

WHAT WENT WRONG: PRUDENT MANAGEMENT OF ENDOWMENT FUNDS AND IMPRUDENT ENDOWMENT INVESTING POLICIES

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INTRODUCTION

Most colleges and universities of all sizes have an endowment, a fund that provides a stream of income and maintains the corpus of the fund in perpetuity.¹ Organizations with large endowments, such as colleges, universities, and private foundations,² all finance a significant part of their

1. The legal definition of an endowment fund is an institutional fund or part thereof, not expendable by the institution on a current basis under the terms of the applicable gift investment. NAT'L CONF. ON COMM'RS OF UNIF. STATE LAWS, UNIF. PRUDENT MGMT. OF INSTITUTIONAL FUNDS ACT § 2(2) (2006) [hereinafter UPMIFA]. However, the word "endowment" generally is used in a broader sense than just the permanent corpus of the fund. Quasi-endowment is a term that describes unrestricted capital gifts that the charitable institution has decided to treat as endowment. Endowment funds are contrasted to other types of funds, such as tuition revenues, which are held for a very short term and are likely to be invested in treasury bills or commercial paper. Joel C. Dobris, *Real Return, Modern Portfolio Theory, and College, University, Foundation Decisions on Annual Spending from Endowments: A Visit to the World of Spending Rules*, 28 REAL PROP. PROB. & TR. J. 49, 51 n.4 (1993).

Accounting classifications of endowments differ. Permanent or classic endowment funds are restricted in their purposes by donors to provide long term funding for designated purposes. *Endowments of Not-for-Profit Organizations: Net Asset Classification of Funds Subject to an Enacted Version of the Uniform Prudent Management of Institutional Funds Act, and Enhanced Disclosures for All Endowment Funds*, Statement of Financial Accounting Standards (Fin. Accounting Standards Bd. 2008). Unrestricted net assets are not subject to donor-imposed restrictions. *Id.* Temporarily restricted net assets consist of donor-restricted endowment funds that are not classified as permanently restricted net assets. *Id.* When donor restrictions expire—a stipulated time restriction ends or a purpose restriction is fulfilled—temporarily restricted net assets are reclassified to unrestricted net assets and reported as net assets released from restrictions. *Id.* The restrictive spending policies of UPMIFA would apply only to true endowments with restrictions. UPMIFA, *supra* note 1, at § 2(2). All types of endowment categories are commingled for investment purposes and are referred to as "endowment." *Id.* At Harvard in the fiscal year 2013, 64.7% of the endowment is classified for accounting purposes as temporarily restricted; 18.1% as permanently restricted; and 17.1% as unrestricted. HARVARD UNIVERSITY FINANCIAL REPORT FISCAL 2013 18 (2013), available at <http://vpf-web.harvard.edu/annualfinancial/pdfs/2013fullreport.pdf>. Yale's figures in the fiscal year 2013 were 69.8% temporarily restricted; 15.2% permanently restricted; and 14.9% unrestricted. YALE FINANCIAL REPORT 2012-2013 15 (2013), available at www.yale.edu/finance/controller/reporting/reports.html.

2. Private foundations are charities that have failed certain tests of public support under I.R.C. § 509 (2012). For the 2009 tax year, 92,624 domestic private foundations reported \$585.5 billion in total assets. Cynthia Belmonte, *Domestic Private Foundations and Related Excise Taxes, Tax Year 2009*, STAT. OF INCOME BULL., Winter 2013, at 115 Fig. A. Private foundations typically are funded through a gift of assets that becomes an endowment, and grants are paid out of the earnings generated. I.R.C. § 4942(e)(1) requires private foundations to spend at least 5% of their current investment asset value for charitable purposes. I.R.C. § 4942(e)(1) (2012).

operations through the return received from the investment of this capital. This article examines the legal framework for endowment investing, endowment investing policies, their evolution to more sophisticated and riskier strategies, and the consequences evinced during the financial crisis of 2008 and beyond. It does not deal, save tangentially, with issues of endowment spending policies, which have been matters of widespread commentary and disagreement.³

The article suggests procedures and policies to encourage college and university board practices that may better inform trustees of investment approaches and, in some cases, restrain investment strategies that increase the volatility of endowment returns. It is recommended that endowments invest with more awareness and consider more realistically the possibility of volatile negative returns, and their impact on the college or university, its beneficiaries, and the communities it affects.

I. AN OVERVIEW AND RATIONALE OF ENDOWMENTS

The world of endowments is highly stratified in terms of size, utilization of modern theories of finance, trustee governance procedures, and delegation to and reliance on outside experts. The endowments discussed herein have been artificially divided into two categories. First are the largest and most sophisticated endowments, those with assets over \$1 billion, which utilize the most modern tools of finance.⁴ Second are

3. See RAY D. MADOFF, IMMORTALITY AND THE LAW 96-109 (2010); RICHARD POSNER, ECONOMIC ANALYSIS OF THE LAW, § 18.5 (7th ed. 2007); Evelyn Brody, *Charities in Tax Reform: Threats to Subsidies Overt and Covert*, 66 TENN. L. REV. 687, 725 (1999); Evelyn Brody, *Charitable Endowments and the Democratization of Dynasty*, 39 ARIZ. L. REV. 873 (1997); Peter Conti-Brown, *Scarcity Amidst Wealth: The Law, Finance, and Culture of Elite University Endowments in Financial Crisis*, 63 STAN. L. REV. 699, 741-43 (2011); Henry Hansmann, *Why Do Universities Have Endowments?*, 19 J. LEGAL STUDIES 3, 40 (1990); Sarah E. Waldeck, *The Coming Showdown Over University Endowments: Enlisting the Donors*, 77 FORDHAM L. REV. 1795 (2009); Daniel Halperin, *Is Excessive Accumulation Subsidized?*, 67 EXEMPT ORG. TAX REV. 17 (2011); Daniel Halperin, *Is Excessive Accumulation Subsidized? (Part II)*, 67 EXEMPT ORG. TAX REV. 125 (2011); Calvin H. Johnson, *Payout by Charities Over 50 Years*, 132 TAX NOTES 1161 (Sept. 12, 2011); Akash Deep and Peter Frumkin, *The Foundation Payout Puzzle* (Hauser Ctr. for Nonprofit Orgs., Working Paper No. 9, 2005), available at <http://ssrn.com/abstract=301826>. From the political world, Senator Charles Grassley has weighed in by supporting a 5 % mandatory payout of educational endowments to reduce the high costs of tuition and improve access to the middle class and poor. See Karen W. Arenson, *Big Spender*, N.Y. TIMES (Apr. 20, 2008), <http://query.nytimes.com/gst/fullpage.html?res=9F02EED91E3DF933A15757C0A96E9C8B63&ref=karenwarensen>.

4. In 2007, there were seventy-six endowments with \$1 billion in assets and sixty-five endowments with assets from \$500 million to \$999,999,999. NAT. ASS'N OF COLL. AND UNIV. BUS. OFFICERS, 2007 NACUBO-COMMUNFUND STUDY OF

endowments with assets from \$500 million to \$1 billion that have adopted modern portfolio theories of investing, but generally may not have taken on the same level of risk in their investment strategies, nor have they had access to the most successful hedge funds, private equity firms, or investment advisors, or garnered the gains or suffered the losses of the largest endowments.

Intergenerational equity is the most commonly stated goal for endowment management. As stated by James Tobin: “The trustees of an endowment institution are the guardians of the future against the claims of the present. Their task is to preserve equity among generations.”⁵ This means that tomorrow’s students, scientists, patients, beneficiaries, or parishioners will receive the same or greater benefits, taking into account the effects of inflation, as today’s beneficiaries. Another common rationale for endowments is that they enable organizations to smooth out revenue shortfalls, so that they can maintain the same scale of activities in lean years as in bountiful ones.⁶

The financial crisis of 2008 called into question both rationales. Colleges and universities did not increase their spending rates to smooth out the endowment spending shortfalls, and budget cutbacks were so severe at many educational institutions that intergenerational equity for current students or beneficiaries was not maintained.⁷

It is difficult to find hard figures of the size of endowment funds in the

ENDOWMENTS (2007) [hereinafter 2007 NCSE]. In 2009, there were only fifty-six endowments with \$1 billion in assets and sixty-five endowments with assets from \$500 million to \$999,999,999. NAT. ASS’N OF COLL. AND UNIV. BUS. OFFICERS, 2009 NACUBO-COMMUNFUND STUDY OF ENDOWMENTS (2009) [hereinafter 2009 NCSE]. In 2012, seventy-one endowments had \$1 billion in assets, and seventy-three had assets from \$500 million to \$999,999,999. NAT. ASS’N OF COLL. AND UNIV. BUS. OFFICERS, 2012 NACUBO-COMMUNFUND STUDY OF ENDOWMENTS (2012) [hereinafter 2012 NCSE]. These figures include Canadian institutions. NACUBO-Commonfund figures often differ from an institution’s own report of endowment results.

5. James Tobin, *What is Permanent Endowment Income?*, 64 AMER. ECON. REV. 427 (1974). Professor Tobin was awarded the Nobel Prize in Economic Sciences in 1981.

6. Robert C. Merton, *Optimal Investment Strategies for University Endowment Funds*, in STUDIES OF SUPPLY AND DEMAND IN HIGHER EDUCATION 211, 211–12 (Charles T. Cotfelter & Michael Rothschild eds. 1993); Conti-Brown, *supra* note 3, at 708–09. Another view, offered by Professor Henry Hansmann, is that justifications of intergenerational equity are not persuasive and may not call for a transfer of wealth through saving from the present generation to spend on later ones. The argument for endowment accumulation should be on grounds of efficiency. Professor Hansmann suggests that the more compelling reasons for endowments are serving as a financial buffer against periods of financial adversity; helping to assure long term survival of an institution’s reputational capital; protecting intellectual freedom; and transmitting prized values. *See* Hansmann, *supra* note 3, at 14, 39.

7. *See* Conti-Brown, *supra* note 3, at 702–03.

United States, but the sum is immense.⁸ In the period from 2001 to 2007, higher education endowments grew annually by double digit figures led by Harvard's endowment, which ballooned from a little over \$5 billion in 1993 to \$36.6 billion at the fiscal year ending June 30, 2008. Yale's endowment grew from \$3.1 billion to \$22.9 billion in that period.

In the fiscal year ending June 30, 2008, higher education endowments lost three percent of their value in a difficult financial environment. Then the bottom dropped out. The nation's most severe financial crisis since the Great Depression occurred in fall 2008.⁹ This event wreaked havoc on endowment portfolios. By the end of the 2009 fiscal year, Harvard's endowment was \$25.7 billion (down 36.6% from the previous year), followed by Yale's at \$16.3 billion (down 28.6%), and Stanford's at \$12.6 billion (down 26.7%).¹⁰ A survey of over 800 higher education institutions showed losses on average of 18.7%, the worst rate of return since the Great Depression.¹¹

Colleges and universities with the largest endowments (over \$1 billion) lost more on average (20.5%) than smaller ones because of their concentration in sophisticated investment strategies—so called alternative assets—such as private equity and venture capital investments,¹² real estate, and commodities, which involved more short-term risk and were illiquid.¹³

8. The 2012 NCSE for the 2012 fiscal year ending June 30 found that 831 institutions consisting of 525 private colleges and university endowments in addition to 306 public education institutional endowments had \$406.1 billion in assets. 2012 NCSE, *supra* note 4. These figures are only part of the total. Figures for endowment results are from the NCSE Report for the particular year mentioned.

9. FINANCIAL CRISIS INQUIRY COMMISSION, *THE FINANCIAL CRISIS INQUIRY REPORT XV* (Jan. 2011).

10. Tamar Lewin, *Investment Losses Cause Steep Dip in University Endowments, Study Finds*, N.Y. TIMES (Jan. 28, 2010), http://www.nytimes.com/2010/01/28/education/28endow.html?_r=0. Although the declines were the greatest since the Depression, those endowments had only fallen to their 2005 levels, and they had positive returns over the ten years ending on June 30, 2009.

11. Kenneth E. Redd, *To Ensure We Endure*, BUSINESS OFFICER, July/August 2012, available at http://www.nacubo.org/Business_Officer_Magazine/Magazine_Archives/JulyAugust_2012/To_Ensure_We_Endure.html.

12. Private equity consists of investments in companies, which may be held long term as the firms add value or leveraged buyouts of public companies. Venture capital involves an investment in a start-up company, which if it issues an initial public offering of securities will generate a substantial profit to investors. For example, the Yale endowment's \$300,000 investment in Google produced \$75 million in gains when the company went public in 2004. THE YALE ENDOWMENT 2010 19 (2010) [hereinafter YALE ENDOWMENT REPORT 2010], available at http://www.yale.edu/investments/Yale_Endowment_10.pdf. Investments in private equity or venture capital are typically structured as partnerships with hedge funds.

13. Despite the great recession, large endowments had better returns than benchmark results such as the Standard & Poor's ("S&P") 500 and smaller endowments. In 2008, the S&P 500 declined 38.5%, the most since a 38.6% decline in 1937. Elizabeth Stanton, *U.S. Stocks Post Steepest Yearly Decline Since Great*

Endowments of foundations, healthcare, social service, and cultural institutions were similarly affected.¹⁴ Endowment performance recovered in the fiscal years 2010 and 2011, faltered in 2012, and rose in 2013.¹⁵ However, the levels of 2007 have not been reached.

Large endowment institutions often fund thirty-five percent or more of

Depression, BLOOMBERG (Dec. 31, 2008), http://www.bloomberg.com/apps/news?pid=news_archive&sid=a5RkfQG30k1k. Yale's ten-year return from 2002 to 2012 was 10.6% per annum, adding \$8.89 billion to the endowment, including the disastrous decline in 2008. Its twenty year return was 13.7% per annum adding \$15.8 billion in value. THE YALE ENDOWMENT 2012 32 (2012) [hereinafter YALE ENDOWMENT REPORT 2012], available at http://investments.yale.edu/images/documents/Yale_Endowment_12.pdf. Harvard's endowment averaged 9.49% over ten years and 12.29% over twenty years. JANE L. MENDILLO, HARVARD MANAGEMENT COMPANY ENDOWMENT REPORT, MESSAGE FROM THE CEO (2012), available at http://www.hmc.harvard.edu/docs/Final_Annual_Report_2012.pdf.

The average ten-year return in 2012 for all educational endowments net of fees was 6.2%. 2012 NCSE, *supra* note 4, at 3. The average ten-year return for all endowments in 2009 was 4%. Goldie Blumenstyk, *Average Return on Endowment Investments Is Worst in Almost 40 Years*, CHRON. HIGHER EDUC. (Jan 28, 2010), <http://chronicle.com/article/Average-Return-on-Endowment/63762/>. For the fiscal year 2009, the five largest university endowments declined by 25% to 30%. Craig Karmin, *Ivy League Endowments Finally 'Dumb'*, WALL ST. J. (June 30, 2009), <http://online.wsj.com/news/articles/SB124631834157970855>. According to a survey by the Northern Trust Corp, the median loss of endowments with less than \$100 million in assets that same year was 16%. *Id.* Presumably smaller endowments had a more traditional asset allocation, including more old fashioned fixed income. *Id.*

14. An annual survey by the Chronicle of Philanthropy of 221 private foundations and sixty-nine community foundations found that endowments dropped by 26% in the calendar year 2008. Caroline Preston, *Foundation Endowments Dipped in 2008, but Giving Rose*, CHRON. PHILANTHROPY (July 2, 2009), <http://philanthropy.com/article/Foundation-Endowments-Dipped/63117/>.

15. In the fiscal year 2012, the average investment return of educational endowments was 0.3% compared to 19.2% in the fiscal year 2011, 11.9% in 2010, and 18.7% in 2009. See 2009 NCSE, *supra* note 4; NAT. ASS'N OF COLL. AND UNIV. BUS. OFFICERS, 2010 NACUBO-COMMUNFUND STUDY OF ENDOWMENTS (2009) [hereinafter 2010 NCSE]; NAT. ASS'N OF COLL. AND UNIV. BUS. OFFICERS, 2011 NACUBO-COMMUNFUND STUDY OF ENDOWMENTS(2011) [hereinafter 2011 NCSE]; 2012 NCSE *supra* note 4; Press Release, Nat'l Ass'n of Coll. and Univ. Bus. Officers, Educational Endowments Returned an Average of -.3% in FY 2012, Down Sharply from 19.2% in FY2011 (Feb. 1, 2013), available at http://www.nacubo.org/Research/NACUBO_Endowment_Study.html. Preliminary data from the NACUBO-Commonfund survey for the fiscal year 2013 indicates that investment returns for all college and university endowments averaged 11.7% due to the strength of the equity markets. Endowments with assets over \$1 billion posted an average investment return of 11.6%, and endowments with assets between \$501 million to \$1 billion had average returns of 12.9% due to greater allocation to equities compared to alternative investments. Press Release, Nat'l Ass'n of Coll. and Univ. Bus. Officers, Preliminary Data Indicate Educational Endowments Earned Investment Returns Averaging 11.7% (Nov. 6, 2013), available at <http://www.nacubo.org/Documents/research/2013NCSEPreliminaryPressRelease.pdf>.

their operating budget through the endowment's payout.¹⁶ In response to the asset declines of 2008, colleges, universities, museums, and other charities froze or delayed construction and expansion projects, cut operating budgets, drew on cash reserves, implemented hiring and salary freezes, and ordered layoffs.¹⁷ A few sued their financial advisors.¹⁸ Many colleges and universities struggled to preserve financial aid. Several institutions, including Harvard, issued bonds to raise money for expenses or to allow them to hold on to illiquid assets until their price rose.¹⁹ Rating services cut university credit ratings. On top of this, charitable giving in education and elsewhere declined as a result of the financial crisis.²⁰ This following discussion explores what went wrong and why it may occur again.

16. See MENDILLO, *supra* note 13, at 3; HARVARD UNIVERSITY FINANCIAL REPORT FISCAL 2013, *supra* note 1, at 6 (35% budget); YALE ENDOWMENT 2010, *supra* note 12 (41.3% budget); YALE ENDOWMENT 2012, *supra* note 12, at 4 (36% budget). The most common measure of endowments is their dollar asset value. There are other measures such as endowment to expense ratios and endowment per full-time enrolled student. The endowment-to-expense ratio acknowledges that the strength of an endowment depends on the extent to which it can pay for institutional activities. Sarah Waldeck believes the endowment-to-expense ratio is the most sophisticated measure available to policymakers because it compares the endowment to an institution's actual costs and acknowledges that some schools are more expensive to operate than others. The endowment per full-time enrolled student also recognizes that some schools are more expensive to run than others but instead of using actual costs, the measure relies on the number of full-time students as a rough proxy for institutional expenses. See Waldeck, *supra* note 3, at 1799–1802.

17. See Conti-Brown, *supra* note 3, at Appendix B for an elaboration of the layoffs and cutbacks by the institutions with the five largest endowments. For the impact on the six Boston area institutions, see Center for Social Philanthropy Tellus Institute, *Educational Endowments and the Financial Crisis: Social Costs and Systemic Risks in the Shadow Banking System* 55–56 (2011), [hereinafter Tellus Report], available at <http://www.tellus.org/publications/files/endowmentcrisis.pdf>.

18. Conti-Brown, *supra* note 3.

19. Tellus Report, *supra* note 17, at 37–38.

20. Charitable contributions to higher education declined 57% on an inflation adjusted basis in 2008 compared to the previous year, the largest percentage drop in fifty years, and in the fiscal year 2009, giving to colleges dropped 11.9%. Kathryn Masterson, *Private Giving to Colleges Dropped Sharply in 2009*, THE CHRON. HIGHER EDUC. (Feb. 3, 2010), <http://chronicle.com/article/Private-Giving-to-Colleges/63879/>; Stephanie Strom, *Charitable Giving Declines, a New Report Finds*, N.Y. TIMES, June 10, 2009, at A16; Matthew Kaminski, *The Age of Diminishing Endowments*, WALL ST. J., June 6-7, 2009, at A11; In fiscal year 2010, giving to colleges and universities increased 0.5%, but on an inflation adjusted basis decline 0.6%. Press Release, Council for Aid to Educ., *Colleges and Universities Raise 28 Billion in 2010, Same Total as 2006* (Feb. 2, 2011). According to the Voluntary Support of Education Survey, conducted by the Council for Aid to Education (CAE), charitable contributions to American colleges and universities increased 2.3% in 2012 to \$31 billion, but the total is still below 2008's historical high of \$31.6 billion. Press Release, CAE, *Colleges and Universities Raise \$31 Billion in 2012* (Feb. 20, 2013). Adjusting for inflation, giving is virtually unchanged, inching up just 0.2%. *Id.*

II. TRADITIONAL APPROACHES TO ENDOWMENT INVESTING

Initially, endowments were gifts of property given to institutions to provide them with a source of dependable income from rents or interest.²¹ Growth was achieved primarily through additional gifts, and endowment funds were invested quite conservatively. English law encouraged this approach. There were legal lists of securities, principally governmental securities, which were presumably safe investments in which trustees could invest.²²

In 1830, the Supreme Judicial Court of Massachusetts rejected the English rule because there were few government securities available, and they were not necessarily safe.²³ The court then enunciated the prudent person rule:

All that can be required of a trustee to invest, is, that he shall conduct himself faithfully and exercise a sound discretion. He is to observe how men of prudence, discretion and intelligence manage their own affairs, not in regard to speculation, but in regard to the permanent disposition of their funds, considering the probable income, as well as the probable safety of the capital to be invested.²⁴

The court concluded that the trustees acted according to their best skill and discretion.²⁵ The prudent person rule meant that no security *per se* was

21. Tellus Report, *supra* note 17, at 17.

22. BEVIS LONGSTRETH, MODERN INVESTMENT MANAGEMENT AND THE PRUDENT MAN RULE 11 (1986).

23. Harvard Coll. v. Amory, 26 Mass. 446 (1830). In *Amory*, the trustees of Harvard College were directed by the terms of a \$50,000 testamentary trust of John M'Lean to "loan the same upon ample and sufficient security or to invest the same in safe and productive stock either in the public funds, bank shares of other stock, according to their best judgment and discretion" paying the income to the testator's wife for her lifetime and thereafter to deliver the principal to Harvard College and Massachusetts General Hospital in equal shares to be held by them and used to further their charitable purposes. *Id.*

The trustees invested in several bank and insurance stocks as well as those of two manufacturing companies which declined in value. *Id.* The two charitable remaindermen, Harvard and Mass. General, sought to surcharge the trustees for the reduction in value of the insurance and manufacturing stocks which had declined from \$41,000 to \$29,000, on the ground that they were not proper trust investments. *Id.* This was the English rule at the time. Justice Putnam, who delivered the opinion of the court, rejected the reasoning behind the English rule as having "very little or no application" to American trust law because American government securities were both exceedingly limited in amount compared to the amount of trust funds to be invested and in any event not necessarily a safe investment. *Id.* at 460. Additionally, investments in private corporations were subject to suit by law whereas the government could only be supplicated. *Id.* at 461.

24. *Id.*

25. *Id.* at 463.

inappropriate, but the rule was interpreted restrictively. Some jurisdictions continued the “legal list” approach.²⁶

Endowment managers spent quite conservatively. The “income” (e.g., dividends, interest, rent, and royalties) generated by an endowment could be currently expended, but the principal of the fund remained inviolate.²⁷ In the nineteenth century, trustees invested in fixed-income securities, such as Treasury notes and secured corporate bonds while maintaining up to one third of their portfolios in real estate and mortgages.²⁸ Investment practices changed at some institutions after the First World War. In the 1920s, as the stock market rose, many endowments invested in high yielding bonds and common stocks. The experience of the Yale endowment is illustrative. During the 1920s, the Yale endowment invested over one half of its assets in equities.²⁹ In 1930, equities represented forty-two percent of the Yale endowment portfolio, whereas the average college or university had only eleven percent.³⁰

The Great Depression led to a more sober approach. In the late 1930s, Yale’s treasurer decided the share of equities in Yale’s portfolio should be reduced.³¹ He introduced an investing template that lasted three decades: at least two dollars would be held in fixed income instruments for every

26. See *King v. Talbot*, 40 N.Y. 76 (1869) (prohibiting investment in stocks). The prudent person rule was interpreted conservatively because courts tended to look at investment decisions on the basis of hindsight. If an investment decision turned out badly, courts often concluded that the original decision was bad. *In re Chamberlain’s Estate*, 156 A. 42 (N.J. Prerog. Ct. 1931) is an example. A testator died in August 1929, two months before the market crash that ushered in the Great Depression. Between his death and the court hearing on the estate, the estate’s value had declined from \$258,000 to less than \$200,000. The bulk of its corpus was in securities listed on the New York Stock Exchange. With breathtaking hindsight clarity, the court stated:

It was common knowledge, not only amongst bankers and trust companies, but the general public as well, that the stock market condition was an unhealthy one, that values were very much inflated, and that a crash was almost sure to occur. In view of this fact, I think it was the duty of the executors to dispose of these stocks immediately upon their qualifications as executors. The loss to the estate resulting from their failure to act should be taken into consideration now in awarding them compensation for their services.

Id. at 43. The trustees escaped a surcharge only because the will authorized the executors to retain the stocks. For further discussion of this case, see Philip J. Ruse, *The Trustee and the Prudent Investor: The Emerging Acceptance of Alternative Investments as the New Fiduciary Standard*, 53 S. TEX. L. REV. 653, 663 (2012).

27. Dobris, *supra* note 1, at 54–55.

28. Tellus Report, *supra* note 17, at 18.

29. JOSH LERNER, YALE UNIVERSITY INVESTMENTS OFFICE: AUGUST 2006 2 (2011).

30. *Id.*

31. *Id.*

dollar in equity.³² This may have served Yale well in the 1930s and 1940s but was unsuited in the post-World War II bull markets of the 1950s and 1960s. Yale then substantially increased its exposure to equity investments, as did other colleges and universities.³³

A catalyst for this change was a task force report sponsored by the Ford Foundation that concluded that most college and university endowments were too conservative in their investment policies.³⁴ The changes in endowment asset allocation did not result from a serendipitous recognition by endowment managers who had read the work of financial economists and had concluded equities over time were a sounder investment than bonds. There were external pressures on colleges and universities and other nonprofits.

A. Total Return Investing

Commencing in the late 1960s and 1970s, nonprofits faced inflation, government cutbacks in support, limitations on tuition increases at educational organizations, and in some sectors of education, a decline in demand. These developments abetted new endowment investment strategies,³⁵ one of which was more liberal spending policies through what was termed “total return policies,” which permitted the expenditure of capital gains as well as traditional investment income.³⁶ Total return investing allowed charities with endowments to spend more for current needs, and they became increasingly dependent on endowment returns for the annual budget.

Total return investing encouraged endowment trustees to downplay conservative investment strategies in favor of maximizing endowment growth. Institutions whose endowments had been wholly invested in bonds

32. *Id.* At this time, the treasurer and trustees managed the endowment themselves, selecting individual bonds and high yield stocks for the portfolio. *Id.*

33. *Id.*

34. ADVISORY COMMITTEE ON ENDOWMENT MANAGEMENT, MANAGING EDUCATIONAL ENDOWMENTS: REPORT TO THE FORD FOUNDATION (1969). The legal impetus for the change in philosophy of investing and spending policies was another Ford Foundation sponsored report. WILLIAM E. CARY & CRAIG BRIGHT, THE LAW AND LORE OF ENDOWMENT FUNDS (1969).

35. Henry Hansmann, *supra* note 3, at 3, 10. Though gifts remained a significant aspect to endowment growth, particularly for smaller endowments, new approaches to investing provided the engine for growth. See FRED ROGERS, SOURCES OF ENDOWMENT GROWTH AT COLLEGES AND UNIVERSITIES 4 (2005), available at <https://www.commonfund.org/InvestorResources/Publications/White%20Papers/Sources%20of%20Endowment%20Growth.pdf>.

36. LONGSTRETH, *supra* note 22, at 24–25. A portfolio managed under a total-return policy perspective will consider the realized and unrealized gain/loss as part of the portfolio’s performance, in addition to the yield. The total-return endowment investor can achieve greater returns than that of a buy-and-hold endowment.

or preferred stock, offering a reliable income stream, diversified their portfolios by allocating more to domestic and international equities and a wide range of alternative investments.³⁷ Concurrently, there arose an increasing use of external professional investment managers who had been converted to the principles of Modern Portfolio Theory (“MPT”), which provided the intellectual foundation for a new aggressive approach to endowment management.³⁸

B. Modern Portfolio Theory

Beyond framing the prudent person rule, Justice Putnam in *Harvard College v. Amory* also offered some timeless investment advice: “Do what you will, the capital is at hazard.”³⁹ Unless an endowment is wholly invested in risk-free assets, such as United States Government Treasuries, that admonition remains true. All investments and investment strategies carry with them some risk in a sense of possible loss of real inflation adjusted value.⁴⁰ Modern Portfolio Theory provides a framework for managing an endowment’s risk through the diversification of the portfolio. No longer is the focus of risk tied to the selection of individual securities. Modern investment management examines the portfolio as a whole, rather than any given type of asset or a decision concerning that asset.

In common parlance, risk is the chance of loss. In finance, risk refers to volatility of return.⁴¹ A fundamental responsibility of an endowment board member or investment advisor is to manage the risk of the endowment’s portfolio in relation to the objectives of the fund. When an endowment’s board and its outside investment managers contend with risk, careful

37. According to the 2012 NCSE study of 831 colleges and university endowments in the fiscal year ending June 30, 2012, the average allocation for survey participants was: 15% in U.S. stocks, 11% in fixed income, 16% in international equities, 4% in cash or short term securities, and 53% in alternative investments. 2012 NCSE, *supra* note 4, at 5. For endowments of \$1 billion or more, the figures were 12% in domestic equities, 9% in fixed income, 16% in international equities, 3% in cash, and 54% in alternative investments. *Id.*

38. Tellus Report, *supra* note 17, at 19.

39. *Harvard Coll. v. Amory*, 26 Mass. 446, 468 (1830).

40. RESTATEMENT (THIRD) OF TRUSTS § 90 cmt. e (1) (1992).

41. Financial economists use risk to describe variation when the probabilities of possible outcomes are known. Professor Lynn Stout differentiates risk from uncertainty with the following example: a coin toss is risky but not uncertain. The probability of a coin coming up heads or tails is 50%. Returns on securities, however, are both risky and uncertain. No one knows with certainty whether securities prices will go up or down or the probability of the event. Lynn A. Stout, *The Mechanisms of Market Inefficiency: An Introduction to the New Finance*, 28 J. CORP. L. 635, 641 n.30 (2003). Volatility can be measured statistically by standard deviations, which indicate the degree to which an investment has varied in the course of arriving at its mean return over a given period. Investments with the greatest volatility have the highest standard deviation and should offer the greatest return.

attention must be given to the organization's tolerance for volatility. Several types of risk need be considered, including nonmarket diversifiable risk and market risk.⁴²

Nonmarket diversifiable risk, also known as *firm* or *specific risk*, relates to the risk of a particular firm or industry. One of the central findings of MPT is there are large and essentially costless gains to diversifying a portfolio.⁴³ Firm or industry risk can be minimized or reduced though holding a diversified portfolio of securities.⁴⁴ For example, if new car sales drop in a recession and companies that operate auto repair franchises thrive at such times and have equivalent risk and return characteristics, a portfolio with both types of companies will be less risky than if the endowment contains only equities of one type.

A diversified portfolio may contain securities across many asset classes or hold many different issuers within a particular asset class or industry. No one compensates an investor who fails to diversify so as to minimize risk. In other words, an investor cannot demand a higher return from holding a risky security if he or she could have diversified. The proverb that admonishes "don't put all of your eggs in one basket," neatly sums up diversifiable risk.⁴⁵ Diversification moderates risks that are inherent in

42. RESTATEMENT (THIRD) OF TRUSTS § 90 cmt. e (1) (1992).

43. John H. Langbein, *The Uniform Prudent Investor Act and the Future of Trust Investing*, 81 IOWA L. REV. 641, 647 (1996).

44. Professor Stout offers this example: when fuel prices rise, airline stocks fall while the price of oil stocks rise. Stout, *supra* note 41, at 641, n.30. Investors can eliminate industry-specific risk by having a diversified portfolio of securities covering several industries. *Id.* The benefit of diversification of investments is far from a new idea. In *The Merchant of Venice*, Antonio speaks of it:

I thank my fortune for it,
My ventures are not in one bottom trusted
Nor to one place;
Nor is my whole estate
Upon the fortune of this present year;

WILLIAM SHAKESPEARE, *THE MERCHANT OF VENICE* act 1, sc. 1.

45. The phrase is very old, and its origin is unknown. In 1666, Giovanni Torriano, in the Second Alphabet of Proverbial Phrases, stated: "To put all ones eggs in a panier, viz. to hazard all in one bottom [ship]." OXFORD ENGLISH DICTIONARY 91 (2d ed. 1991). Professor John Langbein offers a more contemporary example:

[T]he investor who buys bonds issued by weaker issuers (so called junk bonds) assumes greater risk of default than the investor who only buys Treasuries. The junk bonds pay higher interest rates, compensating the investor for bearing the greater risk. But no one pays the investor for concentrating a portfolio in too small a range of asset classes or issuers. Thus, under diversification causes the portfolio to bear uncompensated risk, risk that could be largely eliminated by spreading the investments across a wider range of asset classes and issues.

John H. Langbein, *Burn the Rembrandt? Trust Law's Limits on the Settlor's Power to Direct Investments*, 90 B.U. L. REV. 375, 388 (2010). A recent example of the costs that

investing and reduces risks that are not justified by the prospect of gain. A fiduciary has the responsibility of reducing or minimizing risk that can be avoided.⁴⁶

Another type of risk affects all securities, that is, the securities markets as a whole. A recession, a downgrade of sovereign debt, a world war, or an event such as 9/11 are examples of market risk, also called *systemic* or *systematic risk*. Market risk is non-diversifiable since it is common to all securities.⁴⁷ With non-diversifiable risk, the investor must be compensated for assuming greater risk by obtaining a higher expected return. Thus, there is a positive correlation between risk and expected return.⁴⁸ MPT was an incentive to increase portfolio risk because of the lure of greater returns that would result.

MPT assumes that investors have two desires: they seek higher returns and want those expected returns to be stable and certain. Because investors prefer certainty, higher risk investments must offer higher expected returns than lower risk investments. An investor need not avoid high risk investments because she can reduce risk by investing in securities of similar risks, which are not correlated to each other—e.g. automobile

failure to diversify may lead to involves the Cowboys Athletic Endowment of Oklahoma State University (“OSU”), which received a \$165 million donation from oil man Boone Pickens to transform OSU’s athletics. The endowment invested all of its assets in Pickens’ hedge fund, BP Capital, as well as in an insurance program where it purchased life insurance policies on older OSU alumni. The hedge fund lost most of its value, and OSU alumni declined to die in timely fashion. The endowment, which once had assets of \$400 million, declined to \$125 million. See Ann Zimmerman, *Boone Calls the Plays as Largess Complicates Life at Alma Mater*, WALL ST. J. July 7, 2012, at A1. This is not only an American problem. Nanzan University in Nagoya, Japan lost \$230 million from an investment in a derivative product called a “power-reverse dual currency bond” that was marketed to nonprofit investors. See Hideyuki Sano, *Japan’s Temples, Universities, Hospital’s Haunted by Yen Bets*, REUTERS (Jul. 23, 2013), <http://uk.reuters.com/article/2013/07/22/us-japan-derivatives-idUKBRE96L0WI20130722>.

46. UPMIFA, *supra* note 1 § 4(e)(4); NAT’L CONF. ON COMM’RS OF UNIF. STATE LAWS, UNIF. PRUDENT INVESTOR ACT § 3 (1994) [hereinafter UPIA].

47. Langbein, *supra* note 43, at 648.

48. Expected return is a measure of return that uses the concept of probability to take into account the volatility or uncertainty of outcomes. It is the arithmetic mean of all possible outcomes. An example is you flip a coin, there is a 50% chance of heads and a 50% chance of tails. If you wager one dollar on the flip, you will gain two dollars if you win and nothing if you lose, and the expected return is one dollar. This is determined by multiplying the probability of each possible outcome: $.5 \times \$2 + .5 \times 0 = \1.00 . WILLIAM KLEIN, JOHN C. COFFEE & FRANK PARTNOY, BUSINESS ORGANIZATION AND FINANCE 242 (11th ed. 2011). This approach, the mean variance portfolio selection model, was developed by Harry Markowitz and posits that returns can be estimated by the historical mean of an asset’s returns, and risk could be quantified by the historical volatility of the returns, the variance. Harry Markowitz, *Portfolio Selection*, 7 J. FIN. 77 (1952).

manufacturers and auto repair chains of equivalent risk.⁴⁹ The higher the market or systemic risk an investor accepts, the higher the rate of return should accompany the increased risk. If two assets give the same expected return, the rational investor should always select the asset with the lower risk. Correspondingly, if two assets returns have equivalent risks, the rational investor should always select the asset with the higher expected return.

By diversifying risk throughout a portfolio, investors can achieve greater portfolio returns without taking greater overall portfolio risks.⁵⁰ A portfolio that offers the highest returns with the least variance is termed efficient.⁵¹ Individuals and institutions have differing appetites for risk. Each efficient portfolio has the highest level of return for an acceptable level of risk. Rational investors select the portfolio that best serves their taste for aggressive objectives or a defensive (conservative) strategy.⁵² They can combine high risk investments with risk-free ones to lower a portfolio's overall risk. The development of the Black-Scholes Options pricing model in 1973 further enabled investment managers to quantify risk through valuing the price of options based on five variables.⁵³ This permitted investment managers to purchase or sell options to hedge portfolio risk.⁵⁴

49. Stewart E. Sterk, *Rethinking Trust Law Reform: How Prudent is Modern Prudent Investor Doctrine*, 95 CORNELL L. REV. 851, 858 (2010).

50. A measure of a security's volatility of return relative to the market as a whole is called the beta. The market as a whole has a beta of one. A beta can be derived for individual securities. The individual beta compares its volatility to that of the market beta. The Capital Asset Pricing Model ("CAPM") provides a formula for measuring expected returns on any given investment at a particular measure of risk related to the return. CAPM states that the expected risk premium on each investment is proportional to its beta. In a competitive market, the expected risk premium varies in direct proportion to the market beta. RICHARD A. BREALEY, STEWART C. MYERS & FRANKLIN ALLEN, *PRINCIPLES OF CORPORATE FINANCE* 189 (10th ed. 2011). CAPM allows investors to assess whether they have achieved an appropriate level of return for the risk they've assumed. STEVE LYDENBERG, *MARKETS AT RISK: THE LIMITS OF MODERN PORTFOLIO THEORY* 42 (2009), available at www.domini.com/common/pdf/Markets-at-Risk.pdf.

51. BREALEY, MYERS & ALLEN, *supra* note 50, at 192–93.

52. PETER L. BERNSTEIN, *AGAINST THE GODS: THE REMARKABLE STORY OF RISK* 257 (1996). Optimal portfolios are achieved by examining the historical mean volatility of an asset and its correlation to other asset. If the stock market declines, an optimally diversified portfolio will consist of asset classes that will rise in such situations.

53. The variables are the current market price of the underlying stock, the exercise price of the option, the continuously compounded risk free rate of return expressed on an annual basis, the time remaining before expiration of the option, and the volatility of the underlying stock. WILLIAM W. BRATTON, *CORPORATE FINANCE* 192–3 (7th ed. 2012). The Black-Scholes Pricing Model enabled any derivative security to be priced. *Id.*

54. Douglas O. Edwards, *An Unfortunate "Tail": Reconsidering Risk Management Incentives After the Financial Crisis of 2007-2009*, 81 U. COLO. L. REV. 247, 264–65 (2010).

The second prong of MPT is the Efficient Capital Markets Hypothesis (“EMH”). In 1953, an English statistician, Maurice Kendall, presented a paper to the Royal Statistical Society on the behavior of stock and commodity prices.⁵⁵ Kendall had expected to find regular price cycles, but to his surprise, they did not exist.⁵⁶ Each price change of a security seemed to wander, as if a coin was tossed.⁵⁷ In other words, price changes followed a random walk.

This means that today’s price change of a stock gives investors almost no clue as to the change of a stock’s price tomorrow. This does not suggest that the determinants of price changes are random, but they are determined by flows of relevant new information that arise, unrelated to past price movements.⁵⁸ If past price changes could predict future price changes, investors could make easy profits, but in a competitive market such profits don’t last. When investors try to take advantage of the information in past prices of a security, its price adjusts immediately. As a result, all the information in past prices is reflected in today’s stock price, not tomorrow’s.⁵⁹

EMH assumes that that in an efficient stock market, the prices of securities reflect all available information. Therefore, securities are appropriately or efficiently priced.⁶⁰ This means prices of securities reflect

55. Maurice G. Kendall, *The Analysis of Economic Time-Series-Part I. Prices*, 117 J. OF THE ROYAL STATISTICAL SOCIETY 11 (1953).

56. BREALEY, MYERS & ALLEN, *supra* note 50, at 314.

57. *Id.* at 314–16. Remember, the odds of heads or tails on any coin flip is always 50%. Stout, *supra* note 41, at 646.

58. Eugene F. Fama, *Efficient Capital Markets: A Review of Theory and Empirical Work*, 25 J. FIN. 383, 413–14 (1970). Eugene F. Fama, *Efficient Capital Markets: II*, 46 J. FIN. 1575 (1991). Professor Fama was awarded the 2013 Nobel Prize for Economic Science. See also Ronald J. Gilson & Reinier H. Kraakman, *The Mechanisms of Market Efficiency*, 70 VA. L. REV. 549 (1984).

59. BREALEY, MYERS & ALLEN, *supra* note 50, at 317. In the real world there are thousands of investment analysts and millions of investors. Why would so much money be spent on trying to discover information which will yield profits when EMH posits one cannot consistently beat the market? The EMH was modified in two ways: the market price reflects the informational level of the best informed trader, and market efficiency is a matter of degree. Prices reflect the value of the firm, only if all traders have full information. BRATTON, *supra* note 53, at 24. When prices get out of line, arbitrageurs and rational investors will swoop in and make costless profits which will bring securities prices back into line. Sanford J. Grossman & George E. Stiglitz, *On the Impossibility of Informationally Efficient Markets*, 70 AM. ECON. REV. 393 (1980).

60. Lydenberg, *supra* note 50, at 43. There are several claims about the efficiency of prices. The more modest is that prices react quickly to new information but do not necessarily relate to the intrinsic value of the firm. Prices under this view are informationally or speculatively efficient, which means that investors cannot acquire information to make advantageous purchases or sales before the information is reflected in the security’s price. A stronger claim asserts that market prices react and reflect the intrinsic value of the firm. This second type of efficiency is termed “intrinsic value” or “allocative efficiency.” BRATTON, *supra* note 53, at 23.

accurately the expected risk and return of those securities because securities prices incorporate the best available information about those securities.⁶¹

The heart of the EMH was that the market was rational and pervasive market forces invariably pushed securities' prices toward their correct, fundamental values.⁶² Two conclusions follow: 1) if the EMH is correct, an individual investor or firm cannot develop an investing or trading strategy that consistently beats the market because the market price already reflects the information on which the investor acts; and 2) no investment is a *per se* bad investment because the investment's price already factors in the investment's risk.⁶³ Although endowments commenced investing in common stocks and reaped the benefits of bull markets, it was not until the development of MPT in the mid-1970s that, from a theoretical perspective, equities were considered a more stable investment than bonds.

III. THE NEW ENDOWMENT MODEL OF INVESTING

The core principles of MPT—that the correlation between risk and return can bring greater returns and additional risk can be managed through diversification of investments—made endowment managers more risk tolerant. Initially, portfolios shifted into equities in efficient domestic markets. Then, they moved into other asset classes and markets, some publicly traded, and others that were not.⁶⁴ Diversification became global. Endowments increased their use of derivatives, financial instruments that can hedge risk or be mere speculative wagers.⁶⁵

61. There is disagreement over whether prices in an efficient market are “informationally efficient” or “allocatively efficient.” An informationally efficient market responds quickly to new publicly available information. Robert M. Daines & Jon D. Hanson, *The Corporate Law Paradox: The Case for Restructuring Corporate Law*, 102 *YALE L.J.* 577, 615 (1992). An allocatively efficient market reflects the best estimate of the present value of a firm's future earnings, that is, its intrinsic value. *Id.*

62. JUSTIN FOX, *THE MYTH OF THE RATIONAL MARKET* 192 (2009).

63. Sterk, *supra* note 49, at 860–61. The second conclusion means that the risk intrinsic to any marketable security is presumptively already discounted into the current price of the security. Langbein, *supra* note 43, at 649.

64. Tellus Report, *supra* note 17, at 19. There are distinctions between traditional asset classes—cash or cash equivalents, fixed income (bonds), publicly traded equities (stocks)—and nontraditional or ‘alternative’ asset classes, such as private equity and venture capital, hedge funds, and ‘real assets’ from commodities to real estate to timber. *Id.* at 19. Within asset classes, diversification means broad exposure to representative markets. *Id.*

65. Derivatives are agreements between parties that one will pay the other a sum of money that is determined by whether or not a particular event will occur in the future to some underlying financial asset, such as an asset price, interest rate, currency exchange, or almost anything else. The value of the derivative is based on the value of the underlying asset. Lynn A. Stout, *The Legal Origin of the 2008 Credit Crisis* (UCLA Sch. of Law, Law-Econ Research Paper, 2011), available at

Beginning in the 1990s, larger endowments, primarily those with over \$1 billion in assets, undertook a new approach to portfolio management called the “endowment model of investing.” This phrase describes a theory and practice of investing characterized by a highly-diversified, long-term portfolio that differs from a traditional stock/bond mix in that it includes allocations to less-traditional and less-liquid asset categories, such as private equity and real estate, as well as absolute return strategies.⁶⁶ These are called alternative investments. Basically, an alternative investment is one that is not cash, stocks, or bonds—the three traditional asset classes. “Alternate investments” is a loose phrase comprising hard assets such as minerals and timber to financial derivatives, real estate, venture capital, and private equity. They are attractive to endowments because they usually have a low correlation to traditional asset classes, which may boost overall returns. They are less regulated, transparent, and liquid than traditional asset classes, and they often have substantial minimum capital requirements and charge high fees.

The endowment model of investing tries to find two or more related assets mispriced relative to each other. Then by buying the cheap asset, selling the expensive asset, and eliminating as much ancillary risk as possible, the objective is to produce excess returns with little or no correlation to the underlying market actions. The endowment might have substantial long and short positions to capture the full potential of a small mispricing.⁶⁷

Yale, Harvard, and other wealthy endowments became proponents of this widespread shift into alternative, arcane, and illiquid investments, which were in emerging, inefficient, and nontraditional markets.⁶⁸ The justification for this approach is explained by one of the endowment model’s most successful practitioners, David F. Swenson, Chief Investment Officer of the Yale Endowment: “Alternative assets, by their very nature tend to be less efficiently priced than traditional marketable securities,

<http://ssrn.com/abstract=1770082>.

66. JANE L. MENDILLO, HARVARD MANAGEMENT COMPANY ENDOWMENT REPORT, MESSAGE FROM THE CEO 3 (Sept. 2010), available at http://cdn.wds.harvard.edu/2010_endowment_report_09_09_2010.pdf. Absolute return strategies include short selling, futures, derivatives, arbitrage, leverage (borrowing or lending funds), and unconventional assets, similar to hedge funds. An absolute return strategy attempts to provide positive returns independent from markets’ movements. YALE ENDOWMENT REPORT 2012, *supra* note 13, at 10. Absolute strategies differ from relative strategies in that the latter seek to top a benchmark, for example, the Dow Jones Industrials.

67. ANDRÉ PEROLD & ERIK STAFFORD, HARVARD MANAGEMENT COMPANY 3 (2010).

68. In 1990 Yale had 75% of its endowment in domestic marketable securities. YALE ENDOWMENT REPORT 2012, *supra* note 13, at 3. It shrank to 5.8% in 2012. *Id.* The average endowment model investment in domestic equities is 15%. 2012 NCSE, *supra* note 4, at 5.

providing an opportunity to exploit market inefficiencies through active management.”⁶⁹ However, these same alternative investments may offer little transparency or liquidity, carry higher risks than traditional asset classes, and may involve speculative trading strategies.⁷⁰ For many years, the highest returns were earned by the largest endowments, which had access to the most sophisticated money managers and the in-house expertise to evaluate a complex mix of alternative investments.

IV. LEGAL RESPONSES TO THE NEW PRINCIPLES OF FINANCE

The promise of flexibility conveyed by the prudent person standard failed in application because interpretations rendered by judges and commentators were more receptive to the legal principle of *stare decisis* than to the evolving economic principles that inform investment management.⁷¹ Trustees worried about their legal liabilities. Cary and Bright’s 1969 study concluded that there was little developed law restricting the power of trustees to invest endowment funds to achieve growth, and the impediments to such freedom of action were more legendary than real.⁷² However, the lack of constraining legal precedent was insufficient for institutional trustees to ignore prudence and the conservatism inherent in trust law principles.⁷³ Modern portfolio

69. YALE ENDOWMENT REPORT 2010, *supra* note 12, at 9. Alternative investments include hedge funds, which traditionally were pools of capital used to purchase securities on both sides of a market risk. Today, the term connotes any lightly regulated investment pool that engages in a wide range of investment strategies, some of which are high-risk, which seek to generate superior long-term returns by exploiting market inefficiencies. Alternative investments also include private equity, such as venture capital and leveraged buyout funds, which take stakes in start-up businesses or buy firms primarily with borrowed money in the hope of cashing out at a later time when the firm is acquired by another company or goes public. The largest endowments also achieve diversification by investing in real assets, such as real estate, oil and gas, and timber.

70. Tellus Report, *supra* note 17, at 20. Investors demand a premium for placing assets in an illiquid investment. The illiquidity premium refers to the fact that the investment cannot quickly be converted to cash. *See* Conti-Brown, *supra* note 3, at 729. In times of financial need or extreme stress in the markets, an illiquid investment cannot be turned into cash except at a great loss or not at all. The advantage of illiquid investments is that the holder does not have to pay a liquidity premium as part of the price, thereby increasing the return on the investment. Those who may need cash in the short term cannot commit to such long term investments. From a long term perspective, this works well, but if any of the illiquid funds are needed in the present as they were in 2008 and cannot be obtained, the university will have to borrow or cut the budget or both. *Id.* at 731–32.

71. *See* Harvard Coll. v. Amory, 26 Mass. 446, 466–68 (1830).

72. CARY & BRIGHT, *supra* note 34, at 60.

73. *See* Edward C. Halbach, Jr. *Trust Investment Law in the Third Restatement*, 77 IOWA L. REV. 1151, 1153–54 (1992); Jeffrey N. Gordon, *The Puzzling Persistence of the Constrained Prudent Man Rule*, 62 N.Y.U. L. REV. 52 (1987); JAMES J. FISHMAN

management demanded a new paradigm of prudence, which embraced modern economic theory and received unquestioned legal approval.⁷⁴

Commencing in the late 1960s, several legislative and regulatory initiatives departed from the traditional prudence standard in defining the duties of fiduciaries of pension funds, endowments, and charities; recognized the need for diversification; permitted delegation of responsibility; and adopted modern portfolio theory.⁷⁵ In 1969, Congress enacted a restrictive enforcement regime over private foundations, which included a prohibition on jeopardy investments.⁷⁶ The Treasury regulations interpreting that section of the Internal Revenue Code accepted the principles of MPT and stated that in the exercise of the requisite standard of care and prudence, “foundation managers may take into account . . . the need for diversification within the investment portfolio.”⁷⁷ The Employee Retirement Income Security Act of 1974 (“ERISA”) and its regulations applicable to pension funds utilized the corporate standard of care and prudence.⁷⁸ It also adopted MPT by mandating that a fiduciary shall discharge his duties by “diversifying the investments of the plan so as to minimize the risk of large losses, unless under the circumstances it is clearly prudent not to do so.”⁷⁹

Of particular importance to endowment managers was the adoption, eventually in forty-eight states, of the Uniform Management of Institutional Funds Act of 1972 (“UMIFA”), applicable to charitable organizations.⁸⁰ UMIFA clarified legal concerns by authorizing governing boards to invest an endowment fund with the standards of care and prudence applicable to corporate trustees.⁸¹ It gave specific investment authority for governing boards to invest in a wide range of personal and real property,⁸² and it clarified the right of nonprofits to delegate and to contract with independent financial advisors.⁸³ The section dealing with the standard of care was derived from the Treasury’s private foundation regulations dealing with

& STEPHEN SCHWARZ, *NONPROFIT ORGANIZATIONS: CASES AND MATERIALS* 208 (4th ed. 2010).

74. LONGSTRETH, *supra* note 22, at 152–57.

75. *Id.* at 4.

76. I.R.C. § 4944 (2012). See FISHMAN & SCHWARZ, *supra* note 73, at 794–95, for a simplified description of this complicated area of the law.

77. 26 C.F.R. § 53.4944–1(a)(2)(i) (1973).

78. Employee Retirement Income Security Act of 1974 § 404(a)(1)(B), 29 U.S.C. § 1104(a)(1)(B) (2012); *see also* LONGSTRETH, *supra* note 22, at 32–36.

79. Employee Retirement Income Security Act § 404(a)(1)(C).

80. NAT’L CONF. ON COMM’RS OF UNIF. STATE LAWS, UNIF. MGMT. OF INSTITUTIONAL FUNDS ACT § 2 (1972), *available at* <http://www.nacua.org/documents/umifa.pdf> [hereinafter UMIFA].

81. *Id.* at § 2.

82. *Id.* at § 4.

83. *Id.* at § 5.

investment responsibility of managers of private foundations.⁸⁴ UMIFA required governing boards to exercise “ordinary business care and prudence” under the facts and circumstances prevailing at the time of the action or decision.⁸⁵ Boards could consider the long and short term needs of the institution in carrying out its exempt purposes, its present and anticipated financial requirements, expected total return on its investments, price level trends, and general economic conditions.⁸⁶ The UMIFA comment to the section stated that the standard of care is comparable to the business corporate director rather than that of a private trustee.⁸⁷

In the late 1980s and early 1990s came the drafting of uniform laws relating to trusts and the third revision of the influential Restatement of Trusts.⁸⁸ All adopted MPT and a new definition of prudent investment management. The first part of the restatement project appeared in 1992 with the publication of a volume on the prudent person rule.⁸⁹ Section 227 presented the standard of prudent investment, and the general comment to that section offered a detailed discussion of MPT as the foundation of prudent investing.⁹⁰

In 1994, the National Conference of Commissioners on Uniform State Laws approved the Uniform Prudent Investor Act (“UPIA”), which has been adopted in forty-four states.⁹¹ UPIA regulates the investment responsibilities of trustees of private and charitable trusts and explicitly adopted the MPT,⁹² as did the Uniform Trust Code approved in 1994, which has been adopted in whole or part by twenty-five states.⁹³

A revision of the UMIFA commenced in 2006. It bootstrapped upon the principles of the UPIA and was renamed the Uniform Prudent Management

84. 26 C.F.R. § 53.4944-1(a)(2)(i) (1973).

85. UMIFA, *supra* note 80, at § 6.

86. *Id.*

87. *Id.* at § 5.

88. UPIA, *supra* note 46.

89. RESTATEMENT (THIRD) OF TRUSTS: PRUDENT PERSON RULE § 227 (1992).

90. *See id.* at cmt.e (1)-p, renumbered as § 90 in 2007. Renumbered sections are used hereinafter.

91. UPIA, *supra* note 46.

92. *Id.* at § 2b. The UPIA offers a template for the process of prudent investing: (1) the standard of prudence is applied to any investment as part of a total portfolio rather than to individual investments (2) the trade-off in all investing between risk and return is a fiduciary’s central consideration; (3) there are no categorical restrictions on types of investments; the trustee can invest in anything that plays an appropriate role in achieving the risk/return objectives of prudent investing; (4) diversification of investments is part of the definition of prudent investing; and (5) delegation of investment and management functions is specifically permitted. *Id.* at § 2(9). *See generally* Langbein, *supra* note 43.

93. UNIF. TRUST CODE § 804 cmt. (2010). The comment to this section states in part: “This section is similar to Section 2(a) of the Uniform Prudent Investor Act and Restatement (Third) of Trusts: Prudent Investor Rule § 227 (1992).” *Id.*

of Institutional Funds Act (“UPMIFA”).⁹⁴ The revision has been adopted by forty-nine states,⁹⁵ and it provides a modern articulation of the prudence standards for the management and investment of charitable funds and for endowment spending.⁹⁶ UPMIFA section 3 specifically incorporates the principles of MPT and the prudence standard found in the UPIA.⁹⁷ It authorizes governing boards to invest in a wide range of personal and real property,⁹⁸ and it sets forth many of the factors a charity should take into account in making a prudent investment decision.⁹⁹ Section 3 also incorporates the general duty to diversify investments and consider the risk and return objectives of the fund.¹⁰⁰

94. UPMIFA, *supra* note 1. UPMIFA applies to charitable “institutions,” a category that includes incorporated or unincorporated organizations operated exclusively for educational, religious, charitable, or other eleemosynary purposes, or government entities to the extent they hold funds exclusively for those purposes. *Id.* at § 2(4). It also applies to trusts managed by a charity. *Id.* The revisers’ goal was that standards for managing and investing institutional funds should be the same regardless of whether a charity is organized as a trust, corporation, or some other entity. *Id.* at Prefatory Note. However, the rules do not apply to funds of wholly charitable or split-interest trusts (such as charitable remainder trusts) managed by a corporate or individual trustee. *Id.* In most states, those types of charitable trusts are subject to comparable rules under modern prudent investor statutes. *Id.*

95. The lone holdout is Pennsylvania.

96. The commentary to Section 3 states in part:

Purpose and Scope of Revisions. This section adopts the prudence standard for investment decision making. The section directs directors or others responsible for managing and investing the funds of an institution to act as a prudent investor would, using a portfolio approach in making investments and considering the risk and return objectives of the fund. The section lists the factors that commonly bear on decisions in fiduciary investing and incorporates the duty to diversify investments absent a conclusion that special circumstances make a decision not to diversify reasonable.

UPMIFA, *supra* note 1, at § 3 cmt. Thus, this section follows modern portfolio theory for investment decision-making.

97. *Id.* at § 3.

98. *Id.* at § 3(e).

99. *Id.*

100. *Id.* Except as otherwise provided by a gift instrument, the following rules apply:

(1) In managing and investing an institutional fund, the following factors, if relevant, must be considered:

(A) general economic conditions;

(B) the possible effect of inflation or deflation;

(C) the expected tax consequences, if any, of investment decisions or strategies;

(D) the role that each investment or course of action plays within the overall investment portfolio of the fund;

(E) the expected total return from income and the appreciation of investments;

(F) other resources of the institution;

UPMIFA's standard of care is derived from the Internal Revenue Code's private foundation regulations dealing with investment responsibility of managers of private foundations.¹⁰¹ Boards must exercise "the care an ordinary prudent person in a like position would exercise" under the facts and circumstances prevailing at the time of the action or decision.¹⁰² They may consider the long and short term needs of the institution in carrying out its exempt purposes, its present and anticipated financial requirements, expected total return on its investments, price level trends, and general economic conditions. The commentary to the section states that the standard of care is comparable to the business corporate director rather than a private trustee. Section 5 adopts the delegation standards of UPIA section nine,¹⁰³ and it clarifies the right of nonprofit fiduciaries to delegate and to contract with independent financial advisors.¹⁰⁴

UPMIFA's statement of its prudence standard attempts to straddle between the cautionary language of trust law and the more lenient attitude toward the duty of care under corporate principles, as evinced in the Model Nonprofit Corporation Act (Third).¹⁰⁵ The UPMIFA comment says that even though the nonprofit standard is nominally similar to the corporate standard—the words are the same—there is recognition that the entity is a

(G) the needs of the institution and the fund to make distributions and to preserve capital; and

(H) an asset's special relationship or special value, if any, to the charitable purposes of the institution.

(2) Management and investment decisions about an individual asset must be made not in isolation but rather in the context of the institutional fund's portfolio of investments as a whole and as a part of an overall investment strategy having risk and return objectives reasonably suited to the fund and to the institution.

(3) Except as otherwise provided by law other than this [act], an institution may invest in any kind of property or type of investment consistent with this section.

(4) An institution shall diversify the investments of an institutional fund unless the institution reasonably determines that, because of special circumstances, the purposes of the fund are better served without diversification.

(5) Within a reasonable time after receiving property, an institution shall make and carry out decisions concerning the retention or disposition of the property or to rebalance a portfolio, in order to bring the institutional fund into compliance with the purposes, terms, and distribution requirements of the institution as necessary to meet other circumstances of the institution and the requirements of this [act].

Id.

101. See 26 C.F.R. § 53.4944-1(a)(2)(i) (1973).

102. UPMIFA, *supra* note 1, at § 3(b).

103. *Id.* at §5 cmt.

104. *Id.*

105. MODEL NONPROFIT CORP. ACT § 8.30 (1987).

charity and not a business corporation.¹⁰⁶ Significantly, the language of section 3 dealing with the standard of conduct avoids the word “caution,” which is found in the trust law equivalent.¹⁰⁷

The comment adds that trust law norms already inform managers of nonprofit corporations in their decision-making, but then states that trust precedents have routinely been found to be helpful but not binding authority.¹⁰⁸ It may be that this language was the result of a political compromise among the drafters and interest groups. It does not offer sufficient guidance as to the standard that should be used. In light of the financial crisis’ impact on endowments in 2008, if there is one guideline that is needed to remind fiduciaries of their responsibilities, it is caution.

V. CRACKS IN THE FOUNDATION OF MODERN PORTFOLIO THEORY

By the time the legal framework caught up with and endorsed the MPT, fissures had appeared in its theoretical framework. In the 1980s, empirical studies and unexpected events demonstrated anomalies that suggested the markets were not as efficient as the theory postulated.¹⁰⁹

MPT assumed that risk and return could be accurately calculated, as could the covariances between them. An efficient securities market would reflect their fundamental value.¹¹⁰ However, securities’ market prices may not be good indicators of rationally evaluated economic value. Think of the many corporate executives and investment analysts who believe certain

106. The standard is consistent with the business judgment standard under corporate law, *as applied to charitable institutions*. UPMIFA, *supra* note 1, at § 3.

107. *See* UNIF. TRUST CODE § 804 (2010); UPIA, *supra* note 46 § 2(a); RESTATEMENT (THIRD) OF TRUSTS § 90 (1992).

108. UPMIFA, *supra* note 1, at § 3 cmt.

109. One example is that closed-end funds trade at a discount to their fundamental value. A closed-end fund is an investment vehicle with a limited number of shares. It is closed-end because only a limited number of shares are issued and typically shares are not redeemable until the fund liquidates. Closed-end fund shares are issued in a public offering and thereafter purchased on a secondary market. In an open-end fund, the fund management creates new shares in exchange for consideration or redeems outstanding shares. The price of a share in a closed-end fund that contains publicly traded securities and pays dividends equal to the dividends on the stocks in its portfolio is valued on the basis of those dividends. BRATTON, *supra* note 53 at 15, 26, 774–75. The fundamental value of the fund is the net asset value of the securities in it divided by the number of shares in the fund. However, instead of closed-end funds trading at their fundamental value as would be expected in an efficient market, they usually trade at discounts, though occasionally they trade at a premium. These discounts cannot be explained in terms of fundamental value factors. *See* Reiner Kraakman, *Taking Discounts Seriously: The Implications of “Discounted Share Prices as an Acquisition Motive*, 88 COLUM. L. REV. 891, 902–05 (1988).

110. Fundamental value means that an asset is valued at its future cash flows and the opportunity cost of capital. If the price equals the fundamental value, the expected rate of return is the opportunity cost of capital. BREALEY, MYERS & ALLEN, *supra* note 50, at 321.

securities are underpriced or overpriced. The statement that diversification reduces risk without reducing expected return is mathematically true, assuming there exists a reliable mechanism for ascertaining the risk and expected return of individual investments. However, some scholarship questions whether market price accurately reflects risk or return.¹¹¹

Harry Markowitz, who developed the relationship between maximizing a portfolio's expected return for a given amount of risk, never suggested that the fundamental valuation of a security was easily obtainable.¹¹² It may be impossible to measure whether stocks are correctly valued because no one can measure true value with precision.¹¹³ Thus, we do not know if market levels are consistent with fundamentals (i.e. the prospects for profits or dividends). Periodically, investors exhibit an irrational exuberance which may push stock prices to an unjustifiable level. Eventually, such bubbles burst, and investors then may become unduly negative.¹¹⁴

The "dot com" bubble of 1995 until 2000 led to a NASDAQ Composite Index rise of five-hundred and eighty percent, only to decline by October 2002 by seventy-eight percent from its peak.¹¹⁵ The Japanese bubble of 1985 until 1990 and the real estate bubble of the 2000s are other examples of bubbles and bursts where prices diverged from the fundamental values predicted by the EMH.¹¹⁶ However, crashes have occurred without the antecedent bubble. On October 19, 1987, the New York Stock Exchange Dow Jones Index declined by over 500 points, and by the end of the month

111. Sterk, *supra* note 49, at 868. One of the theoretical criticisms of the EMH is that it cannot be empirically tested.

[W]e cannot test the validity of the efficient market hypothesis alone; every test of EMH also assumes some particular theory of what the 'right' price for an asset is. These asset pricing models establish the benchmark of 'normal' returns in order to determine the efficiency of the market. Consequently, every empirical test of the efficient market hypothesis is a 'joint test' of both the hypothesis and an asset pricing model. If the test yields evidence consistent with market efficiency, it also yields evidence consistent with the asset pricing model. If however, the test yields anomalous evidence, either the market is inefficient or the asset pricing model used is incorrect (or possibly both EMH and the pricing model are wrong).

Jeffrey N. Gordon & Lewis A. Kornhauser, *Efficient Markets, Costly Information and Securities Research*, 60 N.Y.U. L. REV. 761, 772 (1985).

112. Markowitz, *supra* note 48, at 81 n.7 ("This paper does not consider the difficult question of how investors do (or should) form their probability beliefs").

113. BREALEY, MYERS & ALLEN, *supra* note 50, at 325.

114. *Id.* The phrase *irrational exuberance* was first used by the former chairman of the Federal Reserve, Alan Greenspan. Alan Greenspan, *The Challenge of Central Banking in a Democratic Society*, Remarks at Annual Dinner and Francis Boyer Lecture of The American Enterprise Institute for Public Policy Research (Dec. 5, 1996) (transcript available at <http://www.federalreserve.gov/boarddocs/speeches/1996/19961205.htm#pagetop>).

115. BREALEY, MYERS & ALLEN, *supra* note 50, at 325.

116. *Id.* at 325-26.

had dropped by one third, raising doubts about the theory.¹¹⁷ The financial crisis of 2008 called into question the intellectual assumptions upon which modern investing is based, as well as the legal and regulatory regimes influenced by the theory.¹¹⁸

A. Evidence of Market Inefficiencies

As the MPT gained adherents, puzzling evidence emerged of anomalies in the EMH where actual prices differed from fundamental values. These anomalies concerned both short term effects and long lasting inefficiencies. Some could be explained, but others seemed inexplicable, even bizarre.¹¹⁹ Empirical studies challenged the EMH assumptions,¹²⁰ leading to an

117. BRATTON, *supra* note 53, at 39–40.

118. FINANCIAL SERVICES AUTHORITY, THE TURNER REVIEW: A REGULATORY RESPONSE TO THE GLOBAL BANKING CRISIS 39–47 (2009) [hereinafter TURNER REVIEW], available at http://www.fsa.gov.uk/pubs/other/turner_review.pdf. Lord Adair Turner, who was the chairman of the U.K.'s Financial Services Authority at the time, prepared the report.

119. Empirical research discovered: 1) The January Effect: returns are higher in January than in other months and lower on Monday than on other days of the week. Most of the daily return comes at the beginning and end of the day. Because of transaction costs involving infrequent trading, this finding and others do not necessarily lead to successful trading activity; 2) The Small Firm Effect: longer term inefficiencies included stocks with the lowest market capitalizations that performed substantially better than those with the highest capitalizations; 3) The Earnings Announcement Puzzle: stock performance following the announcement of unexpectedly good or bad earnings indicated the 10% of securities with the best earnings news outperformed those with the worst news by about 1% per month over a six month period following the announcement. Investors apparently underreact to earnings announcements and become aware of the full significance only as further information arrives; 4) The New Issue Puzzle: when initial public offerings (“IPOs”) come to market, investors rush to buy and receive an immediate capital gain if they sell. However, these early gains turn into losses, if the investor purchased the stock immediately following each IPO and held onto the issue for five years. From 1970 until 2007, the average annual return would have been 3.8% less than the return on a portfolio of similarly sized stocks. *Id.* at 322. These and other conclusions have been criticized or rationalized by other scholars. *Id.* at 323; 5) The Sunshine Effect: A study of stock returns in twenty-six countries found a significant positive correlation between morning sunshine and stock returns. David Hirschliefer & Tyler Shumway, *Good Day Sunshine: Stock Returns and Weather*, 58 J. FIN. 1009 (2003). Rain and snow are unrelated to stock returns. Another “mood and markets” study found that in a cross-section of thirty-nine countries using international soccer results as a primary mood variable, losses in soccer matches have an economically and statistically significant negative effect on the losing countries’ stock market. For example, a loss in the World Cup elimination stage leads to a next day abnormal stock return of minus forty-nine basis points. See Alex Edmans, Diego Rivera & Øyvind Norly, *Sports Sentiment & Stock Returns*, 62 J. FIN. 1967 (2007).

120. Some of the other diversions from how the EMH is expected to perform include: 1) volatility: stock prices overreact to changes in fundamentals; stock price volatility over the past century appears to be too high to be attributable to new information about dividends; return volatility is greater when the market is open than when it is closed; suggesting the market makes its own news, which is not keyed to

ongoing debate over the efficiency of the markets.¹²¹

B. Evidence of Investor Irrationality: The Rise of Behavioral Finance

An important assumption of the EMH was that investors were rational agents and utility maximizers. Irrational investors, those who bought or sold on the basis of a hunch or other non-rational theories, were irrelevant to the market. They would be taken advantage of by arbitrageurs,¹²² and their systematic losses would drive them from the market.¹²³

Economics assumes investors, firms, and their managers act as if they are rational; the fields of sociology and psychology question this assumption.¹²⁴ Behavioral finance applies the teachings of psychology to the behavior of investors, focusing on experiments that have discovered

fundamentals; 2) timing: documented patterns in stock returns over weekends, holidays and different calendar periods affect returns—returns tend to be negative on Mondays; serial correlation—over short periods of time, price changes tend to persist contradicting the random walk model; 3) contrarian investment strategies: “value” investing strategies produce high returns over time, which means that high market to book value firms are growth stocks, favored by the market earn lower returns than inexpensive “value” stocks; growth stock investors overreact optimistically to recent history of good news about those stocks; 4) sentiment: investor sentiment may explain serially correlated returns. For a description of these anomalies and citations to the literature, see BRATTON, *supra* note 53, at 25–28.

121. See Eugene F. Fama & Kenneth R. French, *Multi-Factor Explanations of Market Pricing Anomalies*, 51 J. FIN. 55 (1996); Burton Malkiel, *The Efficient Market Hypothesis and Its Critics*, 17 J. ECON. PERSP. 59 (2003).

122. Arbitrage is a strategy that exploits market efficiencies and generates superior returns if and when prices return to their fundamental value. The arbitrageur buys an underpriced security, pushing up its price, and sells an overvalued security, pushing down that security's price. The arbitrageur's profit is the difference between the irrational price and the fundamental one. However, there are risk and trading costs. BREALEY, MYERS & ALLEN, *supra* note 50, at 327–28.

123. Gilson & Kraackman, *supra* note 58, at 583 (discussing that “market discipline in the form of heavy trading losses will restrain idiosyncratic traders and may even eliminate them through a ‘Darwinian’ process of natural selection”); Stout, *supra* note 41, at 665 (quoting Milton Friedman, *The Case for Flexible Exchange Rates*, in *ESSAYS IN POSITIVE ECONOMICS* 175 (1953)). If prices diverged from their fundamental value, arbitrageurs would exploit the price differential and drive the price back to its fundamental value. However, there may be more irrational traders than the EMH assumed, and arbitrage opportunities may be more risky and limited than initially believed. Andrei Shleifer & Lawrence H. Summers, *The Noise Trader Approach to Finance*, 4 J. ECON. PERSP., 19, 20–23 (1990). For arbitrage trading, costs can be significant, some trades can be difficult to execute, and the market may diverge from fundamental prices before it converges, making it difficult for the arbitrageur to hold on until the market moves in the right direction. BREALEY, MYERS & ALLEN, *supra* note 50, at 327.

124. Donald C. Langevoort, *Chasing the Greased Pig Down Wall Street: A Gatekeeper's Guide to the Psychology, Culture, and Ethics of Financial Risk Taking*, 96 CORNELL L. REV. 1209, 1215 (2011).

investors often acted through their personal biases in a non-rational way.¹²⁵ These investors, termed noise traders, act on the basis of their beliefs, personal experiences, the advice of their brokers or stock gurus, or chase popular trends, rather than on the basis of fundamentals.¹²⁶ Behavioral finance research suggests that irrational investors are not only a larger cohort than previously believed, but that they can affect market prices and profit over time, more than the MPT believed was possible.¹²⁷

125. The idea that passion rather than reason is the dominant element in human action was the view of philosopher David Hume. See, DAVID HUME, A TREATISE OF HUMAN NATURE 415 (L.A. Selby-Bigge & P.H. Nidditch eds., 2d ed. 1978) (“Reason is, and ought only to be the slave of the passions, and can never pretend to any other office than to serve and obey them.”). See *In re Oracle Derivative Litig.*, 824 A.2d 917, 938 (Del Ch. 2003) for a related judicial expression.

Delaware law should not be based on a reductionist view of human nature that simplifies human motivations on the lines of the least sophisticated notions of the law and economics movement. *Homo sapiens* is not merely *homo economicus*. We may be thankful that an array of other motivations exist that influence human behavior; not all are any better than greed or avarice, think of envy, to name just one. But also think of motives like love, friendship, and collegiality, think of those among us who direct their behavior as best they can on a guiding creed or set of moral values.

Id.

126. BRATTON, *supra* note 53, at 29; Shleifer & Summers, *supra* note 123, at 19.

127. Among the conclusions about investor behavior that contradict the MPT’s assumptions are: 1) Loss aversion—psychological experiments discovered that people may be more loss averse than risk averse. This means that the value investors place on an outcome is affected by their fear of incurring losses. Rather than viewing the current value of their holdings for investment decision-making, they consider whether their investment has shown a gain or a loss. Daniel Kahneman and Amos Tversky’s prospect theory, based on this insight, posits that the value investors place on a particular outcome is determined by the gains or losses they have incurred since the asset was acquired or the holding last reviewed. Investors are particularly averse to the possibility of even small losses and need a high return to compensate for this. BREALEY, MYERS & ALLEN, *supra* note 50, at 326. See Daniel Kahneman & Amos Tversky, *Prospect Theory: An Analysis of Decision Under Risk*, 47 *ECONOMETRICA* 263 (1979). This translates that investors will hold on to a stock too long, rather than selling it as a rational trader would do; 2) Investors that have incurred gains are more likely to take risks. Thus, if investors are ahead in a security, they may be more prepared to take risks of losses than if they already have suffered losses in that security; 3) An incorrect estimation of probabilities. Psychologists have found that when judging the probability of future outcomes, investors look at a very small sample of similar situations and overreact to that result and project it into the future. This is termed the *Representativeness Heuristic*. For instance, an investment manager may be considered particularly skilled because he or she has beaten the market in three consecutive years. BREALEY, MYERS & ALLEN, *supra* note 50, at 326; BRATTON, *supra* note 53, at 36 (citing David Kahneman & Mark Riepe, *Aspects of Investor Psychology*, 24 *J. PORTFOLIO MGMT.* 52 (1998)). The investor may not acknowledge that three or five years is too short of a time frame to make an informed judgment. The legendary hedge fund manager, John Paulson, confirms this statement: In 2007 and 2008 at the height of the financial crisis, Paulson earned \$20 billion for betting against subprime mortgage-backed securities and global financial firms. In 2009 he extended his winning streak by

Behavioral finance emphasizes that the limits to arbitrage and noise traders' widespread biases and hunches push prices away from their fundamental values. It delivers significant challenges to the MPT but is far from a knockout blow and remains controversial. Critics have concluded that the studies may be useful to arbitrageurs, but they offer theorists merely a prediction that securities' prices sometimes depart from informed estimates of securities' values in arbitrary and capricious ways.¹²⁸

VI. WHAT WENT WRONG?

A. The Underestimation of Uncertainty

The MPT dealt effectively with conveying the need for management of risk but failed to adequately acknowledge the constant presence of uncertainty. It assumed the risk characteristics of financial markets could be inferred from mathematical analyses that would deliver accurate quantitative measures of trading risk. Correlations between risk and return are more difficult to value than assumed. The underlying methodological assumption was that accurate estimates can be based upon statistical analyses of past performance. There was an overreliance that past price movement patterns could deliver statistically robust inferences relating to the probability of price movements in the future.¹²⁹

being bullish on the stock market, and he invested in gold before the price climbed, earning for himself nearly \$5 billion in 2010. Since then, one of his largest hedge funds has lost nearly 50% of its value because of mistimed investments on banks and other stocks. One of his single investments lost \$500 million in 2011. *See* Gregory Zuckerman, *Suit Faults Paulson's Sino-Forest Bet*, WALL ST. J. Feb. 22, 2012, at C2; Azam Ahmed, *JAT Capital, Down 20%, Is a Lesson In Volatility*, N.Y. TIMES, July 6, 2012, at B1. Past success is no predictor of future profits; 4) Conservativeness. Individual investors tend to be too slow to update their beliefs in light of new evidence. They will eventually update their beliefs in the correct direction but the magnitude of the change is less than a rational response would mandate. BREALEY, ALLEN & MYERS, *supra* note 44, at 326; BRATTON, *supra* note 53, at 36 (citing Nicholas Barberis, Andrei & Robert Vishny, *A Model of Investor Sentiment*, 49 J. FIN. ECON. 307 (1998)); 5) Overconfidence. Investors are systematically overconfident about their investment prowess, which exaggerates the precision of their private judgments about the value of a security and underestimates the significance of public signals or the possibility of unexpected events. BREALEY, ALLEN & MYERS, *supra* note 44, at 326; BRATTON, *supra* note 53, at 36 (citing Kent Daniel, David Hirshleifer & Avanidhar Subramanyam, *Investor Psychology and Security Market Under and Overreactions*, 53 J. FIN. 1839 (1998)).

128. Stout, *supra* note 41, at 661. The classic rejoinder to behavioral finance is by Merton Miller, a Nobel Laureate in economic sciences: "That we abstract from all these stories in building our models is not because the stories are uninteresting but because they may be too interesting and thereby distract us from the pervasive market forces that should be our principal concern." Merton H. Miller, *Behavioral Rationality in Finance: The Case of Dividends*, 59 J. BUS. S451-S467 (1986).

129. TURNER REVIEW, *supra* note 118, at 1.4(iii). The models to measure risk used by financial firms, VaR or "value at risk," were flawed. Douglas O. Edwards, *An*

Probabilities based on historical data assumed normal distributions in the shape of a bell curve as one would find in the natural sciences.¹³⁰ In fact, several events in recent decades—the sudden market drop of 1987, the Long Term Capital meltdown in 1999, the “dot com” bust of 2000, and the financial crisis of 2008—underestimated the full distribution of price movements. These events lead to the conclusion that financial market movements are characterized more than ever imagined by what are known as fat-tails or black swans—events considered so rare they need not be considered as a measure of risk, but in fact occur more frequently than predicted.¹³¹

Though a Nobel Prize is given for economic sciences, economics and finance are very different from the certainties of the natural sciences. As Emanuel Derman, a physicist who later served as a head of quantitative analysis at Goldman Sachs, has written, “[i]n physics you’re playing against God, and He doesn’t change His laws very often. In finance, you’re playing against God’s creatures, agents who value assets based on their ephemeral opinions.”¹³² The belief in the mathematical rigor of statistics’ ability to predict risk blinded proponents of the MPT to the constant presence of uncertainty, about which the brightest minds have warned. In Kenneth Arrow’s words, “[i]t is my view that most individuals underestimate the uncertainty of the world. . . . To me our knowledge of the way things work, in society or in nature, comes trailing clouds of

Unfortunate “Tail”: Reconsidering Risk Management Incentives After The Financial Crisis of 2007–2009, 81 U. COLO. L. REV. 247, 266–67 (2010). VaR measures the potential loss in value of an asset or portfolio at a given confidence level over a specified period. To the advantage of investment professionals, it communicates risk exposure in a single dollar amount that is supposed to show how much a firm has at risk on a particular day. VaR models have come under criticism for underestimating rare or unprecedented events and for failing to consider correlations among risks or coupling of risks. Kristin Johnson, *Addressing Gaps in the Dodd-Frank Act: Directors’ Risk Management Oversight Obligations*, 45 U. MICH. J.L. REFORM 55 (2011).

130. A bell curve or normal distribution is tall and wide in the middle where most things measured occur and drops or flattens out at the ends or bottoms, making the whole distribution resemble a bell.

131. In finance, a fat tail refers to price movements far more variable than models of risk predicted. TURNER REVIEW, *supra* note 118, at 1.4(iii). A Black Swan is an event with the following three attributes. First, it is an outlier, as it lies outside the realm of regular expectations because nothing in the past can convincingly point to its possibility. Second, it carries an extreme impact. Third, in spite of its outlier status, human nature makes us concoct explanations for its occurrence after the fact, making it explainable and predictable. See NASSIM NICHOLAS TALEB, *BLACK SWAN: THE IMPACT OF THE HIGHLY IMPROBABLE* xvii–xix, 141–42 (2007). The Turner Review criticizes the idea that past distribution patterns carry robust influence for the probability of future patterns of distinguishing between the world of physics, the world of the natural sciences, and the world of social sciences (such as economics). TURNER REVIEW, *supra* note 118.

132. EMANUEL DERMAN, *MODELS BEHAVING BADLY: WHY CONFUSING ILLUSION WITH REALITY CAN LEAD TO DISASTER, ON WALL STREET AND IN LIFE* 140 (2011).

vagueness. Vast ills have followed a belief in certainty.”¹³³

The MPT remains, as it should, the fundamental approach to portfolio investing. Yet, its practitioners need to be more cautious about its promises and parsimonious about its capability to manage risk in all circumstances. The MPT may only apply in certain markets involving certain securities and investments in that market. Understanding the limits of the MPT may lead to more informed policies of acceptable risk.

B. The Financial Crisis

Aside from the staggering declines in endowment values, the 2008 financial crisis presented three problems for acolytes of the endowment model of investing: 1) insufficient liquidity existed for endowments to contribute to annual budgetary obligations at the same dollar level, which impacted normal operations and undermined one of the rationalizations for massive endowments; 2) increased collateral obligations to hedge funds and private equity partners mandated investing additional resources, thereby exacerbating endowments' liquidity problems;¹³⁴ and 3) a lack of resources to pursue newly cheap investment opportunities.

133. Kenneth J. Arrow, *I Know a Hawk from a Handsaw*, in EMINENT ECONOMISTS: THEIR LIFE PHILOSOPHIES 46 (Michael Szenberg ed. 1992). Professor Arrow received the 1972 Nobel Prize in Economic Sciences. The ongoing presence of uncertainty with regularity was expressed in 1703 by the great mathematician Gottfried Leibnitz: “Nature has established patterns originating in the return of events, but only for the most part.” BERNSTEIN, *supra* note 52, at 329.

This has been echoed by John Maynard Keynes, who wrote:

If we speak frankly, we have to admit that our basis of knowledge for estimating the yield ten years hence of a railway, a copper mine, a textile factory, the good will of a patent medicine, an Atlantic liner, a building in the City of London amounts to little and sometimes to nothing; or even five years hence . . . Even apart from the instability due to speculation, there is the instability due to the characteristic of human nature that a large proportion of our positive activities depend on spontaneous optimism rather than on a mathematical expectation, whether moral or hedonistic or economic. Most probably, of our decisions to do something positive, the full consequences of which will be drawn out over many days to come, can only be taken as a result of animal spirits—of a spontaneous urge to action rather than inaction, and not as the outcome of a weighted average of quantitative benefits multiplied by quantitative probabilities . . . We are merely reminding ourselves that human decisions affecting the future, whether personal or political or economic, cannot depend on strict mathematical expectation, since the basis for making such calculations does not exist; and that it is our innate urge to activity which makes the wheels go round, our rational selves choosing between the alternatives as best we are able, calculating where we can, but often falling back for our motive or whim or sentiment or chance.

JOHN MAYNARD KEYNES, *THE GENERAL THEORY OF EMPLOYMENT, INTEREST, & MONEY* 149–50, 161–66 (1936).

134. Many of the illiquid investments contained options by the counterparty to call for additional funds from college and university investors.

Alternative investments' illiquidity and volatility increased losses in 2008, affecting results of the fiscal year 2009. The alternative investments were difficult to unload. Prices offered in secondary markets were so low that major college and university endowments pulled back from selling.¹³⁵ Proponents of the endowment model of investing correctly point out that even with such losses, the long term returns were greater than if the endowments remained invested in equities and bonds. This justification, however, ignores the impact of the losses on college and university programs and on its constituencies and the wider community.

During this period, colleges, universities, and other charities largely ignored the theoretical justifications for their endowments—spending more to smooth out flows of revenue in lean years and ensuring intergenerational equity for today's students.¹³⁶ Peter Conti-Brown posits a trade-off between additional spending and selling assets to increase liquidity and reducing the annual budget contribution of the endowment. Colleges and universities took the latter course of cutting budgets, firing staff, and deferring new projects, which disrupted essential college and university functions.¹³⁷ Harvard, which in recent history has competed with Yale and Stanford for first place in the endowment performance derby, offers a cautionary tale of the dangers of excessive risk and illiquidity. It invested a huge amount in swaps, financial instruments that lock in interest rates, with the expectation that rates would rise in the future when the University would borrow heavily to build its new Allston campus.¹³⁸ After the financial markets unexpectedly collapsed in 2007, central banks reduced some bank lending

135. Harvard unsuccessfully attempted to sell \$1.5 billion in private-equity stakes on the secondary market in fall 2008. It then made a \$2.5 billion bond offering to cover swaps agreements that were wagers that interest rates would rise, when Harvard build its Allston campus. When rates fell to near zero, Harvard had to pay a margin call on \$1 billion to large banks. The University paid approximately \$100 million to unwind swaps related to hundreds of millions of dollars in variable rate borrowings. The ultimate cost to the University was \$1.8 billion. See Conti-Brown, *supra* note 3, at 733–35; Michael McDonald, John Lauerman & Gillian Wee, *Harvard Swaps Are So Toxic Even Summers Won't Explain*, BLOOMBERG (Dec. 18, 2009, 4:28 PM), <http://www.bloomberg.com/apps/news?pid=newsarchive&sid=aHQ2Xh55jI.Q>; Tellus Report, *supra* note 17, at 37–38. Other colleges and universities found themselves in similar situations, though not quite of the same scale.

136. See Conti-Brown, *supra* note 3, at 2–3. A few nonprofit institutions such as the New York City Opera tapped into their endowments to cover enormous budget deficits. This provided temporary relief but ultimately did not save the organization. See James B. Stewart, *A Ransacked Endowment at New York City Opera*, N.Y. TIMES, Oct. 12, 2013, at B1; Daniel J. Wakin, *New York City Opera to Leave Lincoln Center*, N.Y. TIMES, May 21, 2011, at A1; Daniel J. Wakin, *City Opera Taps Into Endowment*, N.Y. TIMES, April 18, 2009, at C2.

137. Conti-Brown observes that the financial crisis may have given college and university administrators the opportunity to cut into areas that were justified, but which in the good years were politically impossible. Conti-Brown, *supra* note 3, at 740.

138. McDonald, Lauerman & Wee, *supra* note 135.

rates to zero. This meant the value of the swaps declined and as part of its swaps agreements, Harvard had to post approximately \$1 billion in collateral.¹³⁹ To a lesser extent, other schools were in the same position. Private equity investments often have future call commitments, which require investors to put up additional funds upon request. Were the possibilities of private equity calls and posting additional swaps collateral factored into the risk models? Or were the risk models inaccurate?

As the endowment sunk, Harvard's cash account declined sharply. The University did what individuals do when they need cash—they borrowed—\$2.5 billion, of which nearly \$500 million was used to terminate the swaps agreements.¹⁴⁰ Harvard's problems were exacerbated by the percentage of the endowment allocated to illiquid assets. Even the cash account, normally invested conservatively in short-term commercial paper and money market funds, had been eighty percent invested along with the endowment, which was an extremely risky move. The impact on the university was substantial. Capital spending was cut in half, and the building of the new campus postponed. There were layoffs, closure of libraries, pay freezes, and budget cuts.¹⁴¹ Endowment performance in 2008 and administrators' responses called into question the new endowment model, though few universities jettisoned it.¹⁴²

139. *Id.*

140. *Id.*

141. See Stephanie Strom, *Nonprofits Paying Price For Gamble on Finances*, N.Y. TIMES, Sept. 24, 2009, at A16; Beth Healy, *Harvard Ignored Warnings about Investments*, BOSTON GLOBE (Nov. 29, 2009), http://www.boston.com/news/local/massachusetts/articles/2009/11/29/harvard_ignored_warnings_about_investments/; McDonald, Lauerman & Wee, *supra* note 135.

Other large endowment institutions were similarly affected. Stanford University intended to sell \$5 billion of illiquid assets to raise cash but later pulled back because the markets improved or the offers were too low. Craig Karmin and Peter Lattman, *Stanford Pulls Asset Sales Off Auction Block*, WALL ST. J., Dec. 15, 2009, at C1. Yale University reduced staff, froze salaries for deans and officers, reduced the number of graduate students, and turned down the heat to sixty-eight degrees in order to close a \$150 million budget deficit. Lisa W. Foderaro, *Yale, With \$150 Million Deficit, Plans Staff and Research Cuts*, N.Y. TIMES, Feb. 4, 2010, at A28. Cornell laid off 150 staff and another 432 took early retirement. Princeton University eliminated forty-three positions in order to reduce its operating budget by \$170 million over two years. See *infra* Appendix I. Despite the recovery of Harvard's endowment, the cutbacks have remained. See Jennifer Levitz, *Economy Tests Harvard*, WALL ST. J., July 31, 2012, at A3. In the fiscal year 2012, Harvard paid \$345.3 million in terminating interest rate swaps, bringing the cost of unwinding debt derivatives to more than \$1.25 billion. John Lauerman & Michael McDonald, *Harvard University Lost \$US345.3 Million Terminating Interest-Rate Swaps*, BLOOMBERG (Nov. 8, 2013, 8:38 PM), <http://www.bloomberg.com/news/2013-11-08/harvard-swap-toll-tops-1-4-billion-ending-deals-in-2012-2013.html> ("Harvard University, the world's richest college, lost \$345.3 million terminating interest-rate swaps last year, bringing its cost of unwinding debt derivatives since 2008 to more than \$US1.25 billion.").

142. Conti-Brown, *supra* note 3, at 731; Tellus Report, *supra* note 17, at 22–24.

C. Second Tier Endowments

Colleges and universities with endowments less than \$1 billion used a modified form of the endowment model of investing, which in the good years did not achieve as high returns as the largest proponents of the model. They were unable to invest in some particularly successful hedge funds because the minimum capital accepted was beyond their means, or they would skew their portfolio allocations by placing too great a percent of their portfolio in illiquid assets with unacceptable levels of volatility. Some private equity investments may have been closed to them, or the endowment was unwilling or unable to tie up so much money for long periods and be subject to calls for more capital.

Often, they utilized investment pools such as Commonfund, an endowment manager for nearly 1,500 institutions offering a variety of funds of differing risk,¹⁴³ or The Investment Fund for Foundations, which offers charities access to a diverse group of asset classes at relatively low cost.¹⁴⁴ These endowments did not have the capacity themselves to evaluate outside investment managers so they retained outside experts, such as the Commonfund or others, to vet investment possibilities. All but the largest endowments have private consulting firms or supervisors of investment managers to monitor and steer assets into approved investment vehicles. This is not free advice, so returns may be reduced. Some endowments invested in so-called funds of funds, which also lowered possible returns.¹⁴⁵

D. Oversight Problems and Lack of Understanding of Investments

Problems using the new endowment model of investing emerged even before the financial crisis. Although UPMIFA and UPIA encourage a delegation of investment management, a nonprofit board cannot thereafter abdicate its responsibility to monitor the delegates and to understand the nature of the investment strategy.¹⁴⁶ Several universities failed in this regard. The University of Minnesota System and the University of Minnesota Foundation reached an out-of-court settlement with a money

But see William Jarvis, *Is the Endowment Model Still Working?*, 18 TRUSTEESHIP 20 (Mar.-Apr. 2010). Data in NACUBO-Commonfund Study of Endowments in 2010 did not show a turning away from the endowment model, which still was able to deliver around 270 basis points per year of extra value.

143. *About Us*, COMMONFUND (Apr. 4, 2014, 10:17 PM), <http://www.commonfund.org/ABOUTUS/Pages/default.aspx>.

144. *See* LUIS M. VICEIRA & BRENDON C. PARRY, *THE INVESTMENT FUND FOR FOUNDATIONS (TIFF) IN 2009* (2010).

145. A Fund of Funds (FOF) invests in other hedge and private equity, providing added diversification along with double fees, those of the underlying funds, and of the FOF.

146. UPMIFA, *supra* note 1, at § 5(3) (2006); UPIA, *supra* note 46, at § 9(a)(3) (1994).

management firm because the firm failed to inform officials at the University of the risks involved in trading derivative instruments invested on the University's behalf.¹⁴⁷ DePauw University sued an investment advisory firm and its principals alleging that they failed to thoroughly investigate the hedge funds they recommended and misrepresented facts about them.¹⁴⁸ Because of bad investments into alternative investments, poor investment advice, and a seeming ignorance of the benefits of diversification of endowment assets, Cooper Union ended a 110-year "no tuition" policy and was forced to charge its students \$20,000 tuition.¹⁴⁹

The 2008 financial crisis exposed gaps in trustee oversight and generated litigation from charities claiming they were misled into investing in vehicles that were much riskier than imagined or illiquid. The University of Pittsburgh and Carnegie Mellon University lost the \$114 million they invested in Westridge Capital Management, a firm run by two individuals accused of using the firm as a personal piggy bank.¹⁵⁰ It had been vetted with approval by consulting firms.¹⁵¹ The universities had relied on the recommendation of an outside investment consultant and were lured by the promise of big returns on alternative investments.¹⁵²

E. Lessons Learned and Unlearned

The lessons of behavioral finance and the unexpected events of recent years pose challenges to the application of the MPT but do not eliminate it as the fundamental method for endowment investment. They do raise important signals concerning the need for caution and an increased appreciation of risk for endowment investing strategies. The answer to the

147. Kim Strosnider, *Settlement Reached at University of Minnesota*, CHRON. HIGHER EDUC., Nov. 28, 1997, at A42.

148. The University had invested \$3.25 million in one of the Bayou Group's hedge funds. Bayou fabricated its returns and collapsed in 2005. See Ian McDonald, *Clients Are Suing Hennessee Group Over Bayou Advice*, WALL ST. J., Oct. 15–16, 2005, at B6. The collapse also ensnared the Christian Brothers School of Nashville, which had invested \$1.2 million. The bankruptcy trustee was successful in clawing back the redemption of that investment because the school was on notice when it redeemed that something was wrong at the fund. See *In re Bayou Group*, 396 B.R. 810 (Bankr. S.D.N.Y. 2008).

149. James B. Stewart, *How Errors in Investing Cost a College Its Legacy*, N.Y. TIMES, May 11, 2013, at B1.

150. See Paul Fain, *2 Universities Seek Answers After \$114-Million Vanishes in an Alleged Swindle*, CHRON. HIGHER EDUC. (Mar. 5, 2009), <http://chronicle.com/article/2-Universities-Seek-Answers/1565/>. Carnegie Mellon eventually received more than \$40-million in restitution. Andrew Mytelka, *Carnegie Mellon U. Gets \$40-Million Returned from Investment Swindle*, CHRON. HIGHER EDUC. (Apr. 22, 2011), <http://chronicle.com/blogs/ticker/carnegie-mellon-u-gets-40-million-returned-from-investment-swindle/32389>.

151. Tellus Report, *supra* note 17, at 24.

152. See Fain, *supra* note 150; Mytelka, *supra* note 150.

question, “what went wrong?” is the under appreciation of risk and the overconfidence in the ability to manage it. The MPT may only apply in certain markets involving particular securities.

We are living in a period of financial turbulence. Investors and markets have underestimated the probability of extreme volatility. Risk is greater and more unpredictable than the MPT posits. The MPT presumed that future volatility would replicate the present and the past, but recent events have shown that is not so, at least in the probabilities expected. In periods of great volatility and economic upheaval, covariance changes are much greater and much more unpredictable than normal. The rational actions of investors in normal times can collectively become irrational.¹⁵³ Many investment vehicles used in endowment portfolios are opaque, illiquid, and incapable of adequate analyses of the risk, the probabilities of return, or the relationship between the two.

The high returns initially generated by the endowment model of investing disguised the limits of the MPT’s risk management techniques. The elegance of the theory encouraged people to believe more than it actually promised. The endowment model led to investments in markets and financial products where neither variance nor expected earnings could be derived with any degree of confidence. Harry Markowitz, the discoverer of the relationship between risk and return, seems to have stepped back from the extension of the theory into private placements commodities and beyond, “[t]hese assets . . . must be properly valued and thus, are best left to people like Warren Buffet or David Swenson.”¹⁵⁴

Even after the harsh lessons of 2008, prudence and humility are in short supply by investment committees and their advisors. Despite the sobering experience of the financial crisis, large and small endowments invested *more heavily* in illiquid alternative investments in an effort to squeeze additional returns from the low interest rate environment.¹⁵⁵ However, because of the strength of the equity markets in 2013, college and university endowments have cut their alternative investment allocations.¹⁵⁶

In uncertain times, endowment investment policies should reflect a

153. RICHARD A. POSNER, *A FAILURE OF CAPITALISM: THE CRISIS OF '08 AND THE DESCENT INTO DEPRESSION* 112 (2009).

154. Alan Lavine, *Harry Markowitz: Father of Modern Portfolio Still Diversified*, 101 FIN. HIST. 17, 19 (Fall 2011).

155. 2012 NCSE, *supra* note “4”, at 6.

156. In the fiscal year 2013, the average allocation in alternative investments fell from 54% to 47%. NAT. ASS’N OF COLL. AND UNIV. BUS. OFFICERS, 2013 NACUBO-COMMUNFUND STUDY OF ENDOWMENTS (2013) [hereinafter 2013 NCSE]. Yale reduced its private equity exposure to 31% for the fiscal year 2014 from 35.3 in 2012, the first reduction in that investment class since 2005. Michael McDonald, *Colleges Cut Alternative Investments to Recoup Losses*, BLOOMBERG (Nov. 6, 2013), <http://www.bloomberg.com/news/2013-11-06/colleges-cut-alternative-investments-to-recoup-losses.html>.

heightened element of caution and prudence into the investing equation. Given the composition and dynamics of college and university boards, this may be difficult to achieve.

VII. GOVERNING BOARD OVERSIGHT OF INVESTMENT POLICY

Ultimately, the governing body is responsible for monitoring an institution's endowment. While it is difficult to generalize about the composition of college and university boards, one can suggest that they primarily are made up of successful alumni involved in business activity, prominent individuals who have supported the institution, plus others who give representation to some of the college or university's constituencies. Several trustees are likely to be involved in financial services, but that does not mean in and of itself they are knowledgeable about investment strategy or risk management.

A. Organizational Structures for Managing Endowments

The organizational structures for managing endowments differ. One approach is the self-standing management company with a separate board of trustees appointed by the college or university's governing board and including some overlap of membership between the managing company's board and the college or university's governing body. Examples of this approach include Duke (DUMAC), Harvard (Harvard Management Company), and Stanford (Stanford Management Company). The management company's board is responsible for asset allocation decisions and supervision of the management company. The college or university's governing board ultimately controls the management company and determines annual endowment spending rates.¹⁵⁷ Another model is for the governing board's investment committee to oversee the committee or investment office that manages the endowment.¹⁵⁸

157. Princeton illustrates this approach. Pringo, the University's management company, serves as the manager of over one hundred external financial managers of hedge funds, private equity companies, real estate, and alternative investments. Pringo's board of directors determines how assets are to be allocated among major investment categories. The twelve member board includes members of the Committee on Finance of Princeton's Board of Trustees. The Committee on Finance approves the annual endowment spending rate and has an annual joint meeting with Pringo's Board. PRINCETON UNIV. OFFICE OF FINANCE AND TREASURY, ENDOWMENT 101 7 (2011), available at www.princeton.edu/vpsec/cpuc/. . . /2-23-2012-meeting-summary.pdf.

158. Brown, Cornell, Michigan, Penn, and Texas among many others follow this approach. At Yale, the Yale Corporation Investment Committee is responsible for oversight of the endowment and portfolio policy formulation. The Investment Committee consists of at least three Fellows of the Corporation and other persons with particular investment expertise. The Committee meets quarterly, at which time members review asset allocation policies, endowment performance, and strategies proposed by investments office staff. The Committee approves guidelines for

Most colleges and universities rely on external managers, such as Commonfund or The Investment Fund for Foundations, to invest ninety-five to one hundred percent of their endowments.¹⁵⁹ This figure implies that most endowments are passively invested with investment committees determining overall strategy or reaffirming the recommendations of the chief investment officer. The largest endowments monitor more directly the external managers of endowment assets, the hedge funds, and private equity firms.¹⁶⁰ The board or its investment committee will select an asset allocation approach that satisfies the institution's appetite for risk. The external investment advisory firm may manage some funds in which the endowment directly invests, or it may serve as an adviser and monitor of hedge funds and other asset vehicles making investment recommendations for the particular endowment.

Harvard, through the Harvard Management Company, has a unique hybrid approach. It directly manages approximately one-third of its endowment assets internally, a higher percentage by far than other endowments. The remainder is handled by third party managers. Harvard maintains that its approach is more cost effective, leading to greater returns for the endowment.¹⁶¹

B. Investment Committees

Most endowments are monitored by an investment or finance committee, composed of individuals experienced in finance and successful in that field. They have the skill set to work with college and university endowment staff and outside investment advisers and managers. An investment

investment of the Endowment portfolio, specifying investment objectives, spending policy, and approaches for the investment of each asset category. THE YALE ENDOWMENT 2011 27 (2011) [hereinafter YALE ENDOWMENT REPORT 2011], available at http://www.yale.edu/investments/Endowment_Update.pdf.

159. The 2012 NCSE study reported that the 823 institutions surveyed employed an average 1.6 full-time equivalent employees to manage their endowments. 2013 NCSE, *supra* note 4. An outside consultant is used to manage the endowment by 81% of the responding institutions. *Id.*

160. A major staff responsibility at Yale's Investment Office is finding and working with high quality external managers, or as it terms them, "partners." The Investments Office's staff meets with many prospective investment managers each year. It then eliminates most candidates and conducts numerous layers of due diligence on compelling candidates. Yale chooses to partner with managers with whom the University can develop long-lasting relationships. The average manager tenure in Yale's portfolio is eleven years. YALE ENDOWMENT REPORT 2011, *supra* note 158, at 19.

161. HARVARD MANAGEMENT CO., A UNIQUE INVESTMENT MODEL (2010), available at http://www.hmc.harvard.edu/.investment-management/hybrid_model.html. In 2010, the Harvard Management Company had an annual operating budget of \$67 million and employed approximately 180 people, including 40 investment professionals. Perold & Stafford, *supra* note 67.

committee should bring discipline to the endowment management process by reviewing staff or external managers' investment recommendations, but its ultimate authority yields to staff expertise. The investment committee manages the process, not the portfolio.¹⁶² Their monitoring is supportive, passive, if not nominal. They are likely to have a similar mindset with staff or external managers.

The investment committee or its equivalent drives board discussions of endowment policy. These individuals' expertise contrasts with other board members and engenders a respect in their views by the latter. Investment professionals are likely to be self-confident individuals with a high level of self-esteem. They may exhibit a greater willingness to take and tolerate risk, believing in their ability to understand and control it, thereby underestimating its threat.¹⁶³

Over-optimism is a common trait in the world of finance, particularly among successful and intelligent investment professionals. Such individuals are confident of their ability to navigate the financial markets. Successful risk-taking led to extraordinary endowment growth in the 1990s, when double-digit increments became the norm in the largest endowments and encouraged increased risk taking among their smaller brethren. This fed into an optimistic risk culture with a payoff of great rewards for the endowment and for its investment advisers and managers.¹⁶⁴ Investment committees became risk complacent. They may

162. The Yale Endowment Report describes the relationship between the investment committee and staff:

Ideally, committees rarely exercise the power to reject staff recommendations.

If a committee frequently turns down or revises investment proposals, the staff encounters difficulty in managing the portfolio. Investment opportunities often require negotiation of commitments subject to board approval. If the board withholds approval with any degree of regularity, staff loses credibility in the eyes of the investment management community. That said, the committee must provide more than a rubber stamp for staff recommendations.

YALE ENDOWMENT REPORT 2011, *supra* note 158, at 27. Thus, the investment committee is allied with endowment staff.

163. Donald C. Langevoort, *Resetting the Corporate Thermostat: Lessons from the Recent Financial Scandals about Self-Deception, Deceiving Others and the Design of Internal Controls*, 93 GEO. L.J. 285–304 (2004). Recent events involving the supposedly best-managed American bank, JPMorganChase, show that excessive risk taking, lax controls, and inaccurate risk models remain alive and active on Wall Street, and this should provide a cautionary tale to college and university trustees. See Jessica Silver-Greenberg & Susanne Craig, *JPMorgan Trading Loss May Reach \$9 Billion*, N.Y. TIMES (June 28, 2012), http://dealbook.nytimes.com/2012/06/28/jpmorgan-trading-loss-may-reach-9-billion/?_php=true&_type=blogs&_r=0; Nelson D. Schwartz & Jessica Silver-Greenberg, *JPMorgan Was Warned about Lax Risk Controls*, N.Y. TIMES, June 4, 2012, at B1; Julie Steinberg and Dan Fitzpatrick, *J.P. Morgan Models Get Regulatory Spotlight*, WALL ST. J., June 29, 2012, at C1.

164. Langevoort, *supra* note 124, at 1219–20. Investment advisers at endowments are often paid for performance, receiving bonuses for exceeding benchmarks. This

have been unduly influenced by their endowment's returns, compared with similarly situated competitors. The endowment derby overshadowed the twin endowment missions of stability and intergenerational equity and reinforced risk tolerance.¹⁶⁵

C. Board Cohesion

A substantial body of literature views boards as complex social units, subject to the same social and psychological influences that affect such groups generally.¹⁶⁶ To work effectively, boards prefer consensus, approval, and group solidarity. A leading criterion for board service is the individual's identification and acceptance of the organization's goals and methods of operation.¹⁶⁷ Most college and university governing board members are alumni and share the status rewards and prestige such service brings. They may have professional or personal relationships among themselves. Cohesive boards often come from the similar social and economic milieus. This is not to suggest that board personalities and their internal dynamics do not vastly differ, but various social influences shape board behavior and deliberation.¹⁶⁸

D. Deference in Decision-making

The pressures of cohesion make board oversight of endowment policy difficult. The endowment model of investing is complex, if not unfathomable to the uninitiated.¹⁶⁹ Because of a substantial knowledge

method of compensation encourages risk taking as it does at hedge funds and investment banks.

165. Conti-Brown, *supra* note 3, at 736–37, 740.

166. Donald C. Langevoort, *The Human Nature of Corporate Boards: Law, Norms, And The Unintended Consequences of Independence And Accountability*, 89 GEO.L.J. 797, 810. (2001).

167. James D. Cox & Harry L. Munsinger, *Bias in the Boardroom: Psychological Foundations and Legal Implications of Corporate Cohesion*, 48 L. & CONTEMP. PROB. 83, 91 (1985). Another important consideration is compatibility with other board members. Selection practices promote cooperation, consensus, and uniformity of view. *Id.* at 91–92.

168. Social influence refers to the phenomenon that individuals tend to conform their conduct to that of other individuals. Dan M. Kahan, *Social Influence, Social Meaning and Deterrence*, 83 VA. L. REV. 349, 362 (1997). Social influence shapes values. Individuals tend to adapt their convictions to those of their peers. Such adaption can occur rapidly once individuals are exposed to information about their peers' attitudes. *Id.* at 358–59. This has also been termed structural bias where members of a board or group are favorably disposed to each other. See Nicola Faith Sharpe, *Process Over Structure: An Organizational Behavior Approach to Improving Corporate Boards*, 85 S. CAL. L. REV. 261, 286 (2012). See also Julian Velasco, *Structural Bias and the Need for Substantive Review*, 82 WASH. U. L.Q. 821, 824–25 (2004).

169. The complexity and quantification of investment analysis hinders disclosure and obscures explanation and consequences (i.e. risk) even to experts; See generally

deficit, it is difficult for board members unfamiliar with finance to pose questions about endowment policy. In a sense, in the matter of endowment investing policy, boards may be captured by the investment committee and the investment advisers.

Boards exhibiting a high degree of cohesion are likely to think alike. Such groups may be subject to a subconscious censorship of diverging opinions or viewpoints counter to the majority. Directors with financial expertise receive undue deference from other board members, which results in deliberations that may be empty formulaic approvals without adequate deliberation of alternative approaches.¹⁷⁰ Investment policy is complex, and informational asymmetries between non-financial services board members and investment professionals compound the problem of chilling dissent.¹⁷¹ Non-expert directors need assistance in interpreting investment and risk policy, which they may not receive, and even if they do, they may not understand the information. A rising endowment may quiet any board concerns hiding the risk level of the endowment, particularly amongst trustees without financial expertise.

A college or university board needs to develop a culture of oversight of investment strategy that involves the full board and not merely the investment committee. Ideally, boards should have members experienced in risk management. That, however, is unlikely to occur.¹⁷²

VIII. IMPROVING BOARD OVERSIGHT OF ENDOWMENT RISK

Risk oversight should be a governance responsibility of the board. It consists of the process of reviewing, assessing, and categorizing various types of risk to which an endowment and the institution are exposed.¹⁷³

Steven Schwarcz, *Regulating Complexity in Financial Markets*, 87 WASH. U. L. REV. 211, 221–25 (2009) (discussing how complexity of modern investment securities can hinder disclosure and conceal consequences).

170. This has been termed “group think,” where directors place allegiance to fellow board members ahead of the organization’s best interests, undermining social norms that facilitate sound governance procedures. Melanie Leslie, *The Wisdom of Crowds? Groupthink and Nonprofit Governance*, 62 FLA. L. REV. 1179 (2010). It has also been called “herding behavior.” Stephen M. Bainbridge, *Why a Board? Group Decisionmaking in Corporate Governance*, 55 VAND. L. REV. 1, 28–29, 32 (2002) (finding that the desire to maintain group cohesion trumps the exercise of critical judgment).

171. Leslie, *supra* note 170, at 1197.

172. The absence of board members knowledgeable about risk management is not limited to college and university endowments, but played a role in financial institutions that collapsed or needed to be bailed out during the financial crisis. See Paul Strebel, *Time to bring real shareholders back on board*, FIN. TIMES (Feb. 12, 2009), <http://www.kpmg.com/CN/en/IssuesAndInsights/ArticlesPublications/Documents/future-envir-O-0902.pdf>.

173. Risk management involves more than the financial risk of an endowment imploding. It includes ensuring that systems are in place to protect against occurrences

College and university boards should follow their corporate counterparts by giving risk oversight a higher profile in the governance portfolio.

The best way to involve the full governing board in evaluating the endowment's risk policy would be to create a board level Risk Oversight Committee ("ROC"). This approach to foreseeing and managing risk is mandated for large bank holding companies and other covered companies under the Dodd-Frank Act,¹⁷⁴ and it is recommended by the Walker Report which reviewed corporate governance in U.K. banks and other financial institutions.¹⁷⁵ It offers a possible template for college and university boards, for what is a college or university endowment but the institution's in-house bank?

Colleges and universities are increasingly complicated institutions and face a number of types of risk, of which endowment volatility is but one. The NACUBO-Commonfund Study of Endowments (NCSE) 2013 preliminary data shows that even after the events of 2008, colleges and universities seem not very concerned with endowment risk.¹⁷⁶ For the first time, the NCSE 2013 survey will publish information about risk oversight

that put the institution's reputation in peril as well as strategic planning on how to deal with such events. For example, planning on how to prevent and respond to catastrophic events that may damage the institution: scandals, shootings, fires, and similar tragedies. There is an overlap obviously with the audit functions of installing reporting systems, but risk oversight would include crisis management scenarios. This article deals with financial risks, but recognizes that is but one part of the risk oversight portfolio.

174. Dodd-Frank Wall Street Reform and Consumer Protection Act, Pub. L. No. 111-203, § 165(3), 124 Stat. 1375, 1423–32 (2010) (codified at 12 U.S.C. § 5365) [hereinafter Dodd-Frank Act]. See Dodd-Frank Act § 165(b)(1)(A)(iii) for the risk management standards. On December 11, 2011, the Federal Reserve Board requested comments on a proposed rule to implement the requirements of § 165. See Enhanced Prudential Standards and Early Remediation Requirements for Covered Companies: Proposed Rules Request for Comments, 77 Fed. Reg. 594-663 (Jan. 5, 2012), available at <http://www.gpo.gov/fdsys/pkg/FR-2012-01-05/pdf/2011-33364.pdf>. The New York Stock Exchange requires listed companies to provide disclosure about their risk oversight practices including information about the board's role in managing risk. See N.Y. Stock Exchange Listed Companies Manual § 303A.07(b)(i)(1).

175. DAVID WALKER, A REVIEW OF CORPORATE GOVERNANCE IN U.K. BANKS AND OTHER FINANCIAL INDUSTRY ENTITIES (2009), available at http://webarchive.nationalarchives.gov.uk/+http://www.hm-treasury.gov.uk/d/walker_review_261109.pdf. Recommendations twenty-three through twenty-seven deal with the governance of risk. *Id.* at 19–20. The report recommended that banks or life insurance companies should establish a board risk committee separate from the audit committee, which should have responsibility for oversight and advice to the board on current risk exposures of the entity and future risk strategy. *Id.* at 19. The board should have a chief risk officer, who would participate at the highest level on an enterprise-wide basis and report to the board risk committee. *Id.* The risk committee's activities should be included as a separate report within the annual report. *Id.* at 20.

176. NAT'L ASS'N OF COLL. AND UNIV. BUS. OFFICERS, 2013 NCSE PRELIMINARY RELEASE (2013), available at <http://www.nacubo.org/Documents/research/2013NCSEPreliminaryPressRelease.pdf> [hereinafter 2013 NCSE Preliminary Release].

by endowments.¹⁷⁷ The preliminary data indicates that forty-five percent of participating institutions employ risk limits on their portfolio, while thirty-three percent do not.¹⁷⁸ Sixty-nine percent of those using risk limits use volatility calculations, and fifty-four percent use measures such as alpha/beta analysis; thirty-nine percent use stress testing or scenario analysis.¹⁷⁹ These are surprisingly low figures, indicating that when boards delegate their endowment investment strategy to outside managers, many do not oversee the risks in their portfolios beyond making a decision on allocation of investment classes.¹⁸⁰

Endowment risk oversight is not usually carried out by a separate board committee; rather, it is delegated to one of the existing standing committees: investment, finance, or more likely, audit. There is debate in the corporate world whether financial risk functions should reside in the audit committee's portfolio. An initial question is whether the audit committee has the time, the skills, and the support to accomplish the job effectively, given its other substantial responsibilities.¹⁸¹ In a sense, auditing differs from risk oversight in that the former deals with past activities and the latter focuses on future events—i.e. how to channel and protect against the occurrence of unwanted possibilities and to strategize how to deal with such events.

The actual calculation of endowment risk is conducted by risk managers, who may be a part of a risk-management department or group within the college or university's investment management company or its external investment advisors. Risk managers assess and measure the risks facing an institution as a result of its investing activities, monitor the risks for change, determine whether the institution has the resources to deal with the risk, and alert senior management and the board about risk issues.¹⁸²

177. *Id.*

178. *Id.* at 4.

179. *Id.*

180. For an excellent introduction to risk management and its failures in financial institutions leading to the 2008 financial crisis, see James Fanto, *Anticipating the Unthinkable: The Adequacy of Risk Management in Finance and Environmental Studies*, 44 WAKE FOREST L. REV. 731, 735–36 (2009). See *infra*, note 182 for definitions of some methods for evaluating endowment risk.

181. The Conference Board's experience is that corporations that lodge risk oversight in the audit committee have vastly differing views of what that responsibility entails and their scope is all over the map. Additionally, the "audit committee financial expert," mandated by Sarbanes-Oxley, may not have the skills necessary for evaluating and assessing risk. CAROL BEAUMIER & JIM DELOACH, RISK OVERSIGHT: SHOULD YOUR BOARD HAVE A SEPARATE RISK COMMITTEE? (2012), available at <http://www.conference-board.org/retrievefile.cfm?filename=TCB-DN-V4N1-12.pdf&type=subsite>.

182. See Fanto, *supra* note 180, at 735–36. Financial risk assessment includes both quantitative and qualitative analyses. Quantitative tools use models based on statistical measures to quantify the possibilities of loss based on past investments and financial

Whichever board committee is responsible for risk oversight, it should understand and identify all risks facing the institution, ensure that appropriate limits are in place for financial investments, and evaluate the institution's risk management framework, compliance limits, and reporting systems. It should attempt to protect the institution against catastrophic loss, prepare for minimizing such losses, and evaluate the impact of such losses on the institution's constituencies.¹⁸³ If a board level risk oversight committee is created, it might develop policies and parameters for investing in particularly risky vehicles, which would be approved by the full board. As with other board committees, the ROC would work closely with external risk management firms retained to advise the committee.¹⁸⁴

CONCLUSION

Decisions concerning a prudent or suitable level of risk for a particular endowment should be reached only after thoughtful consideration of the fund's purposes and the institution's tolerance of volatility of return. The

exposures. The most common is value at risk ("VaR"), which produces an approximation of worst case scenarios by assessing at different confidence degrees the minimum values of assets in the future. VaR provides an estimate of how much can be lost in a single day. Nizan Geslevich Packin, *It's (Not) All About The Money: Using Behavioral Economics to Improve Regulation of Risk Management in Financial Institutions*, 15 U. PA. J. BUS. L. 419, 435–36 (2013). A problem with VaR is that it is based on historical data about past investment performance and the assumption that future deviations will follow a bell curve distribution. As with all quantitative approaches, the quality of the inputted data affects the quality of the output. See generally Edwards, *supra* note 129; Johnson, *supra* note 129.

Other techniques of risk assessment are stress testing and scenario analysis, which have a more qualitative focus because they assess potential losses caused by adverse situations and evaluate how the endowment would respond. Fanto, *supra* note 180, at 737. Stress testing is a procedure for evaluating the potential loss of a portfolio due to underlying risk factors over a wide range of scenarios of risk, including those of very low probability. Scenario analysis analyzes future events that result in a wide variety of outcomes that would be unfavorable to the endowment's value. Essentially, stress testing and scenario analysis are forward-looking economic assessments that evaluate whether the institution, in this case an endowment, is strong enough to endure difficult economic conditions. Patkin, *supra* note 182, at 479. See BASEL COMM. ON BANKING SUPERVISION, PRINCIPLES FOR SOUND STRESS TESTING PRACTICES AND SUPERVISION 9–11 (2009), available at <http://www.bis.org/publ/bcbs147.pdf> (discussing stress testing methodologies).

183. Cf. Packin, *supra* note 182, at 439.

184. It is unlikely that board members will be experts in risk assessment, but the board committee should have access to internal risk management officials and would retain external risk management experts to advise it and to work with the endowment's chief risk officer. The use of outside experts to assist board committees is a common practice. Audit committees retain accounting firms and consultants. Nominating committees often retain search firms to find board candidates. Compensation committees retain compensation consultants, and investment committees delegate their responsibilities to outside advisers and managers.

appropriate level of risk should not be determined merely by financial theories, general legal principles, or blind confidence in board members' expertise in finance. Rather, it should be determined through an informed consensus of the whole governing body as to which types of investments are suitable for the endowment's purposes and will give a sufficient measure of comfort that the mission of the fund will be achieved.¹⁸⁵

This article does not suggest that institutions should abandon the endowment model of investing or the Modern Portfolio Theory, or that any specific level of endowment risk is appropriate or not. It merely recommends that there should be deliberation of the institution's risk tolerance by the full board. Recognition of Justice Putnam's warning in *Harvard College v. Amory*, "[d]o what you will, the capital is at hazard,"¹⁸⁶ and the realization of the consequences of assuming too much risk are likely to lead to more measured results, rather than a blind adherence to the endowment model of investing and increased returns.

185. UPMIFA, *supra* note 1, at § 3(e)(1) (2006) (contains a list of steps that fund trustees should engage in when determining their risk level).

186. *Harvard Coll. v. Amory*, 26 Mass. 446, 468 (1830). *See* discussion *supra* Part II.

APPENDIX I: UNIVERSITY BUDGET CUTS AND AUSTERITY EFFORTS

University	Cuts and Reductions*
Boston College	Pay freeze on all staff making more than \$75,000. ¹
	Unspecified number of unfilled positions eliminated. ¹
	Delayed construction of a science complex. ¹
Boston University	51 persons laid off. ¹
	200 positions eliminated. ¹
	Hiring freeze in place since 2008. ¹
	Halt of \$130 million in new construction projects. ¹
	250 lay-offs at affiliated BU School of Medicine. ¹
Brandeis	Over 82 lay-offs. ¹
	Attempted closure of the Rose Art Museum and sale of its 6,000 pieces. Value approximated at \$350 million. ¹
Dartmouth	Laid off or eliminated 275 staff positions. ¹
	Reduced hours for 107 employees. ¹
	Encouraged 105 early retirements. ¹
	Imposed a 2010 hiring freeze. ¹
	Delay of renovations for 5 years. ¹
	Postponement of new construction. ¹

Harvard	310 persons laid off. ¹
	530 early retirements. ¹
	103 persons had their hours reduced. ¹
	Suspension of initiative to expand into Allston,** resulting in postponement of expected jobs, stalled economic development, idle use of land. The project was expected to create 14,000-15,000 jobs over the next 50 years. ¹
	275 employees laid-off; others forced to early retirement. ²
	Cut hot breakfasts in undergraduate dining halls. ²
	Cut undergraduate academic advising. ²
	Cut student employment opportunities at university libraries. ²
	Suspended university's expansion into Allston. ²
	Cut staff hours at university libraries. ²
	Cut primary care division at university hospitals. ²
	Cut shuttle service for students at distant dorms. ²
	Cut funding for undergraduate dorms. ²
	Increased section sizes. ²
	Suspended annual conferences. ²
Cancelled program that waived 3rd year tuition for law students that met community service requirements and pledged to go into public service. ³	

MIT	135 staff laid off. ¹
	Unquantified others have had their hours reduced. ¹
	5% budget reductions in 2009; and 10-15% for the following three years. ²
	Delayed renovations to undergraduate dorms. ²
	Salary freeze for highest-compensated faculty. ²
	Increase in student fees. ²
	Closed two branches of the library. ²
	30-50% reduction of admissions outreach travel spending. ²
	Elimination of eight athletic teams. ²
Princeton	Salary freezes for the best-compensated faculty and staff. ²
	A freeze on construction. ²
	Reduction or elimination of scholarly activities not related to teaching and research, including “certain outside conferences and colloquia.” ²
	Reductions in undergraduate research opportunities. ²
	Reductions in graduate funding in the humanities. ²
	“Dramatic” reduction in campus civic engagement funding. ²
	Reductions in outreach-related admissions travel. ²
Stanford	Budget cuts across the university by 12-15%. ²
	12% reduction in staff size at the Graduate School of Business including: cuts to travel, food, library services, marketing activities, printing expenses. ²
	Hiring freezes for forty-nine ongoing staff searches. ²
	Leaving faculty vacancies unfilled. ²
	University layoffs of 350 administrative positions. ²
	“Dramatic” reductions in undergraduate peer advising. ²

Yale	Overall budget reduction of 5%; later raised to 7.5%. ²
	Suspension of capital projects for its business school, museum, science building, and undergraduate dorms. ²
	Reduced hours for some student and permanent employees. ²
	20% cuts to undergraduate government. ²
	Reduction of library digitization projects. ²

* All employment figures are subject to revision.

** Economic Impacts of Harvard's Allston Delays: Direct Earnings Loss is approximated at ~\$90,000,000 per delayed year; Total Regional Economic Loss is approximated at ~\$285,000,000 per delayed year.

1. Center for Social Philanthropy Tellus Institute, *Educational Endowments and the Financial Crisis: Social Costs and Systemic Risks in the Shadow Banking System* (2011).

2. Peter Conti-Brown, *Scarcity Amidst Wealth: The Law, Finance, and Culture of Elite University Endowments in Financial Crisis*, 63 STAN. L. REV. 699 (2011).

3. Jennifer Levitz, *Economy Tests Harvard—Elite Universities See Recession's Toll on Endowments, Pinching Operating Costs*, WALL ST. J., July 31, 2012, at A3.