Saïd Business School Case Study

5 APRIL 2016

The Queen's College at Oxford and the World of Asset Owners

Ludovic Phalippou

This case study discusses the different approaches to asset allocation and some of the key issues that asset owners currently face. It covers the Yale model, the Canadian model, and more traditional approaches. The case is set up as a debate with a dense content; about the equivalent of three traditional case studies. Speakers give their best arguments in a concise and impactful manner. Each proposal and data point gets immediately and effectively criticized. Each side of each argument is exposed and boiled down to its essence. Although fictitious the dialogue is close to what is said behind closed door in practice. The author experienced these discussions first-hand and took an active part in them. Finally, the overall discussion style should keep the reader engaged and amused.

Ludovic Phalippou is Associate Professor of Finance at the Saïd Business School, Oxford University. Keith Fitzgerald provided excellent research assistance. I am grateful to many anonymous insiders for their comments and feedback. The case is purely fictitious. Any resemblance with reality is pure coincidence. In particular, the University of Oxford makes no warranties or representations of any kind concerning the accuracy or suitability of the information contained herein for any purpose. All such information is provided "as is" and with specific disclaimer of any warranties of merchantability, fitness for purpose, title and/or non-infringement. The views expressed are those of the contributors and are not necessarily endorsed by the University of Oxford.

Oxford University

Edward gazed wistfully through the ancient windows of the Queen's College Oxford. The ground outside was awash with earthy tones as the trees shed the remnants of their summer green. Just like home, he thought. Yale no longer seemed so far away. A new term had begun at Oxford, and it would be his first. The fall always reminded him; 'are you quite ready?' The antiquated Professor of British History was Bursar for Queen's College. Edward had been invited to sit on the investment committee given his previous experience in a similar position at Yale. With a shallower pool of funds, and an entirely different investment culture, Queen's College endowment presented a welcome challenge. 'We will begin with a history lesson, for the benefit of our new American Fellows. Oxford University is one of the oldest and most famous educational institutions in the world. Teaching in Oxford existed in some form as early as 1096, and a collective *Universitas* was recognised in 1231. The University grew up as a federation of independent colleges and halls, created both by religious orders (e.g. Dominican, Franciscan and Augustine monks) and private benefactors (e.g. William of Durham, who founded University College in 1249). In this sense, the University has had private "endowment capital" right from its inception. Such benefactions were often in the form of cash or in the form of agricultural land. Over a long period of time both the Colleges and the University diversified into owning commercial property, bonds and equities.[1]

The Central University's income is made up of government funding, fees paid by students, grants from charitable and commercial research bodies, gifts, investment income and private enterprise. The largest private enterprise is Oxford University Press, a world famous publisher wholly owned by the University.[2] Expenditure is substantially staff and research costs (see Exhibit 1). Investment income is only 2% of total income. Growing the size of the investment portfolio is an important part of tackling a spending deficit.

The Collegiate system means that the University's constituents control their own endowments and there is a separate University endowment. They used to all invest their capital with instructions from Investment Committees (IC) made up of University academic staff on a voluntary basis. In 2006, a review was undertaken by Sir Alan Budd.[3] He recommended that the existing University IC be disbanded and a new IC, made up of investment professionals, be formed. The main arguments were the growing size of the endowment, the complexity of some of the investment opportunities, encouraging donations by showing professional financial management of the gifts given, and the acknowledgement of the apparent success of US University professional investment offices (the Yale envy).'

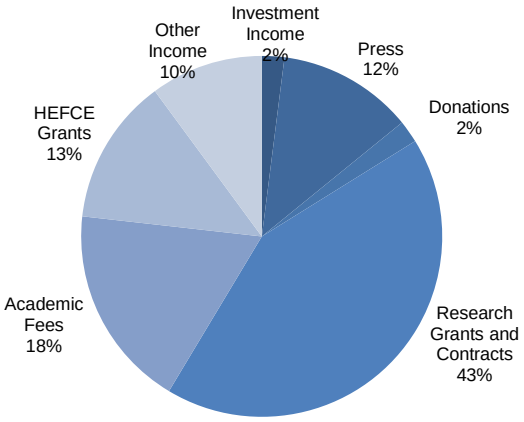
[1] A detailed history of Oxford's University and College Endowments can be found in "Endowment Asset Management – Investment Strategies in Oxford and Cambridge", Acharya and Dimson, 2007.

[2] Annual revenues of around £750 million. Source: Oxford University Press Annual Report 2015

[3] British economist, founder of the Bank of England's Monetary Policy Committee, ex Provost of The Queen's College, Oxford.

Exhibit 1: Oxford University Income and Expenditure 2014/15

University Income 2014/15



University Expenditure 2014/15

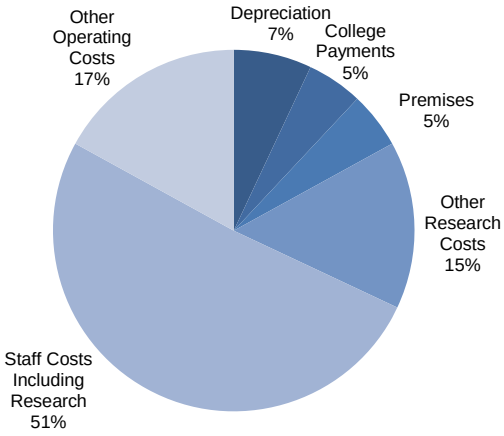
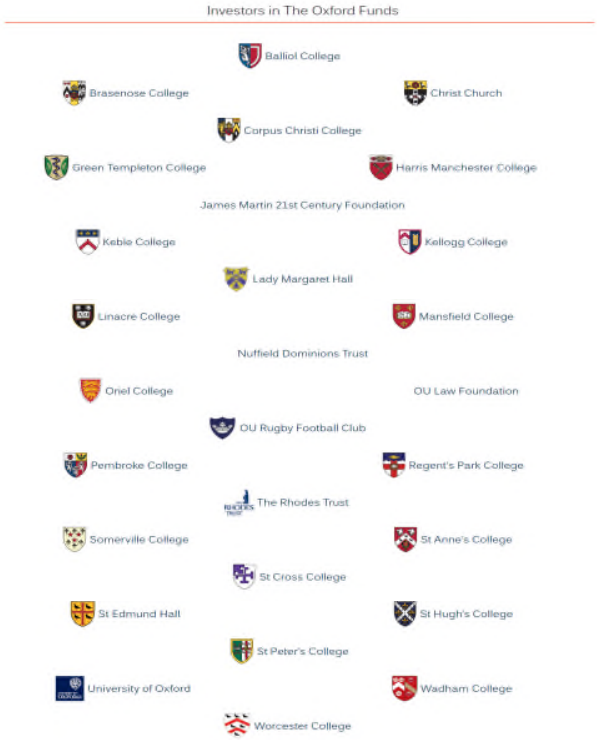
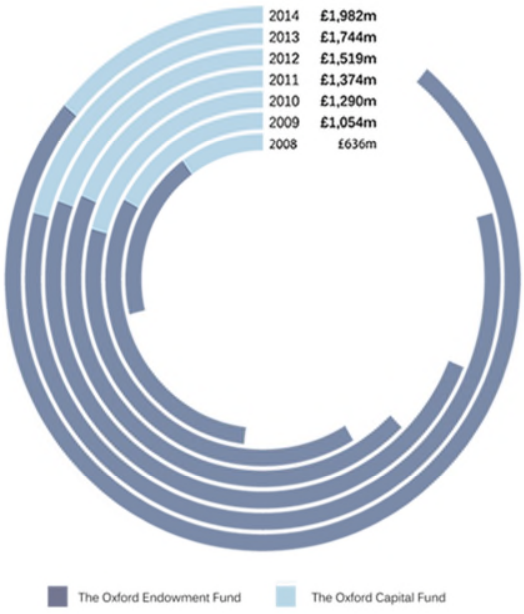


Exhibit 2: OUEM: Investors, AUM evolution, returns, and asset allocation





Source

Oxford University Endowment Management

'Oxford University Endowment Management Ltd (OUEM) was created in 2008 as a separate company wholly owned by the University of Oxford, with the mandate to work only for the 'Collegiate University' of Oxford. Today, investors in OUEM include the University (about two thirds of the capital) and 22 Oxford colleges plus 5 associated foundations and trusts (about one third of the capital); see Exhibit 2. The OUEM has assets of around £2 billion, up from £636 million in 2008 (Exhibit 2).[4] The Investment Committee sets a return and risk (volatility) objective for the Endowment Fund for the long term, a guideline asset allocation for the Fund, a yearly percentage payout ratio based on an average of fund values over the proceeding 5 years, and liquidity terms for the fund, defining when and how much of their holdings investors could redeem.

The portfolio's required return can be defined as keeping pace with the inflation rate of the University's liabilities (or phrased differently, to preserve the real spending power of the endowment), and then, if possible, to generate real returns above this. An optimal portfolio that sits on the "efficient frontier" is then constructed with this target level of return being achieved at the lowest possible risk. This liability-driven approach is further enhanced by a distribution policy.

The OUEM investment team is responsible for meeting these objectives within some guidelines, but is able to invest in any strategy or geography to achieve this. It was envisaged that the team would substantially (but not exclusively) use outsourced investment solutions, very much like famous US endowments.

OUEM created two portfolios in order to balance the differing objectives of risk, return and liquidity needs within the collegiate University. The advantage of this split approach is that it forces the investors of capital to think carefully about liquidity. Unlike many US universities, Oxford would only invest true perpetuity capital in the Endowment Fund, rather than mixing in different types of financial resources with differing liquidity needs.[5] The Oxford Funds consists of:

1. The Endowment Fund: Designed to manage capital that is perpetual in nature, and exists to generate total returns which can be distributed for consumption. This fund can take illiquid positions.
2. The Capital Fund: Designed to manage long-term capital that is explicitly earmarked for spending in the future (e.g. large building projects). This fund is only invested in liquid asset.'

[4] This figure is low compared to some US Universities. This has its roots in UK universities being substantially state-funded institutions, where the concentration has habitually been on receiving yearly income primarily from state sources and managing expenses to match this, rather than the building up of a private surplus. There has also been a comparatively low rate of alumni giving to British Universities compared to practices in the US.

[5] Note that the central Finance Department of the University continues to manage the University's day-to-day cash balances.

Exhibit 3: Track records of selected asset owners

Year	All US endowments	Large US endowments	Harvard	Yale	CPPIB	CUEF	OUEM	Queen's
2015	2.4	4.3	5.8	11.5	18.3	14.2	7.6	8.3
2014	15.5	16.5	15.4	20.2	16.5	10.4	9.1	4.9
2013	11.7	11.7	11.3	12.5	10.1	20.0	16.7	19.0
2012	-0.3	0.8	-0.05	4.7	6.6	1.2	9.4	5.1
2011	19.2	20.1	21.4	21.9	11.9	16.1	-1.6	16.6
2010	11.9	12.2	11	8.9	14.9	19.2	11.7	20.7
2009	-18.7	-20.5	-27.3	-24.6	-18.6	-11.3	13.1	-3.3
2008	-3.0	0.6	8.6	4.5	-0.3	-7.2	n.a.	-0.2
2007	17.2	21.3	23	28.0	12.9	n.a.	n.a.	16.4
2006	10.8	15.2	16.7	22.9	15.5	n.a.	n.a.	17.2
Average (09-15)	6.0	6.4	5.4	7.9	8.5	10.0	9.4	10.2
Average (06-15)	6.7	8.2	8.6	11.1	8.8	n.a.	n.a.	10.5

All figures are in percentages. Source: Annual reports & NACUBO-Commonfund Study of Endowments 2006-2015. Large endowments have assets under management in excess of $1 billion. CUEF is the Cambridge equivalent of OUEM. Fiscal years differ from one asset owner to the other. NACUBO, Harvard, and Yale returns are for July 2014 to June 2015, CPPIB returns are from April 2014 to March 2015, Queen's College and CUEF returns are from June 2014 to July 2015, while OUEM returns are from January 2014 to December 2015. All returns are in local currency (USD, CAD and GBP).

Exhibit 4: Asset allocations of selected asset owners in 2015

	All US endowments	Large US endowments	Harvard	Yale	CPPIB	CUEF	OUEM
Domestic Listed Equity	16	13	11	4	6	10	8
Foreign Listed Equity	19	19	22	15	25	50	44
Fixed Income	9	7	10	5	33	2	-
Absolute Return	20	21	16	21	-	14	12
Real assets	13	14	23	14	17	10	13
Private Equity	15	19	18	33	19	9	18
Cash	4	4	-	3	-	5	5

All figures are in percentages. Source: Annual reports and NACUBO-Commonfund Study of Endowments 2015. Large endowments have assets under management in excess of $1 billion. Real assets include natural resources, real estate and infrastructure.

The Yale Model

'Thank you for the history lesson. OUEM has certainly piqued my interest, as it sounds similar to the 'Yale model.' The Bursar cleared his throat, '…the Yale *Model*?'

'Yes. Yale is, after all, the second largest of the US endowments, and I've seen its successes first-hand. I can vouch for the effectiveness of the kind of professional investment management undertaken at OUEM. I certainly think a case can be made for pooling our fund with the university endowment.'

The room fell into an awkward silence, as Edward braced himself.

'Sir, it seems you were absent, emotionally at least, for the very engaging history lesson I began this meeting with. Queen's College is a jewel in the crown of this University, we are one of the wealthiest colleges, and you would have us hand our fate over to a bunch of strangers with no ties to the College?'

'If I may, professional investment management ensures that behavioral factors – such as an emotional tie to an asset – don't impact on the investment decision. To proceed, allow *me* to give *you* a history lesson of-sorts, and tell you how we did things at Yale. The "Yale Model" is David Swensen's baby. He articulates his investment philosophy in his book "Pioneering Portfolio Management." In a nutshell when Swensen arrived, Yale had $1 billion with 65% equity, 25% bonds, 80% of which was in the US; a classic home-biased and conservative asset allocation. Swensen grew it to $23.9 billion at the end of 2014.'

'This does not tell us anything.'

'Had the Yale endowment obtained the same returns as the typical endowment over the last two decades (9.2% per year), rather than the 13.9% it reached, it would have been $20 billion smaller!'

'I guess these are the type of statistics that created the frenzy. I note however that his past return is not much different from ours, and with nearly twice the volatility (Exhibit 3). It is also worth pointing out that our internal costs are negligible, those of OEUM are 0.40% which they deduct from their return, but the internal costs of Yale and others are not deducted from their returns. Anyway, just how did Mr. Swensen manage to generate such a stellar track record?'

'Doctor Swensen actually. One word: illiquidity! While others went chasing domestic equities and bonds, Yale did things differently. Swensen opted for less-efficient markets: buyout, real estate, forestland, absolute-return investments, venture capital, timber, oil and gas (Exhibit 4). The idea is that a skilled investor is more likely to outperform in inefficient markets.'

'Whatever the efficiency of a market is, it is still a "losers game": you get average return minus fees. Less efficient means more chances to be ripped off via obscure contracts, fees left and right and from places you did not know a fee could come out of. I bet Yale pays more in fees to Wall Street than they give in fellowships to students! And all these illiquid investments must have gone down very well in 2008-2009!'

'The Yale endowment lost 25% that year, but recovered pretty well. Over the last 20 years, the 13.9% p.a. return achieved is 4.4% better than the average endowment.'

'If everyone follows this model, why is there such a return spread between Yale and its groupies?'

'The groupies got badly burned during the crisis. They faced large liquidity problems. For instance, in June 2009, Harvard had $11 billion committed to private equity funds, representing 44% of the endowment value.[6] This represented considerable liquidity risk, as the scale of such drawdowns would be difficult to finance if commitments needed to be honoured in a short period. Of course not all capital was called -- partly because Limited Partners (LPs) were begging General Partners (GPs) not to call the money, and therefore, paradoxically, not to buy anything when assets were cheap. Yet, Endowments had to borrow massive amounts at the worst moment and this was expensive.'

'Their bonds are tax-exempted! Nice privilege, especially when the money goes to finance high-risk investments! Thank you for the tax arbitrage Mr Senator,' interjected a PPE Fellow.

Edward continued: 'In December 2008, the Harvard endowment sold $2.5 billion worth of bonds (at about 6% yield). Soon after, Princeton and Stanford each issued $1 billion in bonds (also at about 6% yield). Then, in summer 2009, the University of Chicago, Brown, Cornell, Dartmouth, Duke, Johns Hopkins and Vanderbilt followed suit, issuing anywhere from $100 million to $500 million in high yield bonds. NACUBO documented a 54 percent increase in long-term debt held by US universities in 2009, with the wealthiest endowments doing the biggest borrowing, increasing their average long-term debt by 62 percent.'

The bursar looked disturbed. 'And you need to add the disastrous effect on the wider community. Endowment declines resulted in layoffs and magnified already growing income gaps and inequalities. As a university endowment, we have an important stake in the sustainability of both the wider financial system and the broader economies in which we participate! Look at Harvard, they had to postpone (and perhaps abandoned) construction projects like the Allston Initiative which was due to help a nearby deprived community. In addition, at Harvard, there were 310 layoffs, 530 voluntary early retirements, and another 103 employees forced into reduced hours.'

Another Fellow chimed in, a Professor of Art History, visibly emotional: 'And do not get me started on Brandeis University closing the Rose Art Museum. Picture this: A group of 50 trustees most of whom with business and finance backgrounds who instead of cutting on expensive investments such as hedge funds and private equity vote to sell a museum and its 6,000 works of art, evaluated at about $400 million, about as much as the value of what was left of the whole endowment. Fortunately, this was furiously

[6] Yale had $8.7bn, i.e. 51% of the endowment value, Princeton had $6.1bn, i.e. 54% of the endowment value. Source: "The Big Squeeze", June 29, 2009, Barrons.

battled in court and it did not happen. The controversy became the subject of a book called *Cashing in on Culture: Betraying the Trust at the Rose Art Museum*, which I recommend.'

The Bursar continued: 'Add the Boston University Medical Center laying off 250 staff, MIT laying off 135 staff etc. I am happy these US endowments 'bounced back' as you say but I am unsure all these people got their jobs back. And all of this because of these Endowments stuck with their super-smart illiquid investments, following THE Yale model. It is certainly ironic that we are the one getting lectured about professional investing, the virtue of hiring pros. You know what? None of this happened at Queen's College. We had a return of zero in 2008, -3.3% in 2009 and we too bounced back in 2010. No need to fire anyone. And we too issued $30 million worth of bonds but in 2015, not in the middle of the crisis. 3.41% yield for a 30 years bond. Not bad! Now our main problem is what to do with all this cash sitting on our bank account.'

Ed visibly under pressure could not help but to interject a desperate: 'I am unsure everything has been marked to market, given your portfolio composition.'

The bursar visibly irritated mumbled: 'we mark to market and get audited on this side of the pond as well!' and then went back to the Yale discussion: 'Yale must have been particularly burnt since it was the most illiquid of all. Yale hardly holds any liquid assets and two thirds of their capital is allocated to private partnerships, implying that the value of their whole endowment could be called within a week!'

'Investors usually hold both illiquid and liquid assets. When a capital call comes in, they sell their most liquid assets. The problem was that during the crisis, even liquid assets stop being liquid. Pension funds went through it without as much damage as Endowments because they hold a lot more investment grade bonds for regulatory reasons. And then there is Yale, which does it otherwise. Yale never really had any liquid assets; hence the above approach had never been an option. Yale just has around 4% of its portfolio in US government bonds and uses this as collateral to get cash. They are not too explicit about how exactly they manage liquidity, but it seems that they also have large credit lines negotiated with banks. The bottom line is that Yale does not sell assets to pay for a capital call (in principle) unlike what everyone else does. In addition, Yale probably used these cash facilities during the crisis, not only to pay for capital calls but also to buy on the secondary market the positions of some of their groupies who were trying to get rid of private equity for liquidity reasons. Some say it was as much as $2 billion. When the markets became liquid again, Yale refilled its credit lines and borrowed cheap money (e.g. $1.5bn from 11/2009 to 2/2010).'

'This is sitting somewhere between the most ironic thing I have ever heard, pure genius and one hell of a double down! I hope they sent a box of chocolates to Ben Bernanke because Quantitative Easing must have saved their bottom! And they should give an honorary degree in "top 1% economics" to Bernanke.'

'Irrespective, it is fair to say that Yale is a master in illiquidity management. Another example of their mastery is their approach to investing into hedge funds, which they label absolute returns.'

'Yes, absolute return because their beta is zero, and they only deliver alpha. Wishful branding that is.'

Undisturbed, Ed continued: 'Yale allocates 20% of its assets to absolute-return strategies, i.e. hedge funds. These funds specialize in eclectic mixtures of strategies designed to exploit market inefficiencies. Swensen is well aware of the beta point you made and he pays close attention to the hedge fund strategy and to the alignment of interest between the LP and the GP. Yale invests only in event-driven and value-driven funds. Event-driven strategies generally involve creating hedged positions in mispriced securities. The most famous type of trade is merger arbitrage, whereby on announcement of a takeover, the fund takes a long position in the target and a short position in the acquirer.'

'And you need to pay 2-20 for this? A monkey can do that!'

'Value-driven strategies also entail hedged investments in mispriced securities but are based on fundamental value. For example if you expect that Apple will outperform its peers, you long Apple and short Microsoft. Because of these long-short positions, you expect beta to be zero.'

'Except that a merger is less likely to happen when the market goes down which means that you lose your shirt when stock-market returns are low. Sounds like a positive Beta. Value driven may be different but looks like crystal balling.'

Eager to contribute, a Law Fellow added: 'Did you know it is actually illegal in the US to claim you can forecast the future? Maybe that could be the basis for a class action against value driven hedgies.'

Stoic, Ed kept going: 'It is true that in 2009, the absolute return portfolio of Yale posted a negative 9.3% return.'

'Did they change the "absolute return" label then? How would you call something that goes down when market goes up and then goes down when market goes down?'

'My point is on mastering illiquidity, rather than the contentious issue of whether hedge funds deliver true value. One issue with hedge funds is that their positions may be difficult to unwind. And if investors massively redeem their holdings, like they did in 2008-2009, the investors who are staying in are paying for the price impact of these redemptions and it can be substantial. It is basically like a bank run, you need to run first or you bear the cost of all those who have run.'

'It reminds me of our issues with Aberdeen AM. Although they are long-only they have concentrated and large positions in emerging market listed equity. They posted poor returns recently (although they dispute that) and their investors withdrew large amounts. We decided not to run but we inquired them on what they do about it. They replied that they use some anti-dilution calculations (Exhibit 5). Sounds smart, but we did

not quite get it and we are not quite sure it is doing the trick. We just hope Asian markets will bounce back. They say that valuations have never been as attractive as they are now.'

'Sure, the more money you will lose, the more attractive the valuations will get. Anyway, I do not know if similar provisions exist for hedge funds, but Yale avoids this dilution by using separate accounts. It means that its holdings are insulated from the ill-timed selling decisions of other investors. An additional advantage is that you can sometimes veto or increase exposure to certain investments the fund proposes. In 2014, the hedge funds portfolio returned 9.1% while hedge funds overall returned only 2.3%. If you choose the best managers, you will most certainly pay them well, but they deliver (Exhibit 6).'

'Except it is never the same manager doing well. Unless you are incredibly talented at constantly and dynamically picking winners you end up signing a huge check to whoever is the lucky monkey of the year. Overall, the Yale portfolio looks highly concentrated. They bet on a few managers in each asset class.'

'Yale does take diversification seriously. It believes in risk reduction through minimized aggregate exposure to any single asset class, as opposed to market timing (which most people have since abandoned, but it used to be all the rage). They perform a mean-variance analysis of the expected returns and risks from its current allocation, and compare their allocation to that of other universities.'

'Great prose! Allow me to translate: they come up with something they fancy, and that is not too different from competitors, and then dress it up with a mean-variance analysis to look like a scientific process. How professional is that! The mean-variance framework was proposed for the sake of a neat first-order condition. I believe (hope?) that it was not meant as something to be used in practice. I heard people calling this an error maximization approach. A paper even demonstrated that following a 'one-over-N' approach (i.e. invest equally in all asset classes) has largely beaten a rolling optimal mean-variance allocation strategy (also called maximum Sharpe Ratio). Moreover, each time someone wants to sell us something they show that it shifts the efficient frontier up. Cute pictures, certainly. But, our portfolio must be really terrible since anything that anyone sells would make it better. Unless the tool is flawed of course. The latest episode was this chap arguing for us to invest in Gold. His video is on Youtube, feel free to watch it.[7]'

'Yale doesn't just rely mechanically on historical data, but instead, modifies the historical numbers based on its own experience. It imposes limits on the amount that could be invested in each asset class. If it did not, the optimisation programme would instruct Yale to hold no domestic equities, or even to short-sell this asset class, and instead invest in the more illiquid alternatives.'

'Oh now I'm reassured. A constrained optimization does the trick, doesn't it? They impose limits, and let me guess - if they put a limit of 20% on private equity, then this 'scientific tool' tells them to invest 20% in

[7] World Gold Council (WGC)'s presentation at the 2012 Bloomberg Precious Metals Conference (click here to watch it)

private equity, and if the limit is moved to 25%, then 25% is recommended. I hope the inventor of this tool got a Nobel Prize!' – 'He did actually,' someone murmured – 'Besides enabling junior consultants to come up with fancy curvy graphs like the ones we are regularly fed here, there is no point in such trivialities. You will get what you assume. And by the way isn't Yale's negative 24.6 percent return during fiscal year 2009 falling well beyond two standard deviations from the model's mean expectation? It does not smell like a "normal" distribution, does it? A Black Swan? Let us be serious and talk about real pillars of modern asset management: liability hedging and portfolio rebalancing.'

'Hedging is an important pillar of investment decision making. We need to reconcile our objectives with our primary liabilities. Then, we must choose the best hedge against those forces that undermine our objective.[8] Inflation is a prime concern for every university endowment and Yale overweighs commodities to hedge against inflation. Queen's does not have any allocation to commodities though, right?'

'We have a substantial *secondary* exposure, through the fund holdings in listed commodity-sector companies, and perhaps through the impact of crop and other agricultural prices on farm rent.'

'Ah yes, your farms, of course. I have to ask, why do you hold so much in farms?'

'It is custom for older and richer Oxbridge colleges to have substantial directly owned UK property holdings. They are cash generative, help us to hedge against inflation, and we get the occasional windfall from property developments, or motorways. Also, picnics.'

'…I'm sorry?'

'*Ahem'* The Bursar cleared his throat 'we visit our holdings once a year, picnic on the grass; we call this outing 'Progress.' Some argue we should be more geographically diverse and add French vineyards.'

'Now *that* is superfluous', Edward mumbled. 'Anyway, the Model's disciplined diversification also demands active rebalancing of portfolio asset allocations back to their policy targets. Swensen has described how colleges' tax-exempt status actually gives them a special advantage when it comes to rebalancing because they avoid adverse tax consequences associated with realized gains. Yale is known to rebalance its portfolio on a daily basis at times. Rebalancing not only maintains diversification benefits but it is also a way to harvest a liquidity premium and to benefit from a slight mean reversion in financial asset prices. Technically, this high frequency rebalancing is akin to shorting volatility on the option market and delivers a so-called *rebalancing premium*. Another noticeable fact is that Yale has a strong equity bias. It has always argued that equity represents a claim on a real stream of income, rather than a contractual sequence of nominal cash flows, and as such, offers better inflation hedge and higher returns. History seems to be on its side. A $1 invested

[8] Robert Shiller: The New Financial order: Risk in the 21st Century, Princeton University Press, April 2003.

in 1925 in large-company US stocks was worth $5,317 (and $27,419 for small-company stocks), by the end of 2014. The same investment over the same period in US Treasury bonds would be worth just $136.'

'Ah, the beauty of compounding rates of returns when you pick the ex-post winner! Back in 1900, an investor might have believed Russia and China to be good long-term bets, only to see her wealth wiped out by revolutions. Belgium might have look like a good bet too back then.[9] The belief that equities always rise over the long run lead to investors buying shares at any price, thereby pushing valuations up to ridiculous levels (remember 1980s Japan?). Perhaps your history textbooks do not go as far back (or as far away)? In addition, many have used this equity "free lunch" argument for decades. But if you want earn a sure profit by going long equity and shorting bonds, you would need to buy a put option and these are costly; so much in fact that you would quickly realise that there is no free lunch!'

Still cool, Ed continues: 'Yale hardly invests in listed equity anyway. It does private equity.'

'A compensation device dressed up as an asset class. Hit it!'

'The dressed up asset class, as you refer to it, returned 92.7% annually over the last 20 years to Yale!'

'And do they regularly go for a jog on water? Maybe they can stroll across the Atlantic and lecture us on the beauty of using internal rate of returns. Do you know a mere $100 million growing at 92.7% over twenty years would be equal to no less than the *world* GDP! They must pay faculty really well, or have a good laugh when they type their annual report. How they dare display such misleading numbers in an annual report? There is no doubt that these guys are very competent, but that number is a travesty.'

'An Oxford academic published a paper exposing this issue and several major newspapers covered his findings. Yale had never replied to any of the many requests for comments. Recently, however, after yet another journalist pressed them, they did reply, and the text is shown in Exhibit 7.'

'Great essay! I give it a first-class. Allow me to translate: yes this number is junk but others use the same junk. The only way for us to do a junk-to-junk comparison is to use junk too. Rest assure we use non junk metrics too; we just do not show these in our annual report. Why? The non-junk numbers do not look as impressive? And how do students feel about the half-a-billion a year in fees Yale must pay to their private equity managers? That is only as much as the total amount of student tuition Yale collects a year.'

'I am not familiar with these calculations, but this argument has been made. As you know only net of fees returns really matter, that's how you should look at it, and these are great.'

'Yes, net of all fees private equity delivered the world GDP to Yale on a silver plate, you bet that's the way to look at it! And where do they find such high achievers? How much do they pay them?'

[9] Belgium had 20 times as many listed companies (per million inhabitant) than the US in 1913, and had 2.5x the stock market capitalization (scaled by GDP) of the US in 1913. Belgium annual real return in the 20th century was 2.5%.

'Yale mainly hires its own graduates. They accept below market compensation because of the prestige to work for the world leading asset owner. Andrew Metrick, a Yale Professor of Finance even said that 'David Swensen is the most underpaid person at Yale.'[10],

'Our bursar earns a whopping $100,000 a year here. He is one of the most highly paid employees at the college. This creates some controversy you know.'

'The magnitudes are a bit different on the other side of the pond. But remember as well one of the key reasons for the creation of OUEM: show potential donors that their money will be professionally managed.'

'We know this point. We have all received a letter from the head of development (Exhibit 6). How much does it cost to be "professionally" managed.'

'The complexity of investments requires a class of highly compensated individuals called Chief Investment Officers. Prior to this the treasurer would be in charge of the endowment, like here at Queen's; and she would receive a five digit salary. Things have changed, but it is quite a recent phenomenon. MIT named its first CIO in 2006: Seth Alexander, actually a Yale graduate who worked at the Yale endowment under David Swensen for a decade prior to going to MIT. Oxford, via OUEM basically had their first CIO in 2008. CIOs are asset management professionals. As universities match their pay they become the highest paid individuals in the non-profit sector by a wide margin.'

'That is madness!' How can a university compete with the excesses of Wall Street?'

'Despite these wages, the turnover of those with experience of managing endowments is high. Having mastered the Yale model, CIOs tend to leave campus for more lucrative opportunities, establishing their own investment firms, often subsidised with endowment money.[11],

'What about the famous David Swensen?'

'He stayed faithful to Yale despite many much more lucrative job opportunities. It is truly remarkable and it is probably down to his attachment to his Alma Mater.'

'How much?' shouted an impatient Fellow.

'In 2009, Swensen's compensation totalled a mere $5.3 million and Takahashi (the second in command) took home $3.4 million. In 2013 Swensen only got $3.6m. He and Takahashi can take comfort in the fact they are still the most highly paid people at Yale though, with the president coming third at about $1.5 million. It is important to bear in mind the exceptional track record of theirs, which is not always the case for the CIO of US Endowments. In 2013, the Harvard endowment performed worst of the eight Ivy League schools, while Jane Mendillo, its CIO, got a 100% increase in compensation over the previous year,

[10] Source
[11] E.g. Michael McCaffrey and Eric Upin of Stanford Management Co., and Bob Boldt of University of Texas.

bringing her to nearly $10 million for the year (Exhibit 9). Talking of Harvard, it actually happened that some of its investment professionals pocketed annual compensation of $35 million.[12]'

The Bursar turned a startling shade of red, and could not articulate anything. The Law Fellow, jumped in, something had caught his attention: 'You said earlier that CIOs may establish their own private investment firms, often subsidised with endowment money? Doesn't this smell of conflicts of interests?'

'You may have a point. Let us take Dartmouth College as an example. In 2009 the investment committee chair and trustee Stephen Mandel had to step in as CIO on a voluntary part-time basis. At the same time, Mandel's firm, Lone Pine Capital LLC, a well-known hedge-fund complex he founded in 1997, also managed an investment mandate from the endowment. Mandel initially managed $10 million for Dartmouth and that grew to about 4% of the endowment when Mandel was CIO. Apparently these investments did well, but it could have been otherwise. And Mandel is only one of several Dartmouth trustees whose firms managed investments for the endowment. Take buyout billionaire Leon Black. The Endowment invested at least $40 million in his funds while he was a trustee for the Endowment and he gave $48 million for the Black Family Visual Arts Center at Dartmouth. take Russell Carson and his private equity firm WCAS with at least $45 million of capital from Dartmouth, add Bradford Evans from Morgan Stanley, which ended up doing multiple transactions with the Endowment (international real estate, hedge funds, bond issuances). In 2012 a school's spokesman said that 13.5 percent of Dartmouth's $3.5 billion endowment is managed by firms that are related to trustees or investment committee members. But this is not just Dartmouth. Harvard, Yale, and Stanford have all engaged in the practice, often citing the trustees' expertise in financial matters. Yet, The University of Pennsylvania, Columbia University and the University of Texas all bar investment committee members from managing endowment money.'

The Law Fellow pressed: 'Nonetheless, people sitting on the board are usually from the private equity and hedge fund industry. It is the case at OUEM! It would be difficult for them to veto large allocations to such assets. Even if not directly conflicted, they naturally believe in their industry. It would be very hard for them to accept a fund going passive, giving everything to Vanguard for example. Take the Boston College investment committee, which included Fidelity vice chairman Peter Lynch, one of the most famous active mutual fund managers of all times. Even if one had demonstrated that Vanguard was a better proposition than Fidelity, its main competitor, or other active mutual fund managers, would this have been accepted?'

The bursar added: 'on ethics matters the appearance of conflicts of interest is nearly as bad as the act of conflict. It does damage to that reputation, which has taken many universities centuries to create.'

[12] Swensen publicly criticized Harvard for its compensation policy: "I have long said that the structure of Harvard Management is inherently unstable (…) paying some people $35 million where others earn $35,000 tears at the fabric of an institution."

Exhibit 5: Letter from Aberdeen AM to the College Endowment (Spring 2015)

"The last three years have generally been characterised by outperformance of the developed markets compared to the developing markets, so absolute returns have been low, particularly over the last 12 months. It is fair to say that our investment style is probably not best suited to the current liquidity driven markets, however, the returns achieved for investors remained reasonable in 2014 and over the longer term. All of the Aberdeen funds held by the College outperformed their market indices in 2014, with the exception of the Emerging Markets Smaller Cos fund which came close to matching the market return. All funds have outperformed over five years. This is despite 2013 being a particularly challenging year for us due to the impact of the 'taper tantrum' market setback in the autumn, and the weakness of the 'fragile 5' markets (India, Indonesia, Turkey, Brazil and South Africa) (...) although I must stress that investments are made on a bottom up basis looking at the quality of the companies held. (…)

Using the Emerging Markets (GEM) as an example, there has been little correlation between fund flows and performance. For example, in Q1 2014 we saw $3.5bn of outflows from our GEM funds but we outperformed. So far we have not seen any unexpected adverse price impact resulting from redemptions, as we run diversified portfolios with over approximately 50 holdings. Additionally, we are prepared to work redemption orders over a longer time frame if required. (…)

As you may recall, in February 2013 to protect existing investors we took the decision to implement a 2% charge on our European pooled vehicles (after a period of strong inflows from wealth and retail platforms). Coupled with the market uncertainty seen later in the year, this led to significant outflows. Following those outflows we have selectively accepted new institutional business, in order to replace some of the lost assets. As a consequence of this approach, we have been able to adjust the client balance and increase the percentage of institutional investors in the funds. We believe these institutional investors are more likely to have a long-term investment horizon and, as such, are less likely to withdraw their money from the fund based on short-term underperformance or market sentiment.

Furthermore, there are procedures in place to ensure that existing investors in the funds are not disadvantaged by flows into or out of the funds. These procedures are described in detail in the fund prospectus. To summarise; we make a dilution adjustment by swinging the price when net transactions on any day are greater than a predetermined trigger point for each fund. This trigger point can be 1%, 2.5% or 5% net subscriptions/ redemptions or any other rate that is deemed appropriate by the Manager. We also reserve the right to apply a charge to deals less than these trigger points, where it is believed this would be detrimental to the continuing shareholders (e.g. in circumstances where we are aware of an on-going series of individual trades below the trigger point which, in aggregate, exceeds the trigger point and is dilutive; or where market spreads widen very significantly). For this reason we believe that the value of your holdings will be protected from the impact of investor flows. (…)

We are still able to access the best companies in the regions and a review of the portfolios demonstrates this point with quality metrics such as return on assets, return on equity or operating margin demonstrating that our companies are better than the market. Our voice is also more meaningful because we are long-term, large investors in our companies. We believe our investors benefit from Aberdeen's role as a good steward of our companies by actively engaging with management, encouraging good behaviour whilst censuring bad. Furthermore, our long term, bottom up process means we are not dependent on constantly repositioning a portfolio in changing economic or market environments to add value (…)"

Exhibit 6: Highest paid hedge fund managers

Panel A: Year 2014

Firm	Manager	Return (%)		Compensation
		2014	2013	2014 ($ millions)
Citadel	Kenneth Griffin	14.5	17.3	1,300
Renaissance Technologies	James Simons	8.6	12.8	1,200
Bridgewater Associates	Raymond Dalio	4.6	4.1	1,100
Pershing Square Capital Mgmt	William Ackman	32.8	9.3	950
Millennium Mgmt	Israel A. Englander	7.4	13.5	900
BlueCrest Capital Mgmt	Michael Platt	7.9	12.6	800
Glenview Capital Mgmt	Lawrence M. Robbins	12.5	61.2	570
D.E. Shaw Group	David Shaw	11.1	13.2	530
Viking Global Investors	O. Andreas Halvorsen	11.9	22.7	450
Tiger Global Mgmt	Charles Coleman III	16.2	14.3	425
Average		*13*	*18*	*822*

Source: Institutional Investors Alpha & Zero Hedge

Panel B: Year 2013

Firm	Manager	Return 2013 (%)	Compensation 2013 ($ millions)
Appaloosa Mgmt	David Tepper	31.5	3,500
SAC Capital Advisors	Steven A. Cohen	n.a.	2,400
Paulson & Co.	John Paulson	27.3	2,300
Renaissance Technologies	James Simons	12.8	2,200
Citadel	Kenneth Griffin	17.3	950
Millennium Mgmt	Israel A. Englander	13.5	850
Omega Advisors	Leon G. Cooperman	22.4	825
Glenview Capital Mgmt	Lawrence M. Robbins	61.2	750
Third Point	Daniel S. Loeb	28.8	700
Bridgewater Associates	Raymond Dalio	4.1	600
Average		*24*	*1508*

Source: Institutional Investors Alpha & Business Insider

Exhibit 7: Letter from David Swensen

"The Internet boom comprises the beginning of the 20-year period in question, during which Yale's venture capital portfolio generated triple-digit single-year IRRs in three of its first five years, culminating in a 701.0% IRR in fiscal year 2000. Given the mathematics of the IRR calculation, a spectacular first five years of performance will have significant influence over the IRR of any longer term period. An anomalous period such as the Internet boom highlights this limitation of the use of IRRs, which is why we use several metrics to analyze the portfolio's performance. In addition to the IRR, we consider net multiples of invested capital, dollar gains, and various other metrics. That said, we believe that dollar-weighted IRRs, though imperfect, are more appropriate than traditional time-weighted returns for the performance analysis of illiquid portfolios. Furthermore, utilizing dollar-weighted IRRs allows Yale to benchmark its performance in an apples-to-apples fashion using data services such those provided by Cambridge Associates, which generally report pooled IRRs."

Exhibit 8: Letter from the Head of Development

"It is also worth noting that some Old Members who work in finance look at the asset allocation of the endowment and wonder what on earth we are doing. We have a lot of property, and virtually no fixed-income securities. We have reduced our alternative investments. We are still very heavily invested in emerging market equities. We know why we do this, but it is not at all obvious to some outsiders. At one memorable event a very loud lawyer remonstrated passionately that the College should seek much more investment advice from Old Members and that it was impossible otherwise to have confidence in our arrangements. His point was, so far as I could tell, utterly unfounded and un-researched – but he was supported by many nodding heads and murmurs of approval. In general terms we don't need to worry about what outsiders think; but some of the people who are most interested in the endowment will be people who might give us helpful advice (not to mention other gifts). Since we are fund-raising primarily for endowment, it is extremely important that Old Members have confidence in our arrangements: to some extent they are making an investment decision when they give a large capital sum to the College. They need to be sure that it is sensible to give money to the College now, rather than investing it themselves and giving it later."

Exhibit 9: College Endowment CIO Salaries in 2013

School	CIO	Endowment Size ($ millions)	3-year avg. return (%)	2013 Pay ($ millions)	Change from 2012 (%)
Harvard	Jane Mendillo	32,300	10.5	9.6	99%
Notre Dame	Scott Malpass	6,900	11.9	3.9	10%
Columbia	Nirmal Narvekar	8,200	12.1	3.7	9%
Yale	David Swensen	20,800	12.8	3.6	15%
Northwestern	William H. McLean	7,900	11.6	3.1	7%
Univ. of Texas	Bruce Zimmerman	20,400	9.2	2.5	27%
Stanford	John Powers	18,700	11.5	2.5	-19%
Duke	Neal Triplett	6,000	12.6	2.3	57%
Princeton	Andrew Golden	18,200	12.0	2.2	-21%
Univ. of Virginia	Lawrence Kochard	5,200	14.0	2.1	10%
Univ. of Chicago	Mark Schmid	6,700	10.6	2.0	-2%
Univ. of Michigan	Erik Lundberg	8,400	11.1	1.4	5%
MIT	Seth Alexander	11,000	12.3	1.4	16%
Emory	Mary Cahill	5,800	10.3	1.4	25%
UCLA	Srinivas Pulavarti	1,500	9.9	1.4	n.a.
Johns Hopkins	Kathryn Crecelius	3,000	11.2	1.3	18%
Bowdoin	Paula Volent	1,000	13.3	1.3	2%
Univ. of So. Calif.	Lisa Ann Mazzocco	3,900	11.1	1.1	0%
Cornell	Albert Edwards	5,300	10.2	1.1	n.a.
Dartmouth	Pamela Peedin	3,700	12.0	1.1	5%
Average		*9,745*	*12.0*	*2.0*	*15%*

Source

The Canadian Way

'I propose we talk about an alternative to the Yale Model which has gained considerable traction: the Canadian Model,' an unfamiliar voice spoke up from the back of the room. Another new Fellow, she was a Professor of Financial Economics, and had just arrived from Toronto. 'The Economist heralded this model as the "Maple Revolution." Many consider it the investing model of the future.'

The bursar looked aghast: 'The future? Out of Canada? My lord, what a day, I don't know if my heart will hold until the end of this meeting. My vintage Port later on this evening will be more welcome than ever.'

'I've actually done some research on CPPIB – the largest pension fund using this model. The model has different names like "Opportunity Cost Model", or "Canadian model." Its main elements have been adopted by GIC, one of the sovereign wealth funds of Singapore, the New Zealand Superannuation Fund, and a number of other funds. The largest asset owners on the planet are all scrutinizing this model.'

Edward stepped in: 'Yes, the largest sovereign wealth fund in the world (GPFG, from Norway) has commissioned a report to study whether it should adopt the Canadian model. An Oxford academic was actually hired to discuss that report. But perhaps a bigger move is coming from Japan.'

'Japan is moving! Canada is the future! All these firmly held prejudices going down the drain!' Shouted the bursar.

Edward continued: 'Japan's Government Pension Investment Fund (GPIF) is no less than the world's largest asset owner with $1.4 trillion in assets. The allocation used to be 80% passive. Plain and simple. They had around $200 billion in Japanese stocks, which was at times about 10% of the total capitalization of stocks in the TOPIX index. But most of the money was in Japanese government bonds. GPIF had no exposure to private equity, hedge funds, real estate, commodities, or infrastructure. They went on for years like this and then decided to change radically in 2014 and appointed their first ever CIO. They hired him out of Coller in London, a secondary private equity market specialist. GPIF then unveiled its asset allocation reforms: the target allocation of domestic and international equities will both be doubled to 25%, investments in alternatives will be made (infrastructure, private equity and real estate), with a total allocation of up to 5% of the overall portfolio; with all of this at the expense of Japanese bond investments, which will drop from 60% to 35%. Note that last September GPIF struck a partnership with the International Finance Corp. (IFC), part of the World Bank Group, under which GPIF will provide some $500 million for IFC to invest in private equity in developing countries.'

'This is rather Yale-ish, but let us hear more about this Canadian revolution. I do like a good chuckle.'

The Canadian Fellow stepped in: 'They are quite the opposite of Yale on many fronts.'

'Oh, do they pay their CIO $100,000?'

'No, that bit is actually similar: they paid their CEO between $2.4 million and $4.2 million, depending on performance. For example, in 2013, the CEO pocketed $3.1 million for a 16.5% return. In that year it was actually less than another smaller Canadian pension fund which is actually sometimes credited as the pioneer of the Canadian approach: Ontario Teachers gave its CEO $7.3 million for a 10.9% return.'

'While they barely matched their benchmark return that year!' the bursar interrupted, 'and of course CPPIB lost 18.6% in 2008 but the CEO walked home with $2.9 million. In nine years of existence this 'Canadian model' generated $29 million for the CEO, about as much for each of the rest of the four most senior executives and a total of $2.2 billion paid in compensation across all staff for a performance slightly above *their* benchmark, below that of the S&P 500, below that of our college etc. (Exhibit 10) Please, dear economist, explain to me how this compensation system is an optimal contract, why this is needed for people to work really hard and solve moral hazard problems, making contracts incentive-compatible, the result of a dynamic principal agent problem, as you guys say, right? I bet this generated a few Nobel prizes as well!' There was a murmuring from the back of the room: '…it certainly did.'

'Small wonder all these pension funds and endowments want to go Canadian. I tell you what is new here: we now have compensation packages dressed up as professional investment models.'

'The incentive structure is certainly an important topic. Let me just stress that there is actually a claw back system for their salary based on a rolling four years return. Facing criticism, however, CPPIB elected not to pay the "personal performance" portion of its most senior employee's bonuses for 2009 but otherwise fulfilled its incentive plans.'

'Whatever that means. Just tell me, what makes the Canadian model so special?'

'Firstly, they do not think in terms of asset classes, but rather, in terms of factors.'

'This is topical, everyone is talking about factor investing nowadays.'

'Asset class labels are misleading. One of the lessons of the global financial crisis was that equity-like risk was present in many investment portfolios under the guise of different names and structures; the Opportunity Cost Model seeks to identify this ex-ante, instead of realizing it after the fact. Canadians just divide things between fixed income and equity and the split is based on their risk appetite. Fixed income means lending money. Equity means anything that the team of pros decides to do. It can buy shares in a privately held company like Skype, a gold mine in Australia, a stake into a KKR-managed fund, shares in a listed company like Apple. They call the shots and if they call it right they earn a bonus.'

'Just like in a Casino. These kids must have fun. Especially if you think of how boring it was to work in a pension fund in the old days: buying bonds, duration matching… I am yawning just thinking about it.'

'It is getting more exciting over time. It really all started less than a decade ago from a very boring asset allocation. Then came private debt and commercial property mortgages (2009), then came intellectual property, such as drug patent royalties (2010), then came agricultural land and other resource holdings (2013), then came thematic investing (2014).'

'And then came the telegraph road!' sang a Fellow at the back of the room.

'What is thematic investing?' asked the bursar.

'In thematic investing, the investment team first identifies a major structural change or a trend that is expected to evolve and affect security prices significantly over many years. The team then determines the asset classes, industries and companies expected to gain from this evolution, and invest accordingly.'

'So much excitement out of Maple land. The advantage of an investment committee made up of academics like us is that the excitement factor would be the last thing to blur our decision making process.'

'But the real innovation is the reference portfolio. They see it as their single most important decision.'

'That is just a benchmark, not a way to invest. What's the big deal?'

'It is more than a benchmark, it is the core passive alternative to CPPIB's active management strategy.'

'That's what any benchmark is supposed to be.'

'But it influences how CPPIB adds value, manages risk and the way investment decisions are taken.'

'Sure, like any benchmark.'

'The Opportunity Cost Model forces an investment manager to articulate the marginal benefits of her proposed investment over own expenses and the risk-adjusted factor benchmark. That is, any new private market asset is evaluated on its opportunity cost of easy-to-implement public market investments.'

'Again, that's the role of any benchmark.'

'A hallmark of this Opportunity Cost Model is that the fund manager is free to invest in assets not included in the Reference Portfolio, but all investments are benchmarked against it. The point is that in the Opportunity Cost Model, the fund manager is not forced to adhere to fixed asset class positions and can change these allocations based on a view of whether they are cheap or expensive. The manager has appropriate incentives to make the investments with the best marginal contribution to risk and return for the overall portfolio, rather than the best available investment within each asset class.'

'I like this principle a lot. I know the problems that are created in practice with people sticking to fixed asset class weights, especially because these weights are determined by mean-variance analysis and based on recent past returns. If venture capital has done well over the last 5 years then everyone increases that allocation, which drives prices up and expected returns to the ground. Point taken and kudos. But I am concerned that this is partly illusory because the human capital allocations will in fact constrain your asset

allocation in the usual way. You can say what you want about freedom to invest in whatever, but if you hired three people who specialize in private equity Africa, you will get half a dozen investments in private equity Africa a year, irrespective of whether that is a great or a poor idea. They may be constrained by this reference portfolio, but up to a point. What is in this reference portfolio anyway?'

'The CPPIB Reference Portfolio is a mix of 65% equities (10% Canadian, and 55% foreign) and 35% debt (30% Canadian nominal debt and 5% hedged foreign sovereign bonds).'

'That's it? Really? But you cannot just say that anything you generate above a 65%-35% portfolio is added value, can you? I can short put options, underwrite insurance against earthquakes, buy below investment grade bonds, go 100% equity, even better I could lever up equity and on average I will have created a lot of value under this definition, thereby earning myself a huge bonus. The issue is that doing all of the above increases the probability of blowing up the pension fund. This is why, usually, we recommend a benchmark that has similar risk characteristics. And that is why virtually all investors have a different benchmark per asset class and investment strategy.'

'They decompose their value added between Beta strategies and Alpha strategies. What you just described are the Beta strategies. But they also have the Alpha strategies.'

'But you should not compensate someone for Betas. Betas are cheap. I don't need to pay for Betas.'

'Importantly, as part of their Total Portfolio Approach, the board defines an Active Risk Limit, precisely to avoid what you just described: people levering up indefinitely. In other words, this avoids the fund manager "gaming" the factor benchmark in ways you just mentioned. Any deviation from the fund's benchmark is costly in terms of consuming part of the active risk budget. The fund manager wants to find an appropriate risk-adjusted funding mix that minimizes benchmark deviation volatility.'

'These are all great names. I too like Johan Cruyff. How is the Active Risk Limit computed?'

'It is a Value-at-Risk (VaR). I suppose it is done the usual way: assume volatility, return and joint correlations for each type of assets in your portfolio, assume all returns are joint normally distributed and the mix of assets you have should generate less than a 10% chance to lose 10% of your wealth.'

'A limit is wonderful, but all the bits between the benchmark and the limit is not to be compensated for. You shall not pay for Beta.'

'They calculate how much comes from the better beta strategies and the alpha strategies. The risk limit is so strict that it mostly comes from alpha strategies.'

'Oh, of course it's all just alpha anyway. And please stop saying better beta strategies. There are no such things. If the beta tricks do not play a big role in their total added value, they should take it out.'

Edward came to the rescue: 'I think the bursar has a point and CPPIB seems to have come to the same conclusion. They mention in their latest annual report that they will create a strategic portfolio in addition to the reference one. It looks like the strategic portfolio will account for the beta tilts.'

'Will they then pay bonuses solely based on excess return to the strategic portfolio?' the bursar quizzed.

The Canadian Fellow conceded: 'It's not clear to me. But Exhibit 10 shows that they outperformed their benchmark.'

'They beat a 65% equity - 35% bond portfolio by 0.52% annually, didn't they? That is awesome. They certainly deserve the $2.2 billion of compensation. What is the return of factor tilted equity portfolios over the same time period? What if I had invested in equity only and overweighed low-volatility, value, mid-cap and perhaps high momentum stocks? What would have been my return then? And I could have done that with ten employees. This should be the benchmark. The truly best available passive alternative.'

'Sure but we do not know whether these factors are real or not, maybe the outperformance of these stocks will not repeat. Maybe smart beta would become dumb beta as everyone steps in and bids up prices?'

'I agree it is not totally obvious, but the bets on private equity and the like of the last decade may be a bet on these factors in disguise. Private equity may very well be a low-volatility, value, mid-cap strategy. If so, the benchmark should be higher. You need to look at smart beta returns for example.'

'Unless you want to reward people for actually making these factor bets, for having spotted that it was worth loading up on these factors,' the Canadian Fellow suggested.

'Yes, difficult issue. Perhaps it is just much simpler to pay people fixed salaries, just like we do here.'

'There is another important aspect of the Total Portfolio Approach. Each dollar that is collected by CPPIB (these are pension contributions) goes into the reference portfolio. That is, they buy bonds and stocks with all the money coming in. Then, if a $100 private equity investment is made, they sell $130 of stocks in the same geography and industry and buy $30 of government bonds. This means that if, as you said, you increase private equity just to pump up risk, it would not work because the portfolio has now more government bonds in it.'

'Why 1.3x? Private equity is usually 70% debt – 30% equity while the stock-market is about 30% debt – 70% equity. This implies a beta of about 2. Have you not been to business school?'

The Canadian Fellow actually had earned an MBA, but it was from the London Business School. Nevertheless, she pursued: 'I am not sure where 1.3 comes from, but an Oxford academic was part of the team that proposed one of the first methodologies to measuring risk for non-listed assets, and the finding was that private equity had a beta of 1.3 in a CAPM setting. Perhaps it is just a coincidence.'

‘This is interesting. They are just using the CAPM formula. I dare say it is perhaps too academic. What you describe feels like they shoot themselves in the foot for no reason. You want to invest in a given private equity fund because you think it is a good opportunity, you trust the GP. You give her $100 but then force yourself to pay $30 of an asset that pays zero interest. I understand you reduce your risk but you just burn some money right there. Especially if you had decided to invest in private equity because interest rates are low, i.e. lending is cheap, this action would just undo your vista. In addition, you would hope your GP knows the right type of companies to buy. Assume your GP spots that European retailers are cheap and calls your $100 to invest in that sector. The first thing you do is sell $130 of stocks of European retailers. You more than cancel any good flair of your GP, you do the opposite of what she says; in fact you do more than the opposite. Finally, I am not sure how it squares up with the Greenspan put. In a recession there are two options. The Fed steps in, lowers interest rates, in which case private equity is saved and your bonds go up in value. Or the Fed does not step in and they both turn sour. It does not feel like a great hedge.’

‘The bottom line and what is truly unique and remarkable is that all investments are characterized in terms of their funding costs based on securities in the Reference Portfolio. Instead of directly specifying a private equity benchmark, CPPIB recognizes that private equity investments embody some elements of equities and bonds and are often levered, which is equivalent to a short position in fixed income assets. Similarly, CPPIB does not consider real estate a separate asset class, but funds real estate investments with a mixture of equities and bonds. One of the investment principles underlying the Total Portfolio Approach is that reliance on asset labels and a singular benchmark masks the heterogeneous nature of assets, especially in private markets. A fully leased and well-located core office building represents different risk and return attributes for a portfolio than a retail shopping centre in a secondary market undergoing necessary refurbishment, notwithstanding that both are labelled as real estate.’

‘You are right but under the model you describe these two investments would still be considered the same thing because they would be funded and benchmarked the same way.’

‘Perhaps the most attractive feature of the Opportunity Cost Model is a clear delineation of accountabilities. The fund manager has the latitude to make investment decisions subject to an active risk limit determined by the asset owner. Arguably, this places appropriate accountability with the party best able and positioned to make informed decisions. The onus is always on the fund manager to justify costs of active management and to outperform the Reference Portfolio. Thus, all alternative assets use the opportunity cost of the Reference Portfolio as their benchmarks, rather than having to specify separate benchmarks for each alternative asset class. Moreover, this freedom given to fund managers means that they can be creative. It is unclear whether we would have such an extensive and envied direct investing programme in private equity

if we did not have this overall framework. Here investment managers could do objective research, reach a conclusion of the type "private equity investing delivers alpha would it not be for the large fees to intermediaries" and then proceed to devise a way to avoid those fees. In a traditional setup, this investment manager would have probably not undertaken any such research to begin with but would not have had an incentive or even the possibility to act on the results. Her mandate would be given from the top to invest in private equity funds and this is what she would have to stick to.'

'This is a very desirable aspect indeed. Are you saying that Canadian pension funds invest directly in private equity, just like a merchant bank would or a specialized firm like Blackstone?'

'That is correct. While the vast majority of endowments, pension funds, and sovereign wealth funds invest in private equity exclusively through funds, a distinguishing feature of organizations such as OTPP, OMERS, CPPIB, GIC, and PGGM is that they undertake direct investing. This direct investing takes several forms: i) investments that are sourced solely by the institution itself (or co-sourced with other institutions); ii) investments that are co-sponsored in conjunction with a private equity manager; and iii) syndicated co-investments offered by private equity managers after the close of a transaction. In the co-sponsor model, the institutional investor relies on the private equity manager to originate the transaction, but then participates actively throughout the process (deal structuring, pricing decisions) and pays for due diligence costs. In the case of sole or co-sourced transactions, the institutions themselves originate the opportunity and then conduct and control all aspects of the transaction process.'

'Sure, direct investing sounds great on paper. Who actually likes paying substantial sums in fees to private equity firms? However, think of the necessary due diligence, and how costly that would be. In a sense, if you want the same quality of people internally you need to match or exceed what they are paid by the private equity firms and these firms basically pay everything in salary, they hardly make any profit. This is just moving costs around.'

'It doesn't come free but it's not as expensive as investing via funds either. In addition, like Yale, people accept lower than market salaries because of the entrepreneurial yet safer environment. Also having experience in the Canadian model is something highly sought after on the job market. André Bourbonnais joined PSP as CEO leaving CPPIB, where he was only head of private investments. But yes, CPPIB has offices in Toronto, London, Hong Kong, New York, Luxembourg and Sao Paulo; and 1,266 employees with total annual salary expenses of about $600 million ($876 million of operating expenses). A mere ten years ago, it was just 154 people in a single Toronto office. Yale has basically one person per billion while CPPIB has about one person per $200 million. By the way, this is the same ratio as you here at Queen's.'

'I do things other than endowment management in my job' replied the bursar, 'if it is good, why do only these few institutions you named do it?'

'About every asset owner I know is thinking about direct investing in private equity. And in a sense, most are already doing it. When you guys invest in a farm or in a pub, as you have done recently, you are doing direct investing. And by the way, having one percent of your endowment invested in one pub (London Apprentice)… nice! Do you get free beer? But here is what a spokesman for CalPERS, one of the largest public pension plans in the U.S. said on this: "The reason our policy prohibits (solo) direct investment is that, as a public entity, CalPERS does not have the level of staffing nor the compensation levels required to adequately lead, review and monitor deals at the level required in the direct-invest environment." But like many other pension funds, they do co-investments. This is less taxing.'

'I am not sure it is. Co-investing feels strange to me. You delegate money to a fund manager, pay that manager a lot and then when that manager invests your money you decide whether you add some money or not. You are basically second guessing that manager. What makes them think they can do that? And it is not clear you pay a lot less fees by doing so because of portfolio company fees and the like. And even then, if the purpose is to pay less fees, then negotiate to pay less fees directly. Why would you go via this indirect, untested and pretty wild looking route to obtain lower fees.'

'Another advantage of the sole or co-sourced approach is that you have full control over the hold period of your investments. Take OTPP's investment in Maple Leaf Sports and Entertainment which it purchased in 1994, held for 18 years and then sold for C$1.32 billion at a substantial gain.'

'Good but at the end of the day it seems that most of CPPIB's investments in private equity are done via mega private equity funds: Bain, Apollo, KKR and CVC, which is actually the type that Yale avoids because they say that incentives are not well aligned in mega funds. Direct investments are anecdotal.'

'CPPIB is big. This is a major discussion point for many organizations in the world as the last twenty years has seen a surge in mega asset owners. Many organizations have more than $100 billion to deploy nowadays, a handful are above $500 billion. That brings a handicap - you are constrained to large private equity firms and to large stocks - but it can also bring benefits. For example, who could invest in a 20 years horizon infrastructure project that cost $1 billion? Not many organizations at all. Hence CPPIB and the like can ask for higher returns there. They've been involved in some of the biggest private equity transactions in history. In 2009, CPPIB invested $300 million in Skype, and sold their stake to Microsoft just two years later for $993 million. In 2010, they partnered with the Canadian private equity firm Onex to acquire the British automotive parts supplier Tomkins plc. The $5 billion leveraged buyout was the largest private equity transaction globally of the year. CPPIB provided $1 billion for a 50% equity stake. In 2011, CPPIB

participated in a consortium with Apax Partners and the Public Sector Pension Investment Board to buy out a medical device maker Kinetic Concepts. This $6 billion deal was the second largest private equity transaction of the year. In 2012, CPPIB bought Tomkins's heating, ventilating, and air-conditioning business for C$1.1 billion, as Tomkins continued to sell non-core units. In 2013, the team acquired CPPIB's largest private asset to date: a 40% stake in 407 International inc, which is the operator of the 407 Express Toll Route (a 107-kilometer all-electronic toll highway north of Toronto). Talking of infrastructure the OECD "Infrastructure to 2030" report estimates that, over this period, average annual expenditures will approximate $3 trillion and the total value of infrastructure assets will grow to $71 trillion. Infrastructure represents a sizable investment opportunity for pension plans and sovereign wealth funds because the typical lengthy lives of these assets match the long-duration liabilities of these funds.'

'Infrastructure is a buzz word. Most of these investments are just leveraged buyouts in disguise. A decade or two ago, some "infrastructure" investors were sticking the "infrastructure" label on phone directories companies. Nowadays a motorway service station would be labelled "infrastructure."'

Some unexpected laughter suddenly sprang up from a handful of Fellows. The bursar and the provost turned towards them, visibly outraged. Candidly, a Fellow explained: 'apparently the Mathematics Fellow was still confused about what the Canadian model was about and decided to Google it. From the results he gets, there is no doubt Canadian models can be attractive options.'

As the laughter spread, the bursar took control and stopped this digression: 'We will now move to the pressing issues for Queen's endowment.'

Exhibit 10: CPPIB returns and compensation

Panel A: Returns relative to benchmarks (in percentage, annual)

Year	Return	Reference Portfolio	S&P 500	Smart Beta	
				Max Sharpe Ratio	Min. Volatility
2015	18.30	17.00	1.36	-3.99	0.37
2014	16.50	16.40	13.52	9.06	9.97
2013	10.10	9.90	32.15	10.72	5.13
2012	6.60	4.60	15.89	6.77	6.22
2011	11.90	9.80	2.10	4.44	1.89
2010	14.90	20.80	14.82	18.97	12.16
2009	-18.60	-18.60	25.94	23.47	14.15
2008	-0.30	-2.70	-36.55	5.05	1.84
2007	12.90	10.40	5.48	25.87	9.62
2006	15.50	n/a	15.79	9.58	5.96
Average	8.78	7.51	9.05	10.99	6.73

Panel B: Executive compensation and value-added (in million of Canadian dollars)

Year	CEO	Next top 4 executives	All Personnel	Value-Added
2015	3.69	13.45	558	2800
2014	3.64	12.86	400	-100
2013	2.76	9.79	313	-300
2012	3.21	8.92	292	2700
2011	3.05	8.50	214	2700
2010	2.99	7.50	145	-6300
2009	2.92	6.40	111	0
2008	4.16	8.87	95	2900
2007	2.37	5.45	72	2400
Total	28.79	81.74	2200	6800

Source: Annual reports. Smart Beta Index (Maximum Sharpe Ratio and Minimum Volatility) returns are obtained from Elston Strategic Beta Indices, accessed via Datastream.

The Queen's College Asset Allocation Policy Review

The bursar was now on his turf and his tone was more assertive: 'the endowment management policy adopted by the committee in 2013 requires the College to subject the asset allocation of the endowment to a substantial review no less frequently than once every 3 years. It also states that to accomplish this, the Bursar and the Investment Officer should collect advice, evaluate it and propose an allocation to the Estates and Finance Committee. A substantial review is a major undertaking. In order to make this process manageable and efficient, I would like the committee to discuss (and perhaps even answer!) several preliminary questions so that we can set off on this journey on routes that are likely to be fruitful. The questions appear below, together with some initial comments of mine in italics.'

1. Do we want to reconsider the overall property–equity split in the endowment?

It is customary for older and richer Oxbridge Colleges to have substantial directly owned property holdings. They generate useful cash, and hopefully offer some protection against inflation, plus occasional windfalls from small-scale development or (if we are lucky) major regional schemes. Our policy target allocation is quite high, however; do we still think it is right? Also, we recently launched a new housing schemes for fellows whereby the college acquires houses in Oxford in order to provide subsidized accommodation to fellows. We expect to buy about £2 million of houses, in total, through that scheme. This is not done from the Endowment budget. Yet, should this affect our portfolio allocation?

2. Do we want to re-examine our policy of opting for passive funds in developed markets and active funds elsewhere?

We debated this at length in the last review, and I think it is fair to say that the committee was not unanimous in agreeing the current policy. The rationale of the policy is that we think, put very simply, that there are inefficiencies in developing markets which a good manager can identify and exploit. One anomaly which I would like to resolve is that of Japan; by any reasonable standard this is a developed market, and I would rather we switched our investment to an appropriate ultra-low-cost ETF.

3. Do we want to re-examine the geography of our equity allocation?

For an institutional endowment we are very unusual in having such a high allocation to developing markets. Personally I think that it would be remiss not to re-examine this now; it is such a striking policy that even if we think we are comfortable with it, we should consciously challenge ourselves to (re-)justify it.

4. Do we wish to continue to reduce our private equity allocation to zero by not investing in new funds? If we do, do we want to consider proposals we have received to sell our currently fund stakes on the secondary market at a slight premium to their Net Asset Value?

5. Do we wish to maintain our null allocation to hedge funds?

6. What do we do about Aberdeen AM? Shall we stay or shall we go?

7. Do we want to re-examine the geography of our property allocation? In particular, the farms.

There is intense competition in the UK for farms in particular because the Oxbridge college have large targeted allocations to this asset class. Perhaps this push prices up and yields down. Farm land in other regions of Europe (and beyond) is apparently much cheaper. But we never seriously researched this point.

8. Would we like to explore the possibility of investing in commodities?

Strikingly, commodities are one of three fundamental asset classes in which we have no formal allocation. We have substantial secondary exposure, of course. Do we want to think about other options?

9. Would we like to consider allocating some of the endowment to cash?

This is a fundamental asset class for which we have no formal allocation. Do we want to consider one? On this point, we currently have £17 million in cash coming from the bond issuance. We will need this cash to pay for some buildings in about two years. Meanwhile, do we give it to the OUEM capital fund? Do something else with it?

10. Would we like to consider allocating some of the endowment to fixed-income securities?

I think that this is a corollary of question 1; the two questions are closely linked because the key justification for our elimination of bonds is that property serves us better.

11. Does the committee want to develop a sustainable investment policy?

I would like to hear what the committee thinks. The reason I raise it is simply because it is topical and people – including Fellows, junior members, and Old Members – ask me about it.

12. We are unusual in having the opportunity to invest in OUEM, a ready-made professionally managed endowment offering exposure to a wide variety of asset classes with minimal fees. Do we want to reconsider whether some fraction of our target allocation should be achieved via investment in OUEM?

Exhibit 11: Detailed Queen's College Endowment Asset Allocation

	Style	Policy Allocation	Current Allocation		
			Class	Manager	Vehicle
Listed Equities		65	63.8		
Aberdeen Asset Management	*Active*			18.3	
- Asia-Pacific (ex. Japan)					6.7
- Asian Smaller Companies					3.5
- Emerging Market Smaller Companies					3.4
- Emerging Markets					1.6
- Japan					3.1
Legal & General	*Passive*			38.9	
- UK					18.6
- Europe					9.5
- US					10.8
Arisaig	*Active*			6.7	
- Asia Consumer Fund					6.1
- Africa Consumer Fund					0.6
Private Equity		0	1.8	1.8	
Apax Europe VII	*Active*				1.2
Other Private Equity Funds	*Active*				0.6
Property		35	26.8	26.8	
Agricultural Properties	*Direct*				13.5
West Raddon Farm	*Direct*				0.8
Trewarnevas Farm	*Direct*				0.5
Urban Commercial Properties	*Direct*				8.9
Rosebowl	*Direct*				0.3
The London Apprentice	*Direct*				2.3
Hercules Property Fund	*Active*				0.3
Cash	*Direct*	0	7.6	7.6	7.6

All figures are in percentage. As of March 31st 2016. Source: Queen's College Endowment.