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KEYNES, KING'S AND ENDOWMENT ASSET MANAGEMENT

David Chambers
Elroy Dimson
Justin Foo

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ABSTRACT

Founded in 1441, King's College was one of Cambridge University's wealthiest Colleges, endowed with a vast agricultural portfolio. John Maynard Keynes was appointed bursar just after WWI and initiated a major reallocation to equities, an innovation at least as radical as the late 20th century commitment to illiquid assets by Harvard and Yale. Keynes initially pursued a market-timing approach to investment with mixed success and failed to anticipate the 1929 market crash. Thereafter, his switch to a patient buy-and-hold strategy allowed him to maintain his commitment to equities in the subsequent market slump, reflecting the natural advantages that accrue to long horizon investors. Keynes' innovations in endowment asset management, implemented over a dynamic period of capital market development and economic turbulence remain of great relevance to modern investors emerging from the Great Recession.

David Chambers
University of Cambridge
d.chambers@jbs.cam.ac.uk

Elroy Dimson
University of Cambridge
ed351@cam.ac.uk

Justin Foo
University of Cambridge
jfsf3@cam.ac.uk

1. Introduction

John Maynard Keynes' 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 attaching 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' 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 stock-picking approach in the early 1930s allowed him to maintain his commitment to equities when the market fell sharply once more in 1937-38. 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 which stretched the length and breadth of England. Famous Kingsmen other than John Maynard Keynes include Sir Francis Walsingham, secretary of state and organiser 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' 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 in making 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 paper 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 from 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

chequered history, illustrating the challenges in trying to emulate Keynes' unconventional investment approach.

The paper begins with a summary of Keynes' various investing roles in Section 2. Section 3 describes our data, followed by a discussion of endowment asset management before Keynes in Section 4. We then review Keynes' management of the endowment in Section 5 and how investment policy evolved after Keynes in section 6. Finally, we discuss Keynes' legacy in Section 7 and Section 8 concludes.

2. Keynes' 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

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

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' 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, p.51).

Three other funds, the A.D. Investment Trust, the P.R. Finance Company and the Independent Investment Company, were co-founded with O.T. Falk in the early 1920s. The latter two had chequered 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, p.227).

Above all, however, Keynes had his longest association with the King's College endowment - the primary focus of our study. This was the institution which was closest to his heart and where he enjoyed full investment discretion.

3. Data

Annual investment reports of the King's endowment are kept in the King's College Archives for each financial year ended 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. All data applying to the period of Keynes' management of the endowment 1921-46 is 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* (KCGB/4/1/1/23/19).

[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

For benchmark purposes we employ the 100 Share UK equity index series estimated by Dimson, Marsh, and Staunton (DMS, 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 DMS (2002). Our UK government bond and cash indexes are respectively the total return on UK Consols and UK Treasury Bill returns (DMS, 2002, 2014). For real estate returns from 1973 onward, we utilise the Investment Property Databank (IPD) UK Annual Index.

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 benefitted 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 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 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. Whilst 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 of new agricultural lands in North America, Australia and Argentina, and brought sharp falls in agricultural prices. As a result, English agricultural rents fell 30% from the mid-1870s to the mid-1890s and back to the levels of sixty years earlier (Turner et al., 1997: 150). During the same two decades, King's real estate income declined by 20%. 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 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.

Towards 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 authorised first by the courts and then by the Trustee Acts of 1893 and 1900 to invest trust money. The list of permitted securities was a very narrow one and most notably precluded any investment in equities.

In summary, King's endowment remained undiversified with its almost total reliance on real estate up to WWI. 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.

5. King's During Keynes' 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. From 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' investment approach and his trading record on behalf of King's. While Keynes' 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 annualised return of 16.0% compared to 10.4%, 6.8% and 7.1% 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% with a very high tracking error relative to the UK equity index of 13.9%. The time series tracking error for contemporary US university endowment funds averaged 3.4% over the period 2002–07, according to Brown, Dimmock, Kang, and Weisbenner (2014). Indeed, the

tracking error of the 95th percentile fund in the latter study still only reached 6.3%[3]. The high tracking error of Keynes' fund was in part attributable to his idiosyncratic stock selection which we discuss further below.

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.

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%, over the 1930s 57% including an allocation to US common stocks, and over 1940–46 73% (**Panel A**, **Table 3**). In contrast, the equity weighting of the remaining Restricted Portfolio, which was subject to the Trustee Acts, averaged only 1% across the period 1921–46 and from 1933 onward there were no ordinary share holdings.

Other Oxbridge Colleges did not follow King's into equities during Keynes' time in office. The largest Cambridge Colleges, Trinity and St. Johns, 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,

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[3] We are grateful to Stephen Dimmock for providing this estimate.

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 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% in the 1920s, doubling to 32% in the 1930s and averaged at 47% from 1940-46. Princeton's allocation to equities was even lower at 9% over the 1920s but increased significantly to an average of 31% and 52% in the following two periods respectively. Yale's exposure to equities was 24%, 57% and 52%, respectively[4]. 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% in the 1920s and only rose above 20% 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 favour 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 2**. By 1946, the year of Keynes' death, the real estate weighting had declined from above 80% just before Keynes became bursar to below 50% compared to common stocks now representing over 30% and preferred stocks

[4] Asset allocation stated at book value, except for Harvard at market value from 1941 onwards and Princeton from 1931 onwards. Figures exclude Real Estate investments to provide a comparable basis against the King's endowment. The weightings are qualitatively similar if Real Estate investments are included.

another 10% 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 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 a few years later when reviewing Smith (1924), a US study of the attractions of investing in common stocks.

5.2 The Attractions of Equity Investing

In summarizing Smith (1924)'s findings, Keynes championed the virtues of US common stocks as residual claims on industrial growth and foresaw 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" (ibid.) and an income premium over bonds.

During 1900–20, when the annualised inflation rate was 5.6%, UK equities generated a negative annualized real return (–1.6%) and failed to substantiate Keynes' belief that they offered an investment in real values. However, they subsequently provided an annualised real return of +8.3% over the period 1921–46 during which he moved King's into equities and Britain experienced deflation (-1.1%).

UK equities continued to generate strong real returns (+7.9%) over the remainder of the century when annualised inflation ran at 6.1%.

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 endowment did not give up anything in terms of income compared to the yields available on bonds (**Figure 3**).[5] 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% and income return on government bonds of 4.6%. In the 1930s, the dividend yield of the College's UK equity holdings averaged 5.9%, higher than the 4.4% dividend yield on the UK equity market and the 3.4% income return on government bonds. During 1940–46, the College's UK equity holdings produced a dividend yield of 5.8%, again exceeding the UK equity market's 4.0% dividend yield and the 3.0% income return on government bonds.

5.3 Change in Investment Approach

In the period up to the early 1930s, Keynes' approach is best characterised as top-down or market timing as he believed that he had the ability to 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, p.106)

[5] 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.

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, p.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 favour 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.*"

Woods (2013) argues that Keynes' 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**). 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 portfolios. 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 centred on the estimation month, and we also impose a non-negative weight restriction on all benchmarks as the portfolio did not have any short positions. We then calculate the monthly 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% and not significantly different from zero. However, the monthly selection return increased to 0.7% in the period post-August 1932 (significant at the 1% level). For robustness, we also move the break-point to August 1931 and August 1933. In both cases, the pre-break average return is not significantly different from zero whereas the post-break average return is positive and statistically significant at the 1% 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).

5.4 Tilting to Value and Size

King's income did not suffer by moving into stocks. As documented in section 5.2, the margin of the dividend yield on King's UK equity portfolio over the market yield increased to 1.5% in the 1930s and 1.8% in the 1940s versus 0.8% in the 1920s. This pattern reflects Keynes' shift to picking value stocks with above average dividend yields. Note that in all periods the average dividend yield for King's includes non-dividend paying security holdings, a reflection of Keynes' 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 fundamental measure of 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 towards 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 UK, 1900-20, 1921-46 and 1947-2013 high yielding stocks have outperformed low yielding stocks by 3.8%, 1.8% and 3.1% 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.

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[6] and US stocks in the following decade (**Figure 5**). The non-UK allocation reached 75% 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 only 12% of US investors' equities portfolios and only 1% two decades earlier. Again, Kings and Keynes were not typical. Leading US endowments such as Harvard, Yale and Princeton were almost completely invested in their domestic market during Keynes' time (Foo, 2014).

6. King's Investment Policy After Keynes

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, reaching a high point in 1968 of two-thirds of the endowment (**Figure 2**). The real estate and fixed income weightings correspondingly declined to 21% and 12% respectively. 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.

[6] These stocks were listed in London but their business operations were solely concentrated in Asia and South Africa respectively

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 that 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 per cent in 1971 to exceed 70 per cent in the early 1980s, forty percentage points of which was accounted for by the Blackfriars project (**Figure 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 1973-1986 UK equities still outperformed real estate by a substantial margin of 4.1% 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 which form the infrastructure of the College's hostels in Cambridge and a small amount of farmland on the outskirts.

6.2 Comparison with Other Cambridge Colleges

Keynes' 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 per cent of its capital invested in real estate and only 8 per cent 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,[7] excluding King's, allocated 35% to equities and 38% to property, compared with King's 64% in equities and 26% in property.

How should we view the relative impact of Keynes' 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% of the total with the rest split evenly between St John's and King's. At the start of Keynes' tenure as Bursar, Trinity's share had increased to 48% with St John's maintaining its 30% share compared to the remaining 22% 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' death (Trinity and King's commanded shares of 40% and 38% respectively). Since the mid-twentieth century, Trinity has surged ahead thanks largely 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.

[7] 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

7. Keynes' Legacy

Under Keynes' stewardship - a period which encompassed the Great Depression and the Second World War - the Discretionary Portfolio of the King's 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[8], 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, p.273), increasing to an estimated £17 million in 1988 (ibid. p.387) 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' 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.

[8] 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.

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 per cent 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, p.166)

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 over-react and are subject to persistent mispricing is closer to Keynes' approach, but could not have been verified empirically during the period of Keynes' bursarship, since long-term stock market data was unavailable to him. Keynes' judgment on the dangers of market timing anticipated a consensus that was to emerge decades later among academicians and investment professionals.

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; [and] a balanced investment position…*
>
> *"But it is true, unfortunately, that the modern organization of the capital market requires for the holder of quoted equities much more nerve, patience and fortitude than from the holder of wealth in other forms.*" (Moggridge, 1983, p.166-107, 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 pro-cyclical 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 see 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 anti-social, destructive of confidence, and incompatible with the workings of the economic system.*" (Keynes, 1938, p.38)

Hence, when the UK and US markets again fell sharply in 1937-38, 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%. Keynes reduced the turnover of the King's equity portfolio from 26% to 9%. 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 1937-38. 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 which 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 during before the Wall Street crash of October 1987, they sold them again immediately after the market fell sharply and missed the subsequent recovery.

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 he 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, 1938, p.108)

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 over-allocation to such illiquid assets, which can compromise any shorter-term liquidity requirements (Ang, Papanikolaou and Westerfield, forthcoming).

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.*"

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 towards 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.

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' 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 21st-century counterparts. Most relevant to the subject of this volume, he had to learn how to invest during financial crises. In 1929-30, 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 1937-38 when prices fell sharply once more.

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Table 1: King's College Income

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

	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

Table 2: Allocation to Equities

Panel A provides the allocation to equities of the King's College Discretionary Portfolio, and Harvard University, Princeton University and Yale University endowments (Source: Foo, 2013) 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). Panel B provides equivalent figures for US educational endowments using data from Cain (1942) as quoted by Goetzmann, Griswold and Tseng (2010).

Panel A	1920-29	1930-39	1940-46
King's Discretionary Portfolio	75%	57%	73%
Harvard University	16%	32%	47%
Princeton University	9%	31%	52%
Yale University	24%	57%	52%

Panel B	1926-29	1930-39	1940-41
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%

Figure 1: King's Real Estate Portfolio at its Foundation

This map indicates the approximate location of the 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.

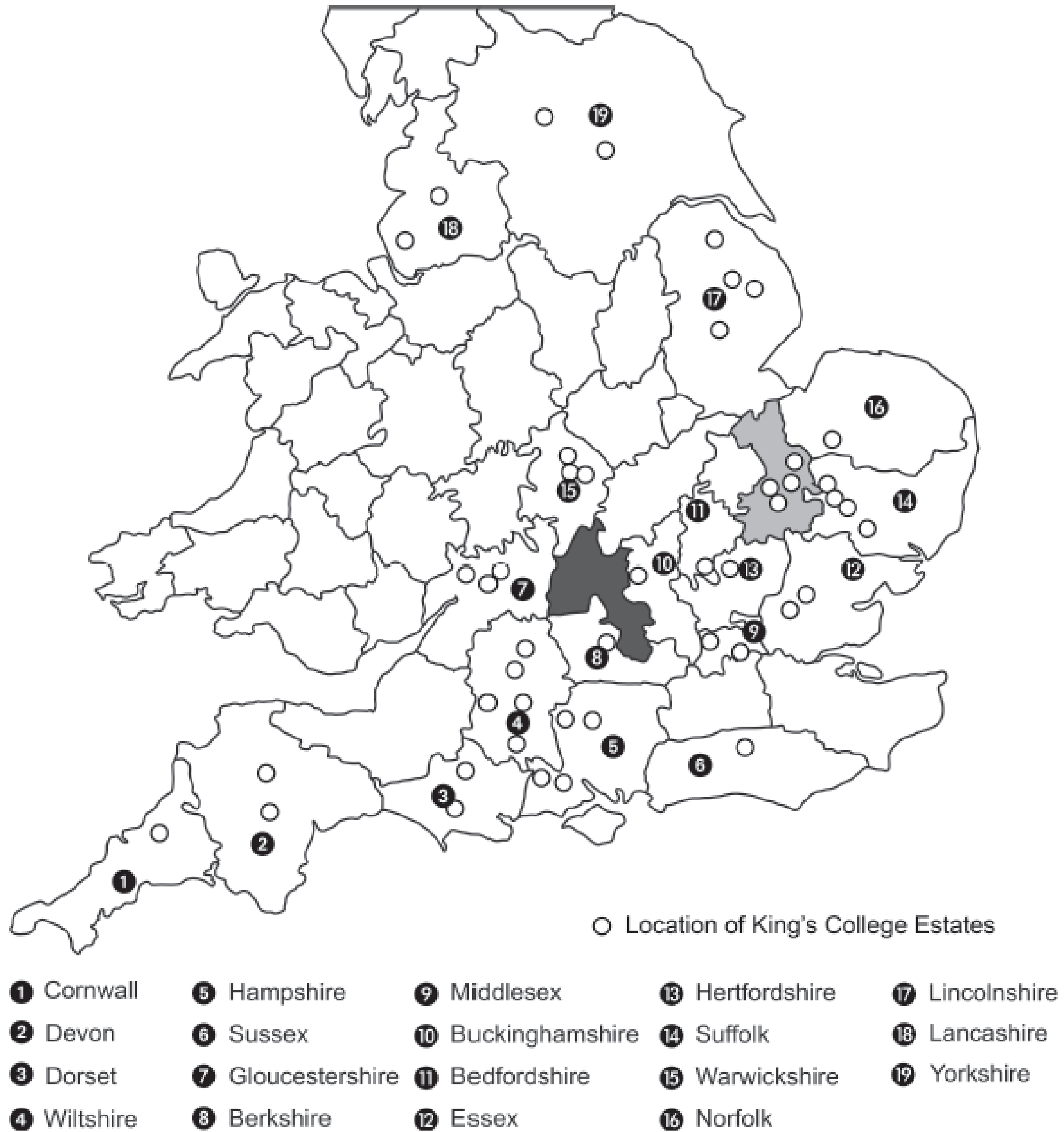

Figure 2: King's Endowment Asset Allocation 1919-2013

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 onwards. For the period 1973-78, 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. (Source: King's College, Cambridge)

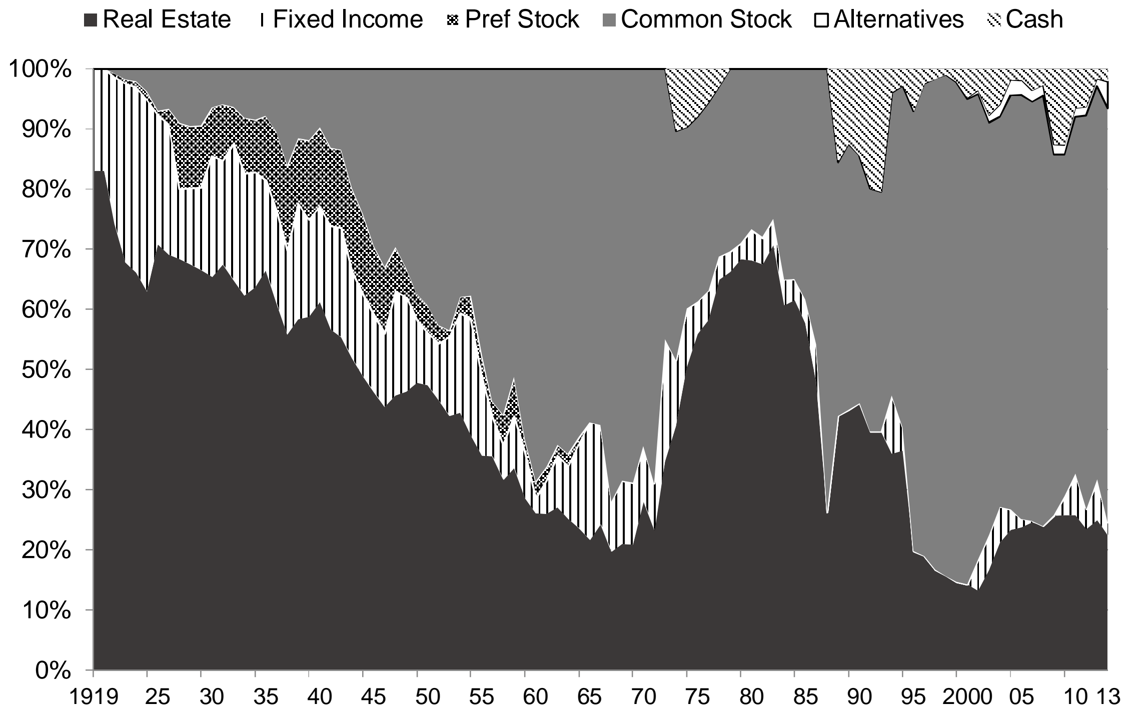

Figure 3: King's Discretionary Fund Dividend Yield 1921-1945

The Discretionary Fund dividend yield is the total dividend income for the financial year ended August divided by the market valuation of UK equities held in the Discretionary Fund (Source: Chambers and Dimson, 2013). 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.

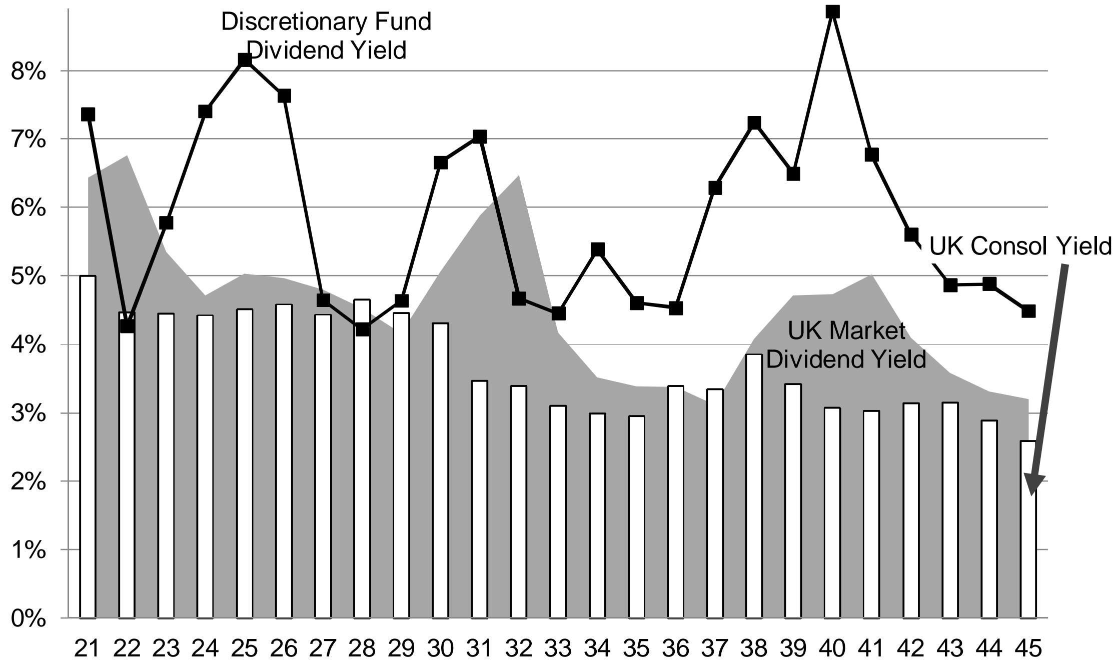

Figure 4: King's UK Equity Portfolio Turnover 1922-1946

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 sub-period averages for the financial years 1922-1929, 1930-1939 and 1940-1946 are 55%, 30% and 14% respectively. (Source: Chambers, Dimson and Foo, 2013)

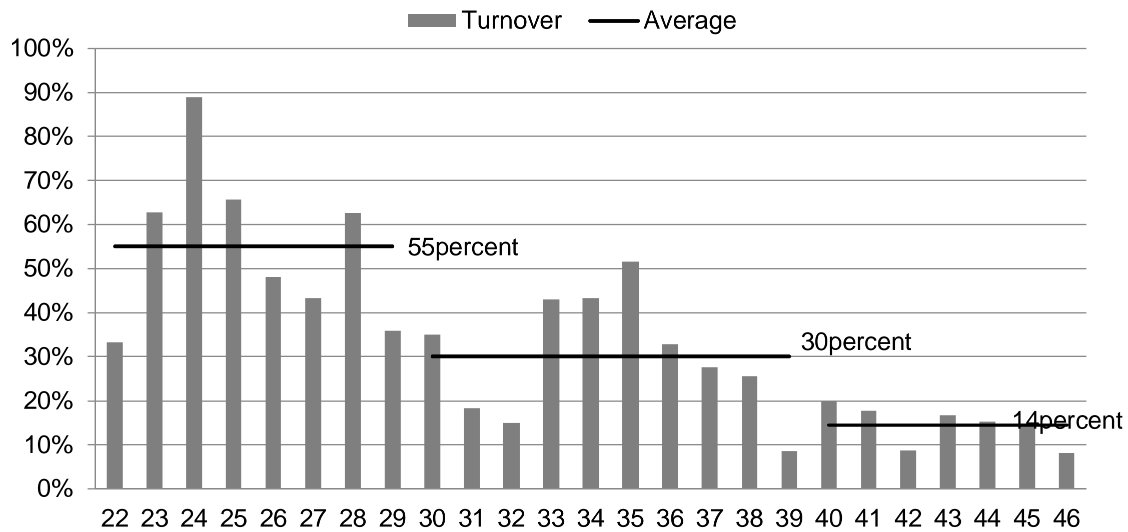

Figure 5: King's UK Equity Portfolio by Geographic Region 1921-2013

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 20th and early 21st centuries by emerging markets and global equities. (Source: King's College, Cambridge)