by the Committee on Health, Education, Labor, and Pensions (which had jurisdiction over ERISA) and the Finance Committee (which has jurisdiction over the Internal Revenue Code). On March 21, 2002 the Senate Committee on Health, Education, Labor, and Pensions ordered reported **S. 1992**, the “Protecting America’s Pensions Act of 2002.” On April 17, 2002 Finance Committee members John Kerry and Olympia Snowe introduced **S. 2190**, the “Worker Investment and Retirement Education Act of 2002.” On July 11, 2002 the Finance Committee ordered reported **S. 1971**, the “National Employee Savings and Trust Equity Guarantee Act.” None of these bills reached the Senate floor in the 107th Congress.

Periodic benefit statements. S. 1992 would require administrators of participant-directed individual account plans to provide quarterly statements to participants. It would require administrators of defined benefit plans to provide statements to participants at least once every three years. Statements for all plans must include total accrued benefits and total vested benefits (or the earliest date at which vesting will occur). Statements for individual account plans must include the value of employer securities, an explanation of any restrictions the participant’s right to diversify out of employer securities, a statement of the importance of diversifying assets, and notification of the risk inherent in concentrating investment in a single security. They must include a special notice directed at participants with more than 20% of plan assets invested in employer securities. The Secretary of Labor would be directed to develop a model statement. In the case of a defined benefit plan, the administrator would be required to notify participants who are eligible to receive a distribution from the plan of their right to receive information describing the manner in which the amount of the distribution was calculated. Plans with more than 100 participants that offer lump-sum distributions or other optional forms of benefit

⁶³ ERISA § 404(c) states generally that a plan fiduciary will not be held liable for investment losses that result from an individual participant’s investment losses, provided that individual plan participants are able to exercise control over the investment of their accounts.

would be required to provide, prior to any such distribution, a statement describing the relative values of the alternative forms of distribution, including the interest rate and mortality assumptions used to derive the estimates, as well as any other information prescribed by the Secretary of Labor.

Under **S. 2190**, defined contribution plans that allow participants to exercise control over their investments would be required to provide participants with a form outlining basic investment principles, including the benefits of diversification, information on the relative risk of investing in stocks, bonds, stock mutual funds and money market mutual funds, resources where they can get more information on investing, and a worksheet for calculating future retirement benefits. Plans with 100 or more participants would be required to provide participants with benefit statements that would include total accrued benefits, total vested benefits (or the earliest date at which vesting will occur), total account balances, and the percentage of the participant's assets in each investment option provided under the plan.

S. 1971 would require plan administrators to provide quarterly statements to participants and annual statements to beneficiaries, including the total benefit accrued under the plan, the total benefit in which the participant is fully vested (or the earliest date on which vesting will occur), the value of any employer securities held in the plan, an explanation of any restrictions on the participant's right to diversify out of employer securities, a statement on the importance of diversifying assets, and notification of the risk inherent in concentrating investment in a single security. The requirement would apply to all participant-directed plans that are tax-qualified plans under I.R.C. § 401(a), annuity plans under I.R.C. § 403, and individual retirement accounts under I.R.C. § 408. The bill would impose an excise tax of \$100 per participant per day on any employer that fails to comply with these requirements.

Divestiture of employer securities. **S. 1992** would require participant-directed individual account plans that hold employer securities that are readily tradable on an established market to offer at least three other investment options in addition to employer securities. The bill provides that participants may diversify all elective deferrals out of employer stock immediately, and that participants may diversify all employer contributions of employer stock after 3 years of service. It would require plans to grant voting rights on employer stock to plan participants. The diversification requirements would not apply to ESOPs that hold neither employee elective deferrals made under I.R.C. § 401(k) nor employer matching contributions made under I.R.C. § 401(m). It would require plan administrators to notify participants of their diversification rights and inform them of the importance of diversifying assets. The Secretary of Labor would issue model notices. The Labor Department would be required to study options for applying the diversification requirements to employer stock that is not publicly traded.

S. 2190 would prohibit defined contribution plans other than ESOPs from requiring plan participants to invest any of their elective salary deferrals in employer securities such as company stock. Participants in plans of publicly-held corporations would have the right to sell immediately employer stock purchased with their own contributions. With respect to employer contributions – *other than matching contributions* – made with company stock, participants would be permitted to sell these shares after completing five years of service. However, the employee could not

divest more than 50% of employer stock before completing seven years of service. With respect to employer *matching* contributions made with company stock, participants would be permitted to sell these shares after completing three years of service. However, the employee could not divest more than 50% of employer stock before completing five years of service. At age 55, employees of publicly traded companies could sell all employer securities.

Effective on January 1, 2003, **S. 1971** would allow participants to diversify immediately out of employer securities purchased through employee elective deferrals, and it would allow participants with three or more years of service to diversify out of all other employer securities. Diversification out of employer securities held prior to the date of enactment – and not acquired through employee elective deferrals – would be permitted over a 3-year period. The bill would prohibit any plan from imposing restrictions and conditions (such as holding periods) on investments in employer securities that it does not impose on other investment options in the plan. It would require plans to offer at least three investment options in addition to employer securities. The diversification requirements of the bill would apply to all defined contribution plans that hold employer securities that are readily tradable on an established market except for ESOPs that hold no employer securities that were either purchased as employee elective deferrals or contributed as matching contributions for employee elective deferrals. Plans would have to meet the divestiture requirements in order to qualify under I.R.C. § 401(a).

Suspensions of account activity (“lockdowns” or “blackout” periods). **S. 1992** would require plan administrators to give participants written notice 30 days before the start of any period during which the participants’ ability to direct the investment of assets under the plan would be suspended, restricted, or otherwise limited. It would prohibit such periods from continuing for an “unreasonable” length of time, as determined by regulations to be issued by the Secretary of Labor. It would amend ERISA section 404(c)(1) to suspend fiduciaries’ relief from fiduciary liability during a transaction suspension period. The Secretary of Labor would issue guidance on how plan sponsors could preserve relief from fiduciary liability during transaction suspension periods.

S. 2190 would require plans to provide participants with written notice 30 days prior to any suspension of account activity expected to last three or more business days. Company owners, officers, and directors would be prohibited from buying or selling employer securities during any period when the participants of the plan are unable to buy or sell such securities.

S. 1971 would require plans to give participants 30-day advance written notice of a transaction suspension period lasting for two or more consecutive business days during which participants’ ability to direct the investment of assets held in the plan is substantially reduced. Certain exceptions would be specified in regulations issued by the Secretary of the Treasury. The notice requirement would apply to all participant-directed plans that are tax-qualified plans under I.R.C. § 401(a), annuity plans under I.R.C. § 403, and individual retirement accounts under I.R.C. § 408. The bill would impose an excise tax on employers of \$100 per participant per day for failure to comply. It would amend ERISA section 404(c)(1) to suspend fiduciaries’ relief from fiduciary liability during a transaction suspension period. The Secretary

of the Treasury would issue guidance on how plan sponsors could preserve relief from fiduciary liability during transaction suspension periods. The bill would impose an excise tax of 20% on any gain realized by company officers or other insiders on transactions involving employer securities that occur when the company's retirement plan is in a transaction suspension period.

Limits on employer securities or real property. ERISA limits the amount of employer stock that can be held in a *defined benefit* plan to 10% of plan assets.⁶⁴ *Defined contribution* plans are generally exempted from limits on investing in employer stock,⁶⁵ except for certain plans that require elective deferrals equal to more than 1% of employee salary to be used for purchasing employer stock.⁶⁶

Under **S. 1992**, a participant-directed individual account plan that holds employer securities that are readily tradable on an established market could either (1) permit employees' elective deferrals to be invested in employer securities or (2) make matching or other employer contributions in the form of employer securities, but not both. The restriction would include (but would not be limited to) plans that allow for employee investment in employer securities via a brokerage window. These restrictions would apply to all defined contribution plans except: (1) Employee Stock Ownership Plans (ESOPs) that hold neither employee elective deferrals or employer matching contributions and (2) defined contribution plans of an employer that also sponsors a defined benefit plan covering at least 90% of the DC plan participants and providing for a benefit that is at least the actuarial equivalent of the benefit that would result from an accrual rate of 1.5% of final average pay times years of service. This accrual rate need not apply beyond 20 years of service.

Investment advice and retirement planning. **S. 1992**, **S. 1971**, and **S. 2190** each incorporate **S. 1677**, the "Independent Investment Advice Act," which would grant employers a safe harbor for liability if they arrange for a qualified, independent investment advisor to provide investment advice to plan participants. The bills would grant an exemption from the "prohibited transaction" provisions of ERISA for plan sponsors that provide investment advice to plan participants.

Other provisions. **S. 1992** would require the plan sponsor to provide plan participants with the same investment information it would be required to disclose to investors under applicable securities laws. **S. 1992** also would mandate, in the case of any company that sponsors an individual account plan and allows employee elective deferrals to be used to purchase employer securities, that any disclosure required by the S.E.C. regarding insider trades must be provided by the company to its employees in written or electronic form within two days of disclosure to the S.E.C. **S. 1992** would require assets of DC plans with 100 or more participants to be held in a joint trust with equal representation of the interests of plan sponsors and participants. It would amend ERISA to require persons who breach their fiduciary duty to participants of a 401(k) plan to make good the losses suffered by plan

⁶⁴ ERISA § 407(a), (29 U.S.C. § 1107(a)).

⁶⁵ ERISA § 404(a)(2) and § 407(b), ((29 U.S.C. § 1104(a)(2) and § 1107(b)).

⁶⁶ ERISA § 407(b)(2), (29 U.S.C. § 1107(b)(2)).

participants and beneficiaries resulting from their breach of duty. Participants and beneficiaries would have the right to sue fiduciaries for losses resulting from breach of duty. Any insider who participates in a breach of fiduciary duty or who knowingly conceals such a breach would be held personally liable for any resulting losses. The bill provides that ERISA § 404(c) is not a valid defense for such breach. S. 1992 would provide that a person's right to civil action under ERISA may not be waived, deferred, or lost pursuant to any agreement between the participant or beneficiary and the plan sponsor. The bill would amend ERISA § 502 to extend to persons who do not participate in the plan the opportunity to bring a civil action seeking equitable or remedial relief in the event of that employer or other person violates the individual's rights under ERISA § 510. It would establish an Office of Pension Participant Advocacy within the Department of Labor. Finally, S. 1992 would direct the Pension Benefit Guaranty Corporation to study the feasibility of a system of insurance for defined contribution retirement plans.

Appendix A: Regression Results

Form of the model and summary statistics. This analysis makes use of a standard statistical methodology termed “ordinary least squares” (OLS). The dependent variable (the matter to be explained) is the percentage of a firm’s total defined contribution plan assets invested in company stock at the end of fiscal year 2000, as reported by firms on the Form 11-K filed with the S.E.C. in 2001.⁶⁷ We included six independent variables that economic theory or previous empirical research suggested might be related to the concentration of company stock in defined contribution plans. The intercept of 9.8% is statistically significant at the .01 level. The adjusted R^2 , or “coefficient of determination” is .334. This suggests that the independent variables explain about one-third of the company-to-company variation in the concentration of employer stock in defined contribution plans. (Complete results of the regression analysis are shown in **Table A-1**).

Mandatory holding period for company stock. Some employers require company stock that is given by the company as a matching contribution or other contribution to be held by the worker until he or she reaches a certain age (typically 50 or 55) or until the worker leaves the firm.⁶⁸ Sixty-six firms in our sample reported on their 11-K forms that they had such a required holding period. We would expect that, other things being equal, the concentration of company stock in a firms’ DC plan would be higher if it had a mandatory holding period for company stock than if employees were free to sell shares at any time. The sign for this variable was positive, as expected, but the coefficient was not statistically significant.

Matching contribution made in company stock. More than half of the firms in the sample (146 out of 278) made their matching contributions with company stock. This variable proved to have a positive and statistically significant relationship to the concentration of company stock in the firms’ defined contribution plans. The coefficient of 17.7 indicates that, other things being equal, the concentration of company stock will be 17.7 percentage points higher at a firm that makes its matching contribution with company stock than at a firm that does not. This was the largest coefficient of any independent variable in the regression equation.

Does the company offer a defined benefit plan? As noted earlier in the discussion of **Table 3**, there is reason to believe that the concentration of company stock might be higher at firms that offer a *defined benefit* plan as well as a *defined contribution* plan. Most of the firms in our sample (205 of 278) offered a DB plan to a majority of their U.S. employees. We included a variable in the regression with a value of 1 for firms that sponsored a DB plan and 0 for those that did not. Contrary to our expectation, the sign of this variable was negative (indicating that the company stock concentration was *lower* at firms that also sponsored a DB plan); however, the coefficient was not statistically significant.

⁶⁷ For most firms, the 11-K filed in 2001 reported the status of the DC plan for the fiscal year that ended in 2000. For some firms, 2001 filings cover a fiscal year that ended in 2001.

⁶⁸ In some cases – usually KSOPs – the employee also may be required to hold company stock that they purchase voluntarily for a specified period of time before they can sell it.

Company stock performance relative to the S&P 500. Benartzi (2001) and Sengmuller (2002) both found that employee purchases of company stock through a retirement savings plan were influenced by the past financial performance of the stock relative to the market as a whole. To test the relationship of past company stock performance to the concentration of company stock in the firm's 401(k) plan, we included a variable that represented the ratio of the average annual rate of total return realized by the company's stock from 1997 through 1999 to the average annual rate of total return of the *Standard & Poor's 500* index over the same three-year period. This variable had a positive and statistically significant relationship to the concentration of company stock in the sample firms' defined contribution plans. The coefficient of 5.3 indicates that, other things being equal, the concentration of company stock would be 5.3 percentage points higher at a firm where the three-year rate average of return on company stock was twice the rate of return of the S&P 500 when compared with a firm where the three-year rate average of return on company stock was the same as the return on the S&P 500. Because we looked at the concentration of company stock at a point in time, we cannot say how much of this 5.3 percentage point excess of company stock is attributable to *additional employee purchases* and how much is due to the fact that, absent periodic re-balancing of portfolios, a higher rate of return on any security would lead to that security comprising a larger proportion of an investment portfolio.

Relative variability of company stock. The risk that an investor bears is the possibility of loss. It is a fundamental tenet of modern portfolio theory that holding a single stock entails greater risk than holding a well-diversified portfolio of stocks. This risk is measured as the relative volatility of the expected return on a given security compared with the expected return for the entire market. This measure of risk is referred to as a stock's *beta coefficient*.⁶⁹ Economic theory suggests that for any given expected rate of return, an investor would prefer to hold a less volatile (i.e., less risky) stock. We would therefore expect to find a negative relationship between a stock's beta coefficient and its concentration in the company's retirement plan. To measure the relationship between the relative volatility of a company's stock and its concentration in the company's defined contribution plan, we calculated the beta coefficient for each stock for the three-year period from 1997 through 1999. As expected, the sign associated with a company stock's beta coefficient was negative; however, the coefficient was not statistically significant.⁷⁰

Size of the company. Benartzi (2001) found that company size was positively associated with employee purchases of company stock for their retirement plans. To test the relationship between company size and the concentration of

⁶⁹ More formally, the beta coefficient is defined as: $\beta = (\sum mk - nMK) \div (\sum m^2 - nM^2)$, where m = (the market rate of return in period p - the risk-free rate of return in period p), k = (the rate of return on stock s in period p - the risk-free rate of return in period p), n = the number of periods, M = the average of m , and K = the average of k .

⁷⁰ Sengmuller (2002) found that neither the market beta nor the standard deviation of company stock returns was statistically significant in a regression on the allocation of employee salary deferrals to company stock. Liang and Weisbenner (2002), however, found that the standard deviation of the return on company stock was negatively and significantly related to the percentage of employee deferrals allocated to company stock.

company stock in the firm's retirement plan, we included company assets, expressed as the natural logarithm of those assets, in the regression model.⁷¹ The results indicate that, even among a sample of bigger-than-average companies, the concentration of company stock increases with company size. The effect is not especially dramatic, however. The regression results indicate that among the firms in this sample, a 10% increase in total company assets is associated with an increase in the concentration of company stock in the firm's DC plans of only 0.4 percentage points.⁷²

A note on the number of investment options. Benartzi and Thaler (2001) found evidence that many participants in 401(k) plans follow a "1/n" diversification strategy. An investor following this strategy would divide his payroll deferrals proportionally among each of the investment options available in the plan. Their results suggest that, other things being equal, the proportion of employee elective deferrals invested in company stock will be lower in a plan with more investment options than in a plan with fewer options. The percentage of a plan's assets invested in company stock at any given time, however, will depend both on the past performance of company stock relative to the other investment options, and the extent to which plan participants respond to new investment options by redirecting some of their deferrals and accumulated assets into the new investments. It is perhaps not surprising, then, that when we included a variable indicating the number of investment options available in the plan, the sign was negative but the coefficient was not statistically significant. We dropped this variable from the final version of the model.

Table A-1. Regression Analysis of Company Stock in 2000

Dependent variable = Percentage of total DC plan assets invested in company stock

Regression Statistics

Multiple R	0.5903		
R ²	0.3485		
Adjusted R ²	0.3341		
Standard Error	18.1810		
Observations	278		
	<i>Degrees of freedom</i>	<i>F statistic</i>	<i>Significance F</i>
Regression	6	24.1609	0.0000
Residual	271		
Total	277		

⁷¹ The logarithm of a variable is sometimes used in econometric analysis when the relationship between an independent variable and the dependent variable is nonlinear.

⁷² When an independent variable is log transformed and the dependent variable is not, the expected change in the dependent variable associated with a given percentage change in the independent variable can be derived as $y = \log_e([100+x]/100)$ where x equals the percent change in the independent variable and y = the change in the dependent variable.

<i>Independent variable</i>	<i>Coefficient</i>	<i>Standard Error</i>	<i>t statistic</i>	<i>P-value</i>
Intercept	9.7926	2.7524	3.5578	0.0004
Holding period for co. stock?	4.7033	3.0600	1.5370	0.1255
Is match in company stock?	17.6924	2.6233	6.7444	0.0000
Does company have a DB plan?	-2.3802	2.7761	-0.8574	0.3920
Company stock vs. S&P 500	5.2644	1.0030	5.2484	0.0000
Company stock beta coefficient	-0.1225	0.0871	-1.4058	0.1609
Company assets (log _e of assets)	3.7609	0.9006	4.1760	0.0000

Source: CRS analysis of 10-K and 11-K forms filed with the S.E.C. in 2001.

Table A-2. Mean and Median Employment, Revenues, and Assets in 2000

<i>All firms in sample</i> (n = 278)			
	Employees	Revenues in 2000 (in billions)	Assets in 2000 (in billions)
Mean	46,340	\$13.438	\$22.327
Median	18,750	\$5.341	\$7.316
<i>Firms that directed all or part of match to company stock</i> (n = 146)			
	Employees	Revenues in 2000 (in billions)	Assets in 2000 (in billions)
Mean	40,998	\$14.966	\$23.747
Median	17,050	\$5.955	\$8.836
<i>Firms that did not direct match to company stock</i> (n = 132)			
	Employees	Revenues in 2000 (in billions)	Assets in 2000 (in billions)
Mean	52,249	\$11.748	\$20.756
Median	19,975	\$4.538	\$6.420
<i>Firms that also had a defined benefit plan</i> (n = 205)			
	Employees	Revenues in 2000 (in billions)	Assets in 2000 (in billions)
Mean	41,034	\$14.529	\$26.853
Median	18,500	\$6.581	\$9.127
<i>Firms that had only a defined contribution plan</i> (n = 73)			
	Employees	Revenues in 2000 (in billions)	Assets in 2000 (in billions)
Mean	61,241	\$10.373	\$9.616
Median	19,220	\$3.531	\$3.157
<i>Three-year total return on company stock exceeded S&P 500</i> (n = 66)			
	Employees	Revenues in 2000 (in billions)	Assets in 2000 (in billions)
Mean	77,406	18.613	31.607
Median	23,550	5.181	11.203
<i>Three-year total return on company stock lagged S&P 500</i> (n = 212)			
	Employees	Revenues in 2000 (in billions)	Assets in 2000 (in billions)
Mean	36,669	11.827	19.437
Median	16,050	5.558	6.755

Source: CRS analysis of S.E.C. Form 10-k filed in 2001.

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