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Keynes, King's, and Endowment Asset Management

David Chambers, Elroy Dimson, and Justin Foo

4.1 Introduction

John Maynard Keynes's experiences managing his Cambridge College endowment illustrate several lessons still relevant to endowments and foundations today. Keynes himself, when looking back over his investment career in the late 1930s, spoke of the need to understand the illiquidity risk attached to an alternative asset such as real estate and of the benefits to recognizing the extent of an organization's investment skills and resources in tailoring investment policy.

Most pertinent to the subject of this volume, Keynes's investment experiences during the Great Depression of the 1930s are relevant to modern-day investors during the Great Recession. He had to discover for himself the difficulty of making profits from market timing when the stock market crashed in 1929. Thereafter, his self-proclaimed switch to a more careful buy-and-hold

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stock-picking approach in the early 1930s allowed him to maintain his commitment to equities when the market fell sharply once more in 1937–1938. In so doing, he provides an excellent example of the natural advantages that accrue to such long-horizon investors as university endowments in being able to behave in a contrarian manner during economic and financial market downturns.

King's, one of the thirty-one Cambridge Colleges, was founded in 1441 by King Henry VI and lavishly endowed with agricultural real estate that stretched the length and breadth of England. Famous Kingsmen other than John Maynard Keynes include Sir Francis Walsingham, secretary of state and organizer of Queen Elizabeth I's spy service; Sir Robert Walpole, prime minister; Alan Turing, the father of modern computing; and the novelists E. M. Forster and Salman Rushdie.

For centuries, their agricultural estates formed the bulk of the endowment assets of the oldest Colleges and King's was no exception. When Keynes became involved in the management of King's endowment just after World War I, he immediately undertook a substantial reallocation of the portfolio away from real estate into the new asset class, equities. At the time, other institutional investors remained reluctant to follow suit and it was not until after Keynes's death that they began to follow his example. Oxford and Cambridge ("Oxbridge") Colleges have a natural concern for preserving their wealth for future generations (Tobin 1974) and are the ultimate long-horizon investors. Keynes spotted an opportunity for such patient, long-term investors to make a substantial allocation to equities, an innovation at least as radical as the commitment to alternative assets in the late twentieth century by Yale and Harvard. He selected an asset mix for King's consistent with the implications of standard models of consumption and portfolio choice that were to appear many decades later, as described, for example, by Campbell and Viceira (2002). Keynes can justly be regarded as among the first institutional equity investors.

This chapter describes why Keynes held strong views about equities and how he changed his investment approach to the benefit of lower transaction costs. We also highlight how King's benefitted from earning an emerging risk premium on UK equities despite the economic turbulence of the 1930s, as well as additional risk premia obtained through tilting the portfolio toward both value and smaller-capitalization stocks.

His investment strategy benefitted the endowment considerably, to the extent that upon his death King's had at least drawn level with Trinity, the richest of the Cambridge Colleges. In the post-Keynes era, the endowment has had a more checkered history, illustrating the challenges in trying to emulate Keynes's unconventional investment approach.

The chapter begins with a summary of Keynes's various investing roles in section 4.2. Section 4.3 describes our data, followed by a discussion of endowment asset management before Keynes in section 4.4. We then review Keynes's management of the endowment in section 4.5 and how investment policy evolved after Keynes in section 4.6. Finally, we discuss Keynes's legacy in section 4.7 and section 4.8 concludes.

4.2 Keynes's Investing Life

While still a Cambridge student, Keynes had written in 1905 to his friend, Lytton Strachey, saying that:

> I want to manage a railway or organise a Trust, or at least swindle the investing public; it is so easy and fascinating to master the principles of these things. (Moggridge 1992, 95)

Here was a young man supremely confident in his abilities. It was therefore no surprise that he remained extremely active throughout his life investing in stocks, bonds, currencies, and commodities.[1] He was, in effect, similar to a modern global macro hedge fund manager.

Just after World War I, Keynes began trading currencies both for himself and on behalf of the Syndicate, an investment pool he formed with the City financier Oswald Toynbee (O. T.) Falk, whom he had met at the British Treasury. Keynes was one of the first traders to exploit the development of the forward currency markets and pursued a fundamentals-based trading strategy (Accominotti and Chambers 2014).

Keynes also traded, largely on his own account, a wide variety of commodities—cotton (Cristiano and Naldi 2012), tin (Cavalli and Cristiano 2012), and wheat (Fantacci, Marcuzzo, and Sanfilippo 2010; Foresti and Sanfilippo 2012). Overall, his record trading in commodities was rather mixed and marked by periods of large gains and losses.

In addition to his considerable personal investment activity, Keynes was involved with a number of investment institutions. He was appointed director of the National Mutual Life Insurance Company, one of the City's oldest institutions, in 1919, becoming its chairman in 1921. Following persistent disagreements over investment policy, he resigned in 1938. Keynes's experience at a smaller family-run insurer, the Provincial Insurance Company, was altogether more fruitful. As a director from 1923 until his death in 1946, Keynes successfully persuaded Francis Scott, the managing director, of the advantages of investing in equities and frequently recommended shares that were also held in his personal account (Moggridge 1983, 51).

Three other funds, the A. D. Investment Trust, the P. R. Finance Company, and the Independent Investment Company, were cofounded with O. T. Falk in the early 1920s. The latter two had checkered histories. The P. R. Finance Company was eventually liquidated in 1935. Similarly, the Independent Investment Company lost nearly all its capital by the early 1930s and management subsequently passed into other hands (Davenport 1975, 227).

Above all, however, Keynes had his longest association with the King's College endowment—the primary focus of our study. This was the insti-

1. See, for example, Moggridge (1983), Pierce (1993), and Kent (2012) for a commentary on Keynes's investing activities.

tution that was closest to his heart and where he enjoyed full investment discretion.

4.3 Data

Annual investment reports of the King's endowment are kept in the King's College Archive for each financial year ended in August from 1921 up to the present, with only occasional years missing. College income, including spending from the endowment, are taken from the annual *Abstract of Receipts* printed in the *Cambridge University Reporter* from 1882 to 2000 and thereafter from the College Accounts published on the King's College website. Data applying to the period of Keynes's management of the endowment, 1921–1946, are described in detail in Chambers, Dimson, and Foo (forthcoming).

There is no published valuation of King's real estate holdings until 1966, the only disclosures regarding real estate investment being the rents received. For the preceding period, we draw on Wilkinson's (1980, 85) £1.0 million estimate of the 1919 value of real estate holdings, and then track the major disposals over the following years to 1927. Subsequent to this date, we assume the College real estate portfolio fluctuated in line with the real estate price appreciation index of Scott (1996),[2] such that the valuation converges on the figure of £1.2 million for 1966 as stated in the *Report of the Inspectors of Accounts* (King's College Archive, KCGB/4/1/1/23/19).

For benchmark purposes we employ the 100 Share UK equity index series estimated by Dimson, Marsh, and Staunton (2002, 2014), which is representative of the sectoral composition of the broad market and includes natural resource stocks as well as commercial and industrial companies. We use both the main version of the 100 Share index, which is market capitalization weighted, and the equally weighted index estimated in Dimson, Marsh, and Staunton (2002). Our UK government bond and cash indexes are, respectively, the total return on UK Consols and UK Treasury bill returns (Dimson, Marsh, and Staunton 2002, 2014). For real estate returns from 1973 onward, we utilize the Investment Property Databank (IPD) UK Annual Index.

4.4 King's before Keynes

Henry VI lavished the College with an endowment of thirty-six manorial estates and eight appropriated rectories by 1453 (Saltmarsh 1958, 3,7). Despite the expropriation of a substantial part of the original endowment during the reign of Edward IV, which halved its annual income, King's ben-

2. The price change of commercial buildings (pence per square foot) is used for the period 1939 to 1946 when the Scott index is unavailable.

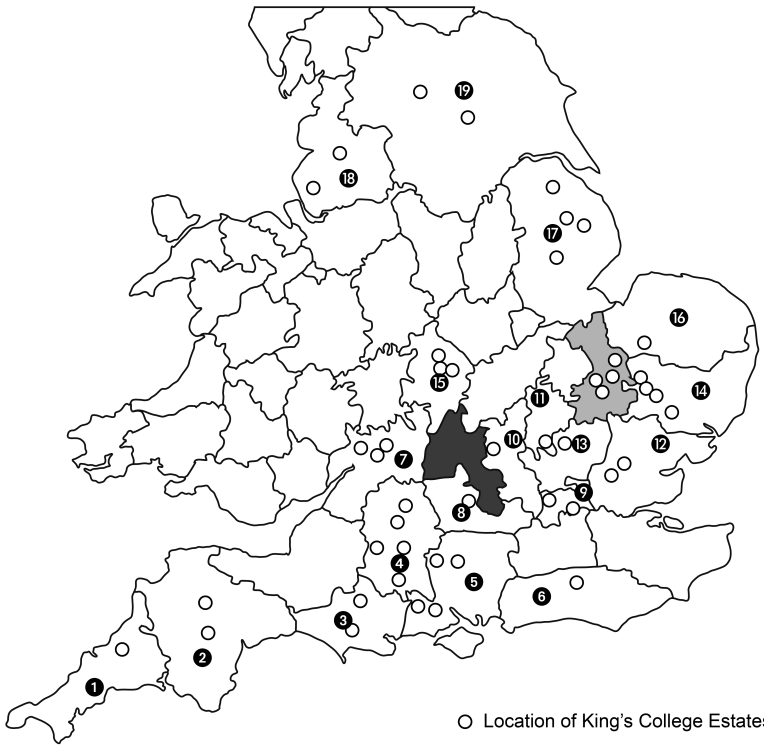

Fig. 4.1 King's real estate portfolio at its foundation

Note: This map indicates the approximate location of King's estates endowed by Henry VI as described in Saltmarsh (1958, 9, 10). Cambridgeshire is shown in light gray and Oxfordshire is shown in dark gray.

efitted from the support of Henry VII and VIII and remained the richest College in Cambridge for a century until the foundation of Trinity in 1546.

Its agricultural land holdings stretched right across England, embracing real estate in more than twenty counties (figure 4.1). The bursar's job was to manage these estates by approving new leases, renewing old ones, selling its timber, and appointing stewards and gamekeepers, among other things. Although added to through gifts, bequests, and purchases, there were few major changes to King's real estate portfolio over the next four centuries

(Saltmarsh 1958, 12). Until the late 1850s the Oxford and Cambridge Colleges were prohibited by their statutes from selling land (Dunbabin 1975, 631). Even after that, there were no significant disposals of real estate until the intervention of Keynes in 1920.

King's investment policy focused exclusively on real estate for four centuries up to the mid-nineteenth century. On the whole, this investment policy was rewarding. The English Agricultural Revolution led to an eightfold rise in agricultural rents between 1700 and 1850 (Turner, Beckett, and Afton 1997, 207, table 10.1) compared to a fivefold increase in agricultural output. While we lack reliable agricultural returns data for this long span of history, the rise in rents is indicative of the success of this investment policy.

However, King's, along with other Colleges, did suffer a considerable setback in the last quarter of the nineteenth century with the onset of the Agricultural Depression in Britain. The revolution in land and sea transportation opened up new agricultural lands in North America, Australia, and Argentina, and brought sharp falls in agricultural prices. As a result, English agricultural rents fell 30 percent from the mid-1870s to the mid-1890s and reverted back to the levels of sixty years earlier (Turner, Beckett, and Afton 1997, 150). During the same two decades, King's real estate income declined by 20 percent. This slightly better performance was most probably due to its ability to switch from long-standing "beneficial leases" charging considerably below-market rents to so-called "rack-rents," which now reflected the market (Dunbabin 1975, 633). Although King's real estate income subsequently recovered, by 1913 it had still not returned to the level on the eve of the Agricultural Depression.

Prior to the College first disclosing a market valuation of its real estate holdings in 1966, we can gauge the almost complete reliance on real estate from analyzing the sources of College income (table 4.1). In 1882, the first year that the College published its accounts, its real estate holdings yielded an income of £36,400 compared to an income of only £1,600 from its security portfolio. A combination of inertia in investment policy and College statutes that constrained disposal of originally endowed real estate explains the very small allocation to financial securities, principally British government bonds.

Toward the end of the nineteenth century, Oxbridge Colleges found themselves free to reinvest some of the proceeds from the sale of estates into financial securities (Neild 2008, 87). As a result, King's small security portfolio grew to include Indian government bonds (guaranteed by the British government) and British railway bonds in the 1880s, and then British municipal government bonds and Colonial government bonds in the 1890s. These bonds were deemed "first class" and representative of those "safe" securities drawn from a list of approved "Trustee Securities." This list comprises securities in which trustees, in the absence of a trust deed conferring more liberal powers of investment, were authorized first by the courts and then by the Trustee Acts of 1893 and 1900 to invest trust money. The list of

Table 4.1 **King's College income**

	1910	1920	1930	1940	1950	1960	1970	1980	1990	2000	2010
Total income £'000	36	52	81	93	219	313	572	2,218	5,582	7,712	13,033
	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
Property income	85	71	50	46	41	32	29	31	30	13	13
Securities income	7	14	12	24	34	38	36	26	35	28	22
Academic fees	2	10	8	7	5	6	7	15	11	15	17
Residence, catering, etc.	7	5	26	23	20	22	28	27	22	33	34
Donations	0	0	4	1	0	2	0	1	1	11	14
	100	100	100	100	100	100	100	100	100	100	100

Note: Income figures for 1910 to 2000 are taken from the *King's College Abstract of Receipts* published in the *Cambridge University Reporter* and for 2010 from the King's College Accounts. Total income is expressed in nominal prices.

permitted securities was a very narrow one and most notably precluded any investment in equities.

In summary, King's endowment remained undiversified with an almost total reliance on real estate up to World War I. The interest income produced by its security portfolio, despite having doubled over the previous forty years, was still only one-tenth of its real estate income, leaving King's unable to avoid the substantial negative shock to its income from the Agricultural Depression.

4.5 King's during Keynes's Time

Keynes was elected to a fellowship and appointed an Inspector of the Accounts in 1909, followed by his election in 1912 to the Council, the governing body of King's College. He took an immediate interest in reforming the investment practices of King's with the inspectors unprecedentedly recommending a change in the policy of placing cash surpluses on deposit. However, the then bursars were unmoved and this policy remained in place until just after World War I when he was appointed Second Bursar and had primary responsibility for investments. In 1924 he was appointed First Bursar and was entrusted with full discretion over investment policy until his death in 1946. His College fellows gave him a free hand in managing the endowment, and there seems little doubt that within the College his investment policy went unchallenged. Indeed, his annual "Chancellor of the Exchequer" speech became a not-to-be-missed fixture in the College calendar.

Chambers, Dimson, and Foo (forthcoming) document in considerable detail Keynes's investment approach and his trading record on behalf of King's. While Keynes's investment performance was not as stellar as previously thought, nonetheless the authors estimate that the King's Discretionary Portfolio generated over the quarter century to 1946 an annualized return of 16.0 percent compared to 10.4 percent, 6.8 percent, and 7.1 percent for the UK equity market, the Restricted Portfolio, and UK government bonds, respectively. Notwithstanding the higher volatility from allocating to equities, the Sharpe ratio of the Discretionary Portfolio at 0.73 exceeded that of the Restricted Portfolio at 0.57. Finally, the Discretionary Portfolio generated a Jensen's alpha of 7.7 percent, with a very high tracking error relative to the UK equity index of 13.9 percent.[3] The time series tracking error for contemporary US university endowment funds averaged 3.4 percent over the period 2002–2007, according to Brown et al. (2014). Indeed, the tracking error of the 95th percentile fund in the latter study still only reached 6.3 percent.[4] The high-tracking error of Keynes's fund was in part attributable to his idiosyncratic stock selection, which we discuss further below.

3. Tracking error is a measure of risk calculated as the standard deviation of the difference between the portfolio and index returns.

4. We are grateful to Stephen Dimmock for providing this estimate.

Table 4.2 Allocation to equities

	1920–1929 (%)	1930–1939 (%)	1940–1946 (%)
	A.		
King's Discretionary Portfolio	75	57	73
Harvard University	16	32	47
Princeton University	9	31	52
Yale University	24	57	52
	B.		
Endowments with asset values:			
More than $15 million	17	25	43
Between $2 to $15 million	19	29	42
Less than $2 million	6	13	28

Source: For panel A, Foo (2014). Panel B provides equivalent figures for US educational endowments using data from Cain (1942) as quoted by Goetzmann, Griswold, and Tseng (2010).

Note: Panel A provides the allocation to equities of the King's College Discretionary Portfolio, and Harvard University, Princeton University, and Yale University endowments spanning the period when Keynes managed the King's College endowment. The Harvard, Princeton, and Yale allocations exclude real estate investments to provide a comparable basis against King's (see text for full description).

In the rest of this section, we draw on the main findings of Chambers, Dimson, and Foo (forthcoming) that are most relevant to a consideration of the long-run management of the King's endowment and of endowments in general.

4.5.1 The Shift into Equities

Keynes exerted his influence on investment policy as soon as he had been elected to College office by pushing for the disposal of one-third of the real estate portfolio between 1920 and 1927 (Wilkinson 1980, 85). At the same time, he persuaded King's to segregate a part of the real estate disposal proceeds into a Discretionary Portfolio, free to invest in equities and unaffected by the Trustee Act restrictions. Over the 1920s, the equity weighting of the Discretionary Portfolio averaged 75 percent, over the 1930s 57 percent, including an allocation to US common stocks, and over 1940–1946 73 percent (panel A, table 4.2). In contrast, the equity weighting of the remaining Restricted Portfolio, which was subject to the Trustee Acts, averaged only 1 percent across the period 1921–1946, and from 1933 onward there were no ordinary share holdings.

Other Oxbridge Colleges did not follow King's into equities during Keynes's time in office. The largest Cambridge Colleges, Trinity and St John's, only amended their statutes to permit equity investment after World War II (Moggridge 1992, 352; Neild 2008, 122). To the best of our knowledge, and in contrast to Oxford and Cambridge, the ability of US universities to invest

in common stocks was not restricted by government legislation or university statute during this period. Panel A of table 4.2 provides a comparison between King's and three leading US endowments, Harvard, Princeton, and Yale. According to Foo (2014), Harvard's total exposure to equities was only 16 percent in the 1920s, doubling to 32 percent in the 1930s, and averaged 47 percent from 1940 to 1946. Princeton's allocation to equities was even lower at 9 percent over the 1920s but increased significantly to an average of 31 percent and 52 percent in the following two periods, respectively. Yale's exposure to equities was 24 percent, 57 percent, and 52 percent, respectively.[5] Although the largest US university endowments had committed more to common stocks relative to their smaller counterparts, this allocation on a historical cost-weighted basis remained below 10 percent in the 1920s and only rose above 20 percent in the late 1930s (Goetzmann, Griswold, and Tseng 2010). Their average total allocation to equities as a proportion of total assets excluding real estate is shown in panel B of table 2.

In a similar fashion, major UK institutional investors such as pension funds, investment trusts, and insurance companies largely eschewed equities in favor of fixed income securities in this period (Burton and Corner 1968; Hannah 1986; Baker and Collins 2003).

The impact of this switch from real estate into equities on King's asset allocation can be seen in figure 4.2. By 1946, the year of Keynes's death, the real estate weighting had declined from above 80 percent just before Keynes became bursar to below 50 percent compared to common stocks now representing over 30 percent and preferred stocks another 10 percent of the portfolio. Keynes moved his College from a centuries-long almost total reliance on UK real estate into a more diversified position with a substantial allocation to both UK and non-UK equities. We discuss the latter non-UK exposure in section 4.5.5.

What led Keynes to undertake such a dramatic shift in asset allocation? First, he believed the attractions of real estate were overstated. Hence, in 1938 he wrote a memorandum to the Estates Committee and reflected on his period in charge of managing the endowment. He stressed that the appearance of stability from investments that are not marked to market—in King's case, real estate—masked volatility in the underlying investment. However, equally importantly, Keynes wanted to put money into equities. He explained this enthusiasm for equities when reviewing Smith (1924), a US study of the attractions of investing in common stocks.

4.5.2 The Attractions of Equity Investing

In summarizing Smith's (1924) findings, Keynes championed the virtues of US common stocks as residual claims on industrial growth and foresaw

5. Asset allocation stated at book value, except for Harvard at market value from 1941 onward and Princeton from 1931 onward. Figures exclude real estate investments to provide a comparable basis against King's endowment. The weightings are qualitatively similar if real estate investments are included.

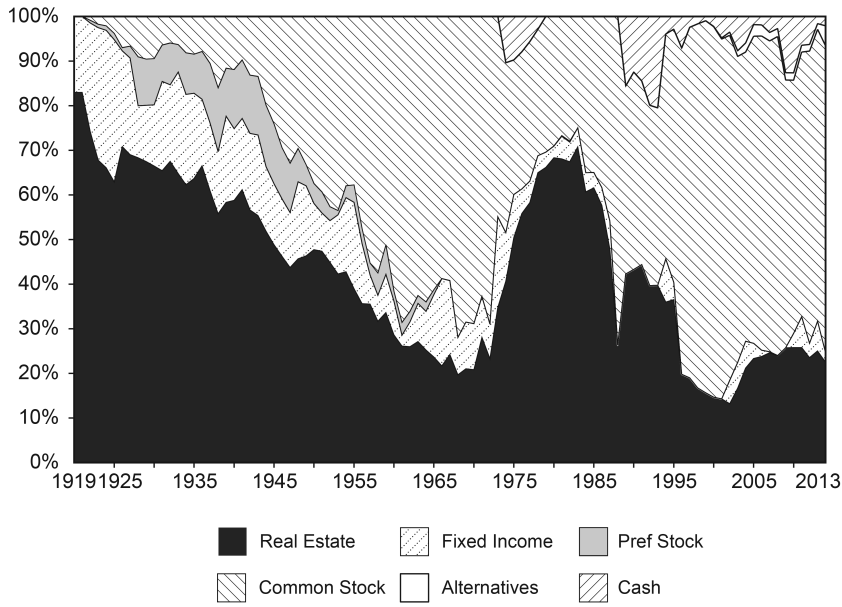

Fig. 4.2 King's endowment asset allocation, 1919–2013

Source: King's College, Cambridge.

Notes: This figure shows the proportion of the endowment held in real estate, fixed income, preferred stock, common stock, alternative investments, and cash. The value of real estate holdings is estimated at £1 million in 1919 according to Wilkinson (1980, 85) and major disposals are tracked over the following years to 1927. From 1928, the College real estate portfolio is assumed to have fluctuated in line with the real estate price appreciation index of Scott (1996) such that the valuation converges on the College valuation of £1.2 million in 1966. Cash is only consistently disclosed from 1988 onward. For the period 1973–1978, the initial cash position was disclosed at approximately £2 million, and we assume it was drawn down to fund the Blackfriars development over the following five years.

the same potential in UK ordinary shares as in US common stocks (Keynes 1925). He went on to list the attractions of equities as offering "an investment in real values" and an income premium over bonds.

During 1900–1920, when the annualized inflation rate was 5.6 percent, UK equities generated a negative annualized real return (–1.6 percent) and failed to substantiate Keynes's belief that they offered an investment in real values. However, they subsequently provided an annualized real return of +8.3 percent over the period 1921–1946, during which he moved King's into equities and Britain experienced deflation (–1.1 percent). UK equities continued to generate strong real returns (+7.9 percent) over the remainder of the century when annualized inflation ran at 6.1 percent.

Further, Keynes was proved correct in his belief that his investment policy would not have an adverse impact on endowment income (Chambers and Dimson 2013). In making such a large allocation to equities, the King's

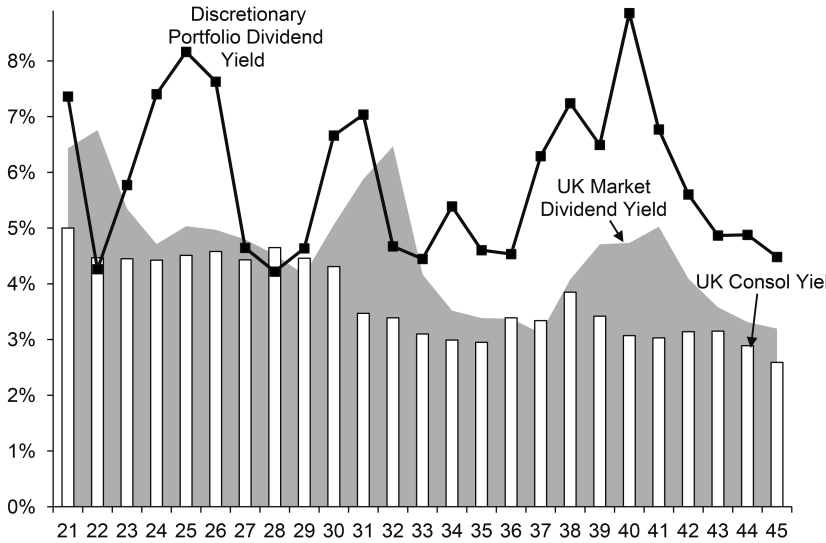

Fig. 4.3 King's Discretionary Portfolio dividend yield, 1921–1945

Source: (Chambers and Dimson 2013).

Note: The Discretionary Portfolio dividend yield is the total dividend income for the financial year ended in August divided by the market valuation of UK equities held in the Discretionary Portfolio. The UK market dividend yield is the dividend yield on the DMS 100 index. The UK Consol yield is the running yield on UK government perpetual bonds.

endowment did not give up anything in terms of income compared to the yields available on bonds (figure 4.3).[6] According to Chambers, Dimson, and Foo (forthcoming), the College's UK equity portfolio provided an average dividend yield of 6.0 percent during 1921–29, which was above the UK equity market dividend yield of 5.2 percent and income return of 4.6 percent on government bonds. In the 1930s, the dividend yield of the College's UK equity holdings averaged 5.9 percent, higher than the 4.4 percent dividend yield on the UK equity market and 3.4 percent income return from government bonds. Over 1940–1946, the College's UK equity holdings produced a dividend yield of 5.8 percent, again exceeding the 4.0 percent yield from UK equity markets and 3.0 percent income return from government bonds.

4.5.3 Change in Investment Approach

In the period up to the early 1930s, Keynes's approach is best characterised as top-down or market timing as he believed that he had the ability to

6. Data on property yields in this period are imperfectly documented. It is unclear as to whether appropriate maintenance costs have been deducted from income, and this obstructs making comparisons with dividend and bond yields.

time moves into and out of equities, bonds, and cash. In the 1938 memorandum to his investment committee, he reflected on this approach and confessed that:

> We have not proved able to take much advantage of a general systematic movement out of and into ordinary shares . . . at different phases of the trade cycle. (Moggridge 1983, 106)

Further, he also lamented the failure of this "credit-cycling" approach in an accompanying note to Richard Kahn, who was his student and subsequent colleague at King's, writing that:

> I have seen it tried by five different parties . . . over a period of nearly twenty years . . . I have not seen a single case of success." (Moggridge 1983, 100)

The archival evidence suggests that he had changed his investment approach by 1934. He appears to have abandoned the previous top-down approach in favor of a bottom-up, stock-picking approach as he explained in a 1934 letter to the chairman of Provincial Insurance:

> As time goes on, I get more and more convinced that the right method in investment is to put fairly large sums into enterprises which one thinks one knows something about . . . there are seldom more than two or three enterprises at any given time in which I personally feel myself entitled to put *full* confidence. (Moggridge 1983, 57)

Woods (2013) argues that Keynes's approach changed from being based on "speculation" to one founded on "enterprise," terms that Keynes himself used in chapter 12 of *The General Theory of Employment, Interest and Money* (Keynes 1936). Evidence of this shift in investment approach can be seen in the fact that he traded less in UK stocks, both ordinary and preference shares, in the Discretionary Portfolio (figure 4.4). Annual turnover dropped progressively through each decade and approached levels characteristic of a patient buy-and-hold investor.

To examine the impact of the change in investment approach, we undertake a Sharpe (1992) returns-based style analysis of the UK Discretionary Portfolio. Keynes invested in bonds and cash in addition to equities and therefore the time-varying exposure weights estimated by this method is preferable to a fixed-benchmark return. We estimate the style of the fund by regressing each month's portfolio return against five benchmark returns: UK equity index, UK government bond index, UK Treasury bill returns, oil price returns, and a tin-rubber price index. Oil and tin-rubber is included as Keynes invested in commodity-linked stocks but gold is excluded as the price of gold was fixed for most of this period. The estimation period uses a rolling forty-eight-month window centered on the estimation month, and we also impose a nonnegative weight restriction on all benchmarks as the portfolio did not have any short positions. We then calculate the monthly

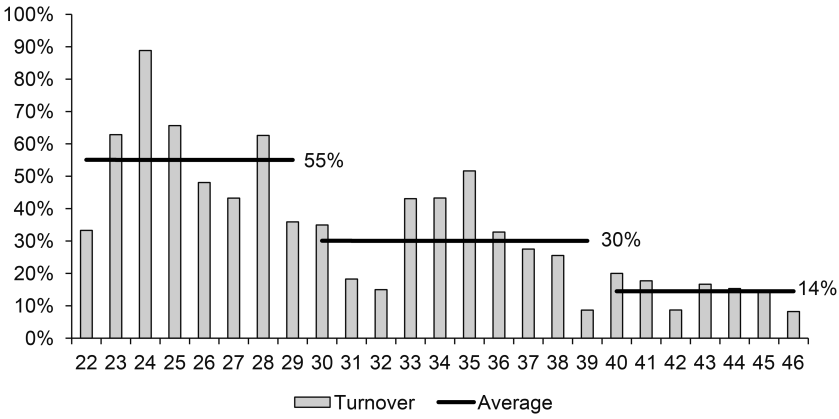

Fig. 4.4 King's UK equity portfolio turnover, 1922–1946

Source: Chambers, Dimson, and Foo (forthcoming).

Note: Turnover is defined as the average of purchases and sales divided by the average value of the UK equity portfolio, both ordinary and preference shares, held at the start and end of the financial year. The subperiod averages for the financial years 1922–1929, 1930–1939, and 1940–1946 are 55 percent, 30 percent, and 14 percent, respectively.

selection return as the portfolio return minus the style return estimated from the resulting weights above.

We follow Chambers, Dimson, and Foo (forthcoming) and partition the sample into two periods before and after the financial year ending August 1932. In the period up to August 1932, the average monthly selection return was 0.2 percent and not significantly different from zero. However, the monthly selection return increased to 0.7 percent in the period post-August 1932 (significant at the 1 percent level). For robustness, we also move the breakpoint to August 1931 and August 1933. In both cases, the prebreak average return is not significantly different from zero, whereas the postbreak average return is positive and statistically significant at the 1 percent level. This break in performance is consistent with other evidence documenting the improvement in his stock trading, particularly the improved timing of his purchases in the 1930s and 1940s compared to the 1920s (Chambers, Dimson, and Foo, forthcoming).

4.5.4 Tilting to Value and Size

King's income did not suffer by moving into stocks. As documented in section 4.5.2, the margin of the dividend yield on King's UK equity portfolio over the market yield increased to 1.5 percent in the 1930s and 1.8 percent in the 1940s versus 0.8 percent in the 1920s. This pattern reflects Keynes's shift to picking value stocks with above average dividend yields. Note that in all periods the average dividend yield for King's includes nondividend-paying

securities. These holdings reflect Keynes's investing in so-called "recovery plays."

Since book values are unavailable on any consistent and reliable basis pre-1946, we use dividend yield as our measure of fundamental firm value. Dimson, Nagel, and Quigley (2003) show that classifying UK equities by dividend yield produces very similar value and growth portfolios to those based on classifying stocks by their market-to-book ratio. On this basis, by tilting his equity portfolio toward higher-yielding stocks, we credit Keynes with exploiting the existence of a value premium in stocks long before financial economists were to identify any such premium. In all three periods in the United Kingdom, 1900–1920, 1921–1946, and 1947–2013, high-yielding stocks have outperformed low-yielding stocks by 3.8 percent, 1.8 percent, and 3.1 percent, respectively.

In a similar way, although Keynes held some large stocks such as Union Corporation and Austin Motors, he generally tilted the King's equity portfolio toward small- and medium-sized stocks (Chambers and Dimson 2013). In so doing, he again identified in his investment actions the size premium available to patient long-term investors long before Banz (1981) and Fama and French (1992) ever uncovered its existence.

4.5.5 International Diversification

Keynes invested heavily in non-UK equities with substantial allocations to Asian tin-mining stocks in the 1920s and to South African gold stocks[7] and US stocks in the following decade (figure 4.5). The non-UK allocation reached 75 percent of the portfolio in the mid-1930s, a degree of international diversification that suggests Keynes exhibited a weaker level of home bias than that displayed by modern investors (see, e.g., French and Poterba 1991; Lewis 1999). Ahearne, Griever, and Warnock (2004) estimate that in the year 2000, foreign equities accounted for 12 percent of US investors' equities portfolios and only 1 percent two decades earlier. Again, King's and Keynes were not typical. Leading US endowments such as Harvard, Yale, and Princeton were almost completely invested in their domestic market during Keynes's time (Foo 2014).

4.6 King's Investment Policy after Keynes

4.6.1 Asset Allocation

The policy of switching the endowment into equities initiated by Keynes was continued after his death, and through a combination of performance and additional modest property disposals the equity weight doubled, reach-

7. These stocks were listed in London but their business operations were solely concentrated in Asia and South Africa, respectively.

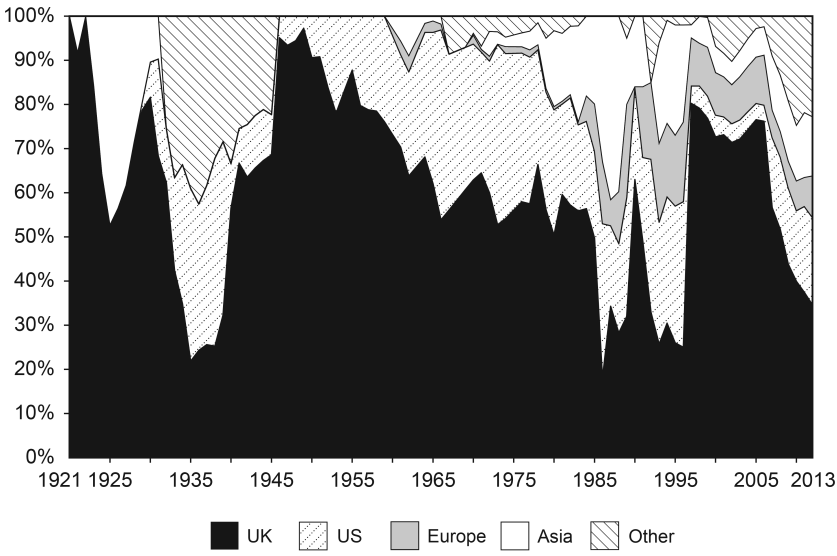

Fig. 4.5 King's UK equity portfolio by geographic region, 1921–2013

Source: King's College, Cambridge.

Notes: The regional allocation of the equity portfolio at market values is taken from King's investment reports and grouped into the United Kingdom, United States, Europe, Asia, and Other regions. In the 1930s and 1940s, Other is represented by Africa, and in the late twentieth and early twenty-first centuries by emerging markets and global equities.

ing a high point in 1968 of two-thirds of the endowment (figure 4.2). The real estate and fixed-income weightings correspondingly declined to 21 percent and 12 percent. By the late 1960s, King's endowment had surpassed St John's and quite probably overtaken the richest College, Trinity (Barter 1995). No doubt buoyed by their continued good fortune, disclosure in the investment reports regarding the composition and performance of the security portfolio during this period remained clear and informative.

In the late 1960s investment policy underwent a major reversal as the College reinvested in real estate, both commercial and industrial. The most significant decision taken in the early 1970s was to develop a piece of land, forming part of its original endowment, in Blackfriars on the edge of the city of London, in partnership with British Rail. The impact on the endowment's asset allocation was as dramatic as the decision taken by Keynes half a century earlier. The real estate weighting rose sharply from 23 percent in 1971 to exceed 70 percent in the early 1980s, 40 percentage points of which was accounted for by the Blackfriars project (figure 4.2). The rationale behind this change in investment strategy is not disclosed in the archival papers and remains unclear.

The higher real estate allocation initially benefitted endowment performance during the UK stock market crash of 1974. Indeed, King's was able to sell this project in 1986 for £10.5 million, having invested a total of £4.5

million. However, over the whole period from 1973 to 1986, UK equities still outperformed real estate by a substantial margin of 4.1 percent annually.

Following the disposal of their interest, King's continued to invest in real estate until, in 1995, the first formal investment policy was introduced and it was decided to dispose of all real estate other than that around Cambridge (see Barter 1995). The policy marked the return to a core reliance on equities with properties limited to those that form the infrastructure of the College's hostels in Cambridge and a small amount of farmland on the outskirts.

4.6.2 Comparison with Other Cambridge Colleges

Keynes's revolutionary allocation to equities was, in general, not emulated by other Cambridge Colleges until long after his death. Traditionally, their assets were largely invested in real estate (Acharya and Dimson 2007). For example, Trinity, the wealthiest College, had 83 percent of its capital invested in real estate and only 8 percent in equities in 1957 (Neild 2008, 125). Today, King's allocation to equities is still substantially larger than the average Cambridge College allocation. In 2012, the ten largest Cambridge College endowments,[8] excluding King's, allocated 35 percent to equities and 38 percent to property, compared with King's 64 percent in equities and 26 percent in property.

How should we view the relative impact of Keynes's stewardship of the King's endowment in a long-run context? In the absence of reliable total return figures, we draw on the findings of Neild (2008) and compare the endowment income of the other two of the three largest Colleges of the late nineteenth century, namely, Trinity and St John's. Combining the income of the three Colleges in 1871, Trinity's income was approximately 41 percent of the total with the remainder split evenly between St John's and King's. At the start of Keynes's tenure as bursar, Trinity's share had increased to 48 percent with St John's maintaining its 30 percent share compared to the 22 percent share of King's. However, King's income, benefitting from the substantial allocation to equities, had nearly drawn level with Trinity in the years immediately after Keynes's death (Trinity and King's commanded shares of 40 percent and 38 percent, respectively). Since the mid-twentieth century, Trinity has surged ahead, largely thanks to two successful real estate investments (Neild 2008). In 2012, its investment income was approximately three times that of St John's and eleven times that of King's.

4.7 Keynes's Legacy

Under Keynes's stewardship—a period that encompassed the Great Depression and the Second World War—the Discretionary Portfolio of the King's

8. Data from published accounts of the following ten Colleges: Christ's, Clare, Corpus Christi, Emmanuel, Gonville and Caius, Jesus, Peterhouse, St John's, Trinity, and Trinity Hall.

endowment grew, including cash inflows, from just over £20,000 at the start of his tenure to £820,000 upon his death twenty-five years later in 1946. His investment record at his College was all the more remarkable considering his many achievements both as an academic and in public service. In contrast, Sir John Bradfield, who also achieved remarkable success as senior bursar of Trinity College between 1956 and 1992, was fully engaged with the responsibilities of managing his College's finances (Neild 2008, 131).

On his death, Keynes left his personal fortune amounting to £440,000,[9] approximately £15 million at 2012 prices, to King's. The bequest included financial investments, art, and valuable books and manuscripts. The art collection was valued at £30,000 in 1946 upon his death (Keynes Picture Bequest 273, 387), increasing to an estimated £17 million in 1988, and worth far more today (see Chambers, Dimson, and Spaenjers 2014).

Keynes himself reflected on his period in charge of the King's endowment in a memorandum to the Estates Committee in 1938 and in other writings (see Holder and Kent 2011). Keynes's revealing document provides four salutatory and lasting lessons for modern-day investors with a long-term horizon on how to think about managing their portfolios.

4.7.1 The Dangers of Market Timing

As discussed above, Keynes radically moved away from a top-down, market-timing approach in the early 1930s. Later on in 1938, Keynes reflected on the reasons for this shift:

> [Earlier] I believed that profits could be made by . . . holding shares in slumps and disposing of them in booms. [But] there have been two occasions when the whole body of our holding of such investments has depreciated by 20 to 25 percent within a few months and we have not been able to escape the movement . . . .
>
> As a result of these experiences I am clear that the idea of wholesale shifts is for various reasons impractical and indeed undesirable. Most of those who attempt it sell too late and buy too late, and do both too often, incurring heavy expenses and developing too unsettled and speculative a state of mind. (Moggridge 1983, 106)

Keynes had appreciated that market timing involves taking big bets on asset-class exposure. In contrast, bets on individual securities can, to a greater extent, benefit from diversification. While researchers such as Bollerslev, Tauchen, and Zhou (2009) provide some justification for market timing based on variance risk, this is short term and would have been expensive to implement. The Shiller (2005) view that markets overreact and are subject to persistent mispricing is closer to Keynes approach, but could not have been

9. According to Skidelsky (2005), Keynes was worth just under £480,000 and bequeathed £40,000 to friends and relatives. The balance of this capital sum reverted to King's upon the death of his widow.

verified empirically during the period of Keynes's bursarship, since long-term stock market data was unavailable to him. Keynes's judgment on the dangers of market timing anticipated a consensus that was to emerge decades later among academicians and investment professionals.

4.7.2 The Need for a Long View

Having decided to change his investment method, in 1938 Keynes explained that he considered a patient buy-and-hold approach to be the best way to invest but that this approach was challenging for most investment organizations to follow:

> I believe now that successful investment depends on . . . a steadfast holding of these in fairly large units through thick and thin, perhaps for several years, until either they have fulfilled their promise or it is evident that they were purchased on a mistake.
>
> But it is true, unfortunately, that the modern organization of the capital market requires from the holder of quoted equities much more nerve, patience and fortitude than from the holder of wealth in other forms. (Moggridge 1983, 106–7, 109)

As Chambers, Dimson, and Ilmanen (2012) emphasize, a large, perpetual endowment has a comparative advantage in buying for the long term and in providing liquidity to the market by avoiding procyclical behavior. Such investors should be able to exploit their comparative advantage in sticking to a well-considered investment strategy around which a prior consensus in the investment committee and within the investment organization has emerged.

As such, they can avoid the need to react precipitously during market crises by taking decisions "on the hoof," which run counter to their long-term strategy. Keynes eventually recognized the sense of this approach, but not until he had had time to reflect upon the events of 1929 and its aftermath. Along with most other investors, he had failed to foresee the sharp falls in stocks in October 1929. For the next two years he rotated in and out of UK equities and bonds in an attempt to protect the King's portfolio during the ensuing economic downturn. This experience caused him to reflect as follows:

> I do not think it is the business, far less the duty, of an institutional or other serious investor to be constantly considering whether he should cut and run on a falling market, or to feel himself open to blame if shares depreciate on his hands. I would go much further than that. I should say that it is the duty of a serious investor to accept the depreciation of his holdings with equanimity and without reproaching himself. Any other policy is antisocial, destructive of confidence, and incompatible with the workings of the economic system. (Keynes 1938, 38)

Hence, when the UK and US markets again fell sharply in 1937–1938, he stuck with King's equity positions. In the financial year ended August

1938, King's Discretionary Portfolio had underperformed the UK market by 13.9 percent. Keynes reduced the turnover of the King's equity portfolio from 26 percent to 9 percent. Similarly, having introduced US common stocks into King's portfolio in the early 1930s, he maintained his commitment to US stocks through the market sell-off in 1937–1938. Keynes was unable to pursue the same course at the insurer National Mutual, where he resigned as chairman in 1938 following considerable disagreement over his investment policy.

Unfortunately, these were lessons that King's subsequently failed to heed. Having invested the proceeds from the disposal of their stake in the Blackfriars real estate development into US equities just before the Wall Street crash of October 1987, they sold them again immediately after the market fell sharply and missed the subsequent recovery (Barter 1995).

4.7.3 The Importance of Liquidity

Keynes expressed a clear view about the need to understand the true illiquid nature of some assets. In his day, real estate was the main illiquid asset class and Keynes (1938, 108) warned that:

> Some Bursars will buy without a tremor unquoted and unmarketable investments in real estate which, if they had a selling quotation for immediate cash available at each audit, would turn their hair grey. The fact that you do not [know] how much its ready money quotation fluctuates does not, as is commonly supposed, make an investment a safe one.

Keynes was warning his peers that the apparent low volatility of real estate returns was not a true reflection of underlying returns when a genuine attempt is made to mark these investments to market. Today, private equity is somewhat analogous to real estate in that investors need to be wary of receiving adequate compensation for the illiquidity risk they take on. Hence, even investors with long horizons need to be wary of an overallocation to such illiquid assets, which can compromise any shorter-term liquidity requirements (Ang, Papanikolaou, and Westerfield, forthcoming).

4.7.4 Active-Passive Asset Management

Finally, Keynes was an extremely active investor who constructed equity portfolios that exhibited high double-digit tracking error compared to the UK market. Hence, he wrote:

> [My] theory of risk is that it is better to take a substantial holding of what one believes in than scatter holdings in fields where he has not the same assurance. But perhaps that is based on the delusion of possessing a worthwhile opinion on the matter. (Keynes 1945)

However, he also acknowledged that a fully diversified approach may be more suitable for investors who did not possess skill in equity investing, saying that:

> The theory of scattering one's investments over as many fields as possible might be the wisest plan on the assumption of comprehensive ignorance. Very likely that would be the safer assumption to make. (Keynes 1945)

Hence, the alternative for many endowments and foundations with limited time and resources to devote to asset management is to think hard about minimizing management costs and to move toward a passive approach. As we saw when he explained the reasons for his abandoning his top-down investment approach, even Keynes had accepted that excessive transaction costs can eat into investment returns.

4.8 Conclusion

Keynes was an innovative investor with an unconventional investment approach. He had a substantial beneficial impact on King's endowment. He shifted King's asset allocation away from an undiversified reliance upon UK real estate to a diversified portfolio in which equities played a substantial role, despite the restrictions of the Trustee Acts. In so doing, he enabled King's to earn the risk premium on equities available to investors with a long-term horizon and pointed the way forward for subsequent bursars to follow. His stock selection also tilted the portfolio toward value and small-capitalization firms, which gave further opportunity for King's to earn the risk premia associated with these two systematic risk factors.

Furthermore, his experiences managing the King's endowment during the economic turbulence of the 1930s illustrate lessons still relevant to endowments and foundations today. Keynes's observations on investment spoke of the need to understand illiquid assets and the need to tailor investment policy to reflect the organization's investment skills and resources. He pursued unconventional strategies such as investments in commodities and currencies, again foreshadowing his twenty-first-century counterparts. Most relevant to the subject of this volume, he had to learn how to invest during financial crises. In 1929–1930, he confronted the challenges in pursuing a market-timing approach to investment. Thereafter, his switch to an investment approach reflective of the natural advantages accruing to investors with a long horizon allowed him to maintain his commitment to equities in 1937–1938 when prices fell sharply once more.

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