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To: The President's Commission on University Investments
- Chaired by the Hon. H.N.R. 'Hal' Jackman

From: George Luste, -President, University of Toronto Faculty Association (UTFA)
- and Professor, Physics Department

Re: **University of Toronto Asset Management (UTAM)**

The suggested 30 minutes of time requires I be selective in what I discuss and how much detail I can present. I trust this outline will be helpful.

- I. My Conclusion**
- II. Background**
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I. My Conclusion - as presented in the memo at the April 27, 2009 Business Board meeting

The evidence of the past nine years, not just the catastrophic losses in 2008, suggest that it is time to admit, for the good of the pension plan and our institution, that the UTAM experiment has been an expensive mistake.

On investing –

“Successful investing involves doing just a few things right and avoiding serious mistakes.”
John C. Bogle, founder and former CEO of the Vanguard mutual fund group

II. Background.

UTFA represents about 2,500 dues paying faculty and librarians on the three campuses of the University of Toronto, and an additional 600 retired faculty and librarians. UTFA members are the major stakeholder group in the UofT Registered (RPP) and SRA pension plans. As of March 31, 2009 the RPP pension plan assets are valued at about \$1.96 billion. The *wind-up* pension liability (not the *going concern* liability or the *solvency* liability) is approximately \$3.9 billion. This pension asset shortfall is about \$2 billion.

In 2008 the UofT pension plan’s asset valuation decreased by about \$900 million. Approximately 65%, or about \$600 million, of this loss relates to faculty and librarians.

Many of the following issues have been raised in recent years by UTFA at the meetings of Business Board of Governing Council.

If the committee members wish to hear a brief summary of my education and experience regarding investments over the past 45 years, I would be pleased to oblige but I don’t wish to self-promote or take time at the expense of discussing UTAM issues.

III. Returns – 2000 to 2008 – UTAM and the markets

1.8% => the annual investment return for the nine UTAM years, from 2000 to 2008.

The UTAM annual compound return was 1.8% with a standard deviation of 14.1% covering the time period for the nine UTAM annual reports. The annual inflation rate (CPI) over the same time period was 2.1% with a standard deviation of 1.0%. In short, the overall UTAM annual returns were less than inflation over the nine years. The target return rate for the pension plan is 4.0% above inflation, or about 6.1% annually for the nine years. This difference between the assumed 6.1% and the real return of 1.8% implies a very substantial increase in the deficit of the pension plan.

A below average return over a short time period does not, by itself, prove any lack of investment skill. Similarly an above average return over a short time period does not prove, by itself, the converse, real investment skill. Differentiating between true investment skill and luck or bad luck is a difficult task. Thus I urge the commission to consider carefully *why* the UTAM investment returns are what they are rather than the numbers themselves.

The table below has the nominal index returns in Canadian dollar terms. This means the Canadian percentage return in the table for the foreign indexes will increase in the years when the Canadian dollar decreases and conversely decrease in the years our dollar increases relative to the foreign currency. (This assumes no currency hedging.)

Nominal annual pretax returns in Canadian dollars - over the nine UTAM years													
Year	UTAM	Annual Canadian Inflation	3 month T-bills	Short Canadian Bonds	Long Canadian Bonds	All Canadian Bonds	Real Return Bonds	TSX Composite	S&P 500	Wilshire 5000	MSCI EAFE	MSCI Emerging Markets	Gold Bullion
2000	5.2%	3.2%	5.5%	8.2%	13.0%	10.2%	16.6%	7.4%	-5.6%	-7.4%	-10.6%	-27.9%	-1.8%
2001	-1.5%	0.7%	4.4%	9.4%	6.1%	8.1%	0.6%	-12.6%	-6.4%	-5.4%	-16.3%	3.7%	7.0%
2002	-7.0%	3.9%	2.5%	6.3%	11.1%	8.7%	15.3%	-12.4%	-22.8%	-21.6%	-16.5%	-6.9%	24.4%
2003	15.9%	2.0%	2.9%	5.1%	9.1%	6.7%	13.2%	26.7%	5.8%	8.2%	14.4%	28.4%	-1.5%
2004	11.4%	2.1%	2.3%	5.1%	10.3%	7.1%	17.5%	14.5%	2.8%	4.4%	11.9%	16.8%	-3.0%
2005	12.3%	2.2%	2.6%	2.4%	13.8%	6.5%	15.2%	24.1%	1.5%	2.9%	10.3%	30.2%	13.9%
2006	12.1%	1.6%	4.0%	4.0%	4.1%	4.1%	-2.9%	17.3%	16.0%	16.1%	27.1%	32.9%	23.5%
2007	6.0%	2.4%	4.3%	4.1%	3.4%	3.7%	1.6%	9.8%	-10.3%	-10.1%	-5.0%	18.9%	12.2%
2008	-29.5%	1.2%	2.8%	8.6%	2.7%	6.4%	0.4%	-33.0%	-22.6%	-23.0%	-30.0%	-42.5%	28.2%
Geo Mean	1.8%	2.1%	3.5%	5.9%	8.1%	6.8%	8.3%	2.8%	-5.4%	-4.8%	-3.2%	2.4%	10.8%
Std Dev	14.1%	1.0%	1.1%	2.4%	4.2%	2.1%	8.4%	19.9%	12.8%	13.2%	18.5%	26.8%	12.1%
Average	2.8%	2.1%	3.5%	5.9%	8.2%	6.8%	8.6%	4.6%	-4.6%	-4.0%	-1.6%	6.0%	11.4%
Min	-29.5%	0.7%	2.3%	2.4%	2.7%	3.7%	-2.9%	-33.0%	-22.8%	-23.0%	-30.0%	-42.5%	-3.0%
Max	15.9%	3.9%	5.5%	9.4%	13.8%	10.2%	17.5%	26.7%	16.0%	16.1%	27.1%	32.9%	28.2%

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A similar table for index returns going back further in time, in some cases to 1970, is attached as Appendix-A.

IV. Active (UTAM) vs Passive (indexes) debate and returns – 2000 to 2008

To my knowledge there has not been any public debate or discussion at Business Board on the merits of passive investing versus active investing.

My impression is that the UTAM Board and the UofT Business Board have a strong *active bias* and thus I am doubtful that there has been any serious assessment of this basic question.

In the long run passive index investors will outperform most active investors. Jack Bogle and others have repeatedly shown this to be so. (I realize that there may be push back on this fact from some members of the committee who are in the investment business.)

Warren Buffett estimates that the various forms of frictional costs due to active financial management absorbs about 20% of the total earnings of American business. This 20% is lost to the client investor. (Please see Appendix-B for Buffett’s text on “How to Minimize Investment Returns”).

5.3% is the return for a simple passive investment policy over the same 9 years

To quantify how a hypothetical passive investment policy might compare with the actual UTAM returns, the table below illustrates one passive portfolio, consisting of the Canadian TSX index and the All-Canadian Bond index. The comparison is applied to the pension plan asset base. While the 5.3% return is still less than inflation at 2.1% plus the target 4.0% real return, it is significantly better than the actual UTAM result of 1.8%. And the passive portfolio has a lower volatility, with standard deviation of 9.7% instead of UTAM’s higher 14.1%. In six of the nine years, the lower volatility passive portfolio outperformed the UTAM results and in the other three years the UTAM results were better than the passive portfolio. The 3.5% return difference translates into a hypothetical investment loss of \$665 million for the pension plan over the nine years.

Year	Assets Pension Assets on Jun 30 \$ in Billions	Passive		Active-UTAM		Difference Passive \$ less UTAM \$ \$ in Millions
		Passive Mix 50% All-Can Bonds and 50% TSX	Passive Pension Gain or Loss in \$ Mil	Active UTAM returns	UTAM Pension Gain or Loss in \$ Mil	
2000	2.26	8.8%	199	5.2%	117	82
2001	2.06	-2.3%	-46	-1.5%	-30	-16
2002	1.94	-1.9%	-36	-7.0%	-135	99
2003	1.86	16.7%	311	15.9%	296	15
2004	2.11	10.8%	228	11.4%	241	-13
2005	2.32	15.3%	355	12.3%	285	70
2006	2.49	10.7%	266	12.1%	301	-35
2007	2.93	6.8%	198	6.0%	175	23
2008	2.72	-13.3%	-362	-29.5%	-802	441
Compounded %		5.3%		1.8%		
St Dev		9.7%		14.1%		
Average %		5.7%		2.8%		
Sum			\$1,113		\$448	\$665

There is a \$665 million difference in the returns for the pension plan.

V. Cost matters – a 500% increase with UTAM

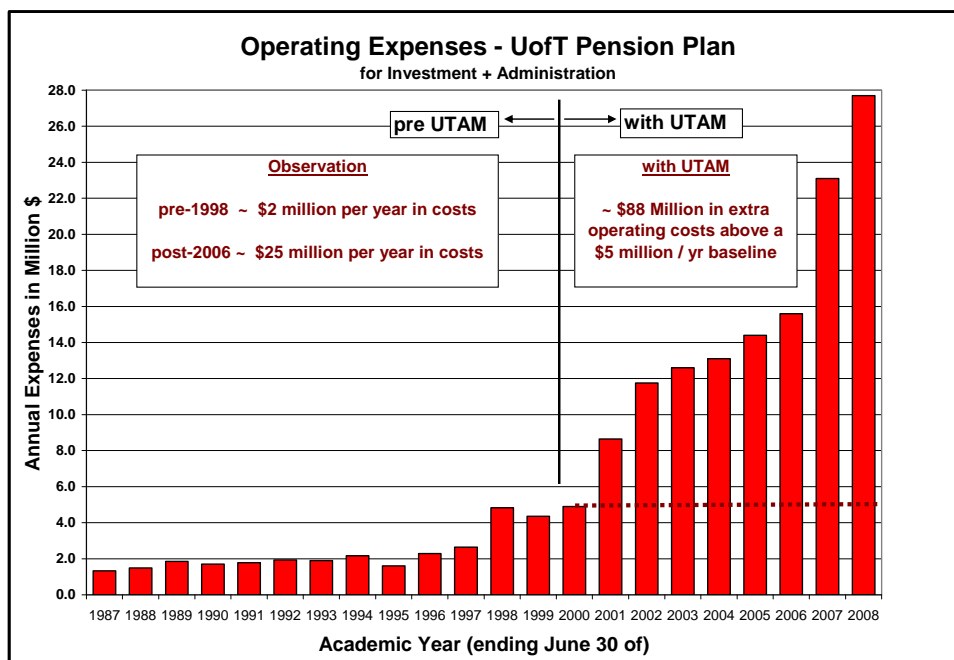
Unit costs for the UofT pension plan have increased by approximately 500% over the past decade. Yet this was not discussed at Business Board, even after this concern was repeatedly expressed by UTFA over several years.

The 2007-08 annual operating cost for the U of T pension plan was almost \$28 million. A few years ago, it was only \$2 million – representing a fivefold increase per asset dollar over the past decade. How did this happen? The short answer is UTAM, which the Administration created in 2000 to manage endowment, pension and cash flow monies. Costs have soared under UTAM’s management because there are now up to three new levels of expensive active management fees (UTAM fees, invested fund fees and in some cases the ‘fund-of-fund’ fees). Prior to 2000 pension assets were managed in-house via low-cost funds.

Overall the current annual operating cost is about 1% of the \$2.7 billion in pension assets (as of June 2008). Costs matter and cumulative operating costs are significant, as is illustrated in the following chart.

Investment costs, even for active management, were much less in the pre-UTAM years. In the 1999 Annual Report of the President’s Investment Committee one reads:

“Fees for passive management would be less than 5 basis points whereas the average fee paid to active managers would be about 20 basis points.”



Year by year cost summaries for the pension plan (note: the endowment fund cost is NOT included).

While investors cannot control market returns, or inflation, or currency fluctuations, investors can and should control investment costs. In the long run cumulative investment costs such as fees and other frictional costs can represent a very substantial fraction of the total asset base.

VI. The Yale Alternative Asset Allocation Model – and UofT

Yale's endowment fund, with David Swensen as its chief investment officer, was one of the earliest endowment funds to exploit the benefits of illiquid and nontraditional assets – referred to as alternative assets. In the decade prior to 2008 the Yale endowment fund realized an annual return of 17.8 percent, outperforming all its rivals.

David Swensen received his Ph.D. in economics at Yale under Nobel Laureate James Tobin. After a few years on Wall Street, Tobin convinced Swensen to take an 80% cut in pay and return to Yale. When he started at Yale in 1985 the fund was just over \$1 billion. By June 2008 it was at \$23 billion.

What is the Yale model? Appendix C provides a two page extract from the 2005 Yale Endowment Report with a succinct summary in Swensen's own words. Very briefly, Yale seeks out the less efficiently priced markets, such as private equity, real assets and hedge funds and specifics like leveraged buyouts, venture capital, real estate, absolute returns, etc. These markets are less liquid and less efficient. They exhibit a significantly broader dispersions of returns than conventional stocks and bonds. However the median return can be less – that is, these markets do not guarantee superior returns, they only provide the opportunity to realize them. The key then is to seize this opportunity via consistently and correctly identifying the top quartile managers in private markets – as the chart on the second page in Appendix C clearly illustrates. Is it easy to do so? In a word “no”, it is extremely difficult. First, Yale was into these markets early, before the imitators rushed in and flooded the alternative asset market. Secondly Yale had very capable in-house staff. And thirdly Yale had privileged access to the top private money managers via its alumni and its own distinguished reputation, with lower fees and more transparency. UofT and UTAM do not enjoy these advantages.

In a recent interview¹ David Swensen had this advice:

Question: Where do think things are headed in the endowment world?

Swensen: I figured out when I revised Pioneering Portfolio Management that the most important distinction isn't between the institutional investor and the individual. It's between those that are set up to make high-quality active management decisions and those that aren't. The investment management world is a strange place in that the right solution is not in the middle. The right solution is at one extreme or the other. One end of the spectrum is being intensively active. The other is being completely passive. If you end up in the middle, which is where almost everybody is, you pay way too much in fees and end up getting subpar returns.

At the active end of the spectrum, you've got institutions like Yale and Harvard and Princeton and Stanford and others, who've really built high-quality investment teams that have a shot at making consistently good active management decisions. But there's a vanishingly small number of such investors. Those on the passive end of the spectrum have figured out that they don't know enough to be active. The passive group is not nearly as big as it should be. Almost everybody should be there.

¹ February 18, 2009 <http://www.propublica.org/article/yales-financial-wizard-david-swensen-says-most-endowments-shouldnt-try-to-b> or http://wallstreetblips.dailyradar.com/story/yales_financial_wizard_david_swensen_says_most/

VII. Asset valuations and FAS-157

Question: “How reliable are the UTAM valuation numbers for the illiquid assets in the Endowment and Pension Plan portfolio?”

This concerns us. The UTAM returns for the Endowment Fund and the Pension Fund are calculated periodically. The overall UTAM return is a composite of the returns for individual asset classes. Some asset classes, such as stocks, have an unambiguous market value – because there are public markets that ascertain the real market value. But what about illiquid assets such as private equity?

Here is what the president of the National Venture Capital Association (NVCA) stated² before a U.S. Congressional subcommittee in 2004.

“Valuation of a private, venture-backed company’s stock is a process, which at best is costly, complex and inexact. Absent new rounds of financing, venture capitalists rarely have information upon which to base changes of the set stock price because the stock is not tradable and the companies tend to be unique, with no like comparisons to benchmark. And in the end, the final number will be an inaccurate, inconsistent, and incomparable guess.” (emphasis added)

How optimistic or uncertain are the valuations for illiquid assets in the UTAM portfolio? I’m not sure we can ever know. But what we can know and should know is what percentage of the total UTAM asset valuation falls into this ‘uncertain valuation’ category.

Fortunately, a new accounting standard, FAS 157 (from the Financial Accounting Standards Board), introduced in 2007, is very helpful. It defines a fair value hierarchy for reliability or quality of the valuation. It groups asset valuations into three levels:

Level 1 – for those assets with direct (unadjusted) quoted prices from an active market for identical assets, like stocks.

Level 2 – for assets that don’t have an observable price but have a comparative model with all inputs based on observables.

Level 3 – for guesstimate valuations, where the asset has one or more valuation input that has no observable reference price.

My suggestion is that the Commission consider recommending that all endowment and pension plan assets be classified via these three valuation levels when returns or valuations are presented.

² The NVCA quote comes from the Stanford University Graduate School of Business publication, “Venture-Backed Private Equity Valuation and Financial Statement Information”, by C Armstrong, A. Davilla, G. Foster, available at <http://ssrn.com/abstract=787044>

VIII. UTAM annual reports and risk discussion

The UTAM annual reports reflect and reveal many shortcomings. For example, there is no discussion of the cost issue. There is no elaboration on the need for currency hedging. The annual reports repeatedly claim credit for “value added” when the market’s rising tide simply raises all investment ships. The 2008 report does not mention the Madoff losses.

I found UTAM’s and UofT’s simplistic notion of *risk* particularly troubling. Risk is a much used and abused word in investments. It is rarely clearly defined. It should almost always be preceded by an adjective that is specific to the risk being discussed, such as market risk, liquidity risk, inflation risk, interest rate risk, market timing risk, currency risk, credit (default) risk, counterparty risk, legislative risk, fraud risk, accounting risk, fair valuation risk, and so on.

In the UTAM annual report risk is equated with volatility. And the Pension Fund Master Trust Investment Policy document also equates investment risk with the volatility or standard deviation of nominal returns over 10 year periods. The standard deviation is a measure of deviations from the mean of any collection of returns. I do not see how standard deviation is a good measure of anything resembling ‘investment risk’³. In fact, for the long term investor, volatility provides opportunity to acquire assets at a bargain or undervalued price – not risk.

Warren Buffet was asked this question at a recent Berkshire annual meeting in Omaha. Here is the question and answer exchange:

Question: What are your thoughts on tracking volatility in an attempt to measure risk?

Buffett: "Volatility does not measure risk. Beta, which is a measure of volatility, is nice and mathematical, and wrong. Past volatility does not measure the risk of investing now. Risk comes from the nature of being in certain kinds of businesses and from not knowing what you're doing."

Other noted figures in the investment world express the same or similar views.

Jeremy Grantham, who serves as GMO’s Chairman of the Board and oversees quantitative products and investment strategies, states:

“Volatility is a symptom that people have no idea of the underlying value.”

Peter Bernstein, in his excellent book on risk, Against the Gods, The Remarkable Story of Risk, writes as follows:

“The essence of risk management lies in maximising the areas where we have some control over the outcome while minimising the areas where we have absolutely no control over the outcome and the linkage between effect and cause is hidden from us.”

Over three years ago, at the March 7, 2006 meeting of Business Board, I noted that:

“Risk: The UTAM Report fails to explain or discuss this important topic adequately. Risk comes in many shapes and sizes. It is not always easy to quantify.”

Yet nothing has changed in the UTAM annual reports since this important issue was raised at Business Board. I think this is symptomatic.

³ The one exception that comes to mind is short term situations. Placing short term funds in volatile instruments is both foolish and clearly risky. Neither our endowment or pension fund is short term

IX. UTAM and Hedge Fund of Funds

The fund-of-hedge-fund mistake. David Swensen of Yale has described investments via fund of funds as ‘ignorant capital’. Hedge funds, in themselves, can be costly, opaque and very risky. Fund-of-hedge-funds are doubly so.

A year ago, the 2007 UTAM annual report reads:

“At year-end, there were investments with 19 hedge fund managers, of which 14 were fund-of-funds managers that represented 93% of the hedge fund investments. ... effectively with hundreds of underlying hedge fund managers.”

The 2008 UTAM report indicates that 33.1% of pension assets are still in hedge funds but that UTAM is now moving out of fund of hedge funds. It notes:

“We formed a view that most fund of hedge funds would struggle to differentiate their strategies and generate acceptable returns.”

This is not surprising but comes a bit late. This mistake could have been avoided with forethought and common sense. In a January 13, 2009 WSJ interview Yale’s David Swensen observes:

“Fund of funds are a cancer on the institutional-investor world. They facilitate the flow of ignorant capital. If an investor can't make an intelligent decision about picking managers, how can he make an intelligent decision about picking a fund-of-funds manager who will be selecting hedge funds? There's also more fees on top of existing fees. And the best managers don't want fund-of-fund money because it is unreliable. You need to be in the top 10% of hedge funds to succeed. In a fund of funds, you will likely be excluded from the best managers. [Mr.] Madoff also relied enormously on these intermediaries. He wouldn't have had nearly as much resources were it not for fund of funds.”

The reader should ask: “What are the chances of UTAM selecting the top 10% of hedge funds?” Swensen’s analysis shows that median hedge fund returns are typically less than passive returns.

The above observation is reinforced by the following note from the minutes of the Dec 15, 2008 meeting of Business Board.⁴

“The member (of BB) commented that a benefit of this unfortunate experience (the Madoff loss) would be the understanding of the need for more intensive due-diligence examinations of the holdings of the funds of hedge funds. Investors, including institutional investors, had tended to delegate responsibility for such due diligence to the managers of the funds of hedge funds and they had not required reports to investors on the details of those examinations. Mr. Moriarty agreed with the member’s observation. He noted that a problem facing UTAM was that it currently held positions in fifteen or sixteen funds of funds, with investments in a combined total in excess of 400 underlying hedge funds. It was very difficult to understand fully the details of so many investments in those complicated funds.”

⁴ Report #170 of Business Board, at <http://www.governingcouncil.utoronto.ca/Assets/Governing+Council+Digital+Assets/Boards+and+Committees/Business+Board/2008-2009+Academic+Year/r1215.pdf>

X. UTAM – Questions needing answers

After reading the nine UTAM annual reports one cannot discern any consistent long term investment policy. Instead one observes the opposite, a pattern of continuous change in policy and practice.

To illustrate with a few examples:

Currency hedging policy has flip-flopped over the nine years, from 0%, then to 50% - 100%, then to only 100% and now in 2009 to 50%. In 2008 this unfortunate hedging increased overall losses by 12.9%. Academic studies have shown that currency speculation does not add value. David Swensen's views on this are,

“Foreign currencies, in and of themselves, provide no expected return” and “Sensible investors avoid currency speculation.”

When hedging, such as currency hedging, or when investing in private equity the investor must be prepared for cash calls. Cash calls require liquid assets. Yet UTAM was heavily into illiquid assets. How did this play out in 2008 when our currency hedge went against UTAM?

The *Enhanced Index Platform* investment practices were first introduced a few years ago. In 2008 they suffered substantial losses and are now being discontinued.

The current emphasis on Alternative Assets, at 46% of assets, is also a recent development. This is a questionable change and appears to be an attempt to imitate the Yale investment model, which realized exceptional returns from 1985 to 2007. But not in 2008. Late imitation is not a prescription for success - in particular if there is no evidence that UTAM has studied the Yale experience carefully. In addition, Alternative Assets are by their nature illiquid and do not have direct market valuations. There is no clear valuation standard. Thus any claims for short term gains in Alternative Assets must be critically scrutinized.

Additional Questions that beg consideration and answers:

- (i) How does the UTAM compensation model, including bonus / incentive payments, align agent-client interests?
- (ii) Is a long-term target of a 4% real rate of return realistic?
- (iii) What are the pitfalls and risks of chasing past performance in alternative assets?
- (iv) What are the uncertainties in assessing the market value of illiquid assets?
- (v) What is the proposed new 'active fixed income mandate' about? What new risks are being introduced?
- (vi) Who on the UTAM board speaks for passive investing?
- (vii) UTAM staff turnover has also been excessive. Typically UTAM consists of about 11 to 13 staff plus the CEO. In total, over the last four years, there were 17 or more departures. Why? What is the staff retention problem at UTAM? How does it reflect in investment continuity and resulting performance?

XI. U of T oversight

A number of oversight issues on investment matters can be raised at the institutional level, both as omissions and as commissions.

At about the time UTAM was being created, the window of opportunity for locking in a real 4% rate of return with government real return bonds was closing. Was this option considered? It could have prevented most of the ensuing debt in the Registered Pension Plan. Appendix D illustrates the decline in the RRB yield over time. With hindsight this was an unfortunate lost opportunity. It looms even larger for the future as many economic observers expect inflation to be a major issue in the years ahead.

Initially it was deemed advisable to have different asset allocation policies for the pension fund and the endowment fund. Recently those policies have become the same, with no justification for why the policy was changed.

Initially, in 2000, the equity-to-bond ratio for the pension plan was set at 60:40⁶. In the 2008 report fixed income (bonds) were reduced to about 15% of assets. In 2008 this underweighting in fixed income resulted in a 510 basis point loss relative to the Reference Portfolio.

The University of Toronto is an internationally competitive teaching and research public institution. It is extremely complex. It has three campuses, a number of federated colleges, a teaching hospital network, over 60,000 students and more than 10,000 employees. It is not funded to be internationally competitive yet it strives to do so.

Does the University of Toronto also have the capability to establish active investment management at the level of a Yale or Harvard or Stanford – and then to provide continuing oversight?

Based on the last nine years and the UTAM experience, I don't believe our University has demonstrated such capability. Therefore I suggest that the wiser path to take now is to return to the less costly pre-UTAM days.

⁶ Recent fixed income returns demonstrate, once again, that there can be extended periods when equities will underperform fixed income. The historic return tables in Appendix-A on the next page bear this out. With hindsight it is unfortunate that UofT did not take Robert Korthals' advice in 1999-2000. The Business Board minutes from that time read:

“... Looking ahead, Mr. Korthals reported that the President's Investment Committee had likely held its last business meeting, with responsibility to pass to the new corporation. **With respect to the year ahead, decisions would have to take into account the fact that the equity markets had enjoyed strong returns for a sustained period of time, and those markets were now substantially overvalued by historical standards. Consequently, it would be possible to make a case for favouring government bonds, which had performed well in recent weeks in spite of increases in short-term interest rates. ...**”

Appendix A

Year by Year Returns, in Canadian Dollars, in Various Indexes

Nominal annual pretax returns in Canadian dollars													
Year	Annual Canadian Inflation	3 month T-bills	Short Canadian Bonds	Long Canadian Bonds	All Canadian Bonds	Real Return Bonds	TSX Composite	S&P 500	Wilshire 5000	MSCI EAFE	MSCI Emerging Markets	Gold Bullion	Year
1970	1.3%	6.7%		16.2%			-3.6%	-2.5%		-16.1%		-0.2%	1970
1971	5.0%	3.8%		14.8%			8.0%	13.2%		29.9%		15.0%	1971
1972	5.1%	3.6%		8.1%			27.4%	18.2%		36.7%		46.0%	1972
1973	9.4%	5.2%		2.0%			0.3%	-14.7%		-14.1%		67.1%	1973
1974	12.3%	8.0%		-4.7%			-25.9%	-26.8%		-22.5%		71.5%	1974
1975	9.5%	7.5%		8.0%			18.5%	40.7%	42.1%	40.6%		-21.8%	1975
1976	5.8%	9.3%		23.6%			11.0%	23.0%	25.6%	3.0%		-4.8%	1976
1977	9.5%	7.8%		9.2%			10.7%	0.7%	5.6%	29.5%		33.0%	1977
1978	8.4%	8.5%		4.1%			29.7%	15.5%	18.4%	45.6%		48.5%	1978
1979	9.8%	11.8%		-2.8%			44.8%	16.8%	23.7%	4.5%		123.1%	1979
1980	11.1%	13.4%	9.1%	2.1%	6.6%		30.1%	35.5%	36.7%	27.2%		17.8%	1980
1981	12.2%	19.3%	8.3%	-2.1%	4.2%		-10.2%	-5.6%	-4.4%	-1.7%		-33.1%	1981
1982	9.2%	15.5%	28.8%	46.0%	35.4%		5.5%	26.0%	23.0%	2.8%		19.2%	1982
1983	4.6%	9.9%	14.9%	9.6%	11.5%		35.5%	24.0%	25.0%	26.1%		-15.3%	1983
1984	3.7%	11.6%	12.9%	16.9%	14.7%		-2.4%	12.9%	9.4%	14.5%		-14.2%	1984
1985	4.4%	10.1%	15.1%	26.7%	21.2%		25.1%	39.4%	40.3%	65.8%		11.8%	1985
1986	4.2%	9.5%	11.4%	17.2%	14.7%		9.0%	17.2%	14.7%	67.8%		19.8%	1986
1987	4.2%	8.5%	7.0%	1.8%	4.0%		5.9%	-0.9%	-3.7%	17.6%		15.1%	1987
1988	4.0%	9.6%	8.4%	11.3%	9.8%		11.1%	7.0%	8.2%	18.0%	28.8%	-22.3%	1988
1989	5.2%	12.5%	10.4%	15.1%	12.8%		21.4%	27.8%	25.4%	7.6%	60.1%	-5.7%	1989
1990	5.0%	13.7%	10.5%	4.3%	7.5%		-14.8%	-2.9%	-6.0%	-23.0%	-10.3%	-1.2%	1990
1991	3.8%	9.8%	17.9%	25.3%	22.1%		12.0%	29.9%	33.6%	12.0%	59.2%	-10.4%	1991
1992	2.1%	6.7%	8.6%	11.6%	9.8%	3.9%	-1.4%	18.4%	19.9%	-3.0%	22.5%	3.7%	1992
1993	1.7%	5.5%	13.3%	22.1%	18.1%	18.8%	32.5%	14.5%	15.7%	38.2%	81.8%	22.4%	1993
1994	0.2%	5.3%	-1.0%	-7.4%	-4.3%	-13.7%	-0.2%	7.5%	6.0%	14.6%	-1.7%	3.8%	1994
1995	1.8%	7.3%	15.5%	26.3%	20.7%	16.7%	14.5%	33.9%	32.8%	8.5%	-7.8%	-1.7%	1995
1996	2.2%	4.8%	10.7%	14.2%	12.3%	11.7%	28.3%	23.6%	21.8%	6.9%	6.5%	-4.1%	1996
1997	0.7%	3.1%	4.9%	18.5%	9.6%	4.7%	15.0%	39.2%	37.0%	6.5%	-7.7%	-18.0%	1997
1998	1.0%	4.7%	6.7%	12.8%	9.2%	6.0%	-1.6%	37.8%	32.3%	29.0%	-20.0%	6.3%	1998
1999	2.6%	4.8%	2.3%	-6.0%	-1.1%	8.0%	31.7%	13.9%	16.3%	19.8%	56.6%	-5.1%	1999
2000	3.2%	5.5%	8.2%	13.0%	10.2%	16.6%	7.4%	-5.6%	-7.4%	-10.6%	-27.9%	-1.8%	2000
2001	0.7%	4.4%	9.4%	6.1%	8.1%	0.6%	-12.6%	-6.4%	-5.4%	-16.3%	3.7%	7.0%	2001
2002	3.9%	2.5%	6.3%	11.1%	8.7%	15.3%	-12.4%	-22.8%	-21.6%	-16.5%	-6.9%	24.4%	2002
2003	2.0%	2.9%	5.1%	9.1%	6.7%	13.2%	26.7%	5.8%	8.2%	14.4%	28.4%	-1.5%	2003
2004	2.1%	2.3%	5.1%	10.3%	7.1%	17.5%	14.5%	2.8%	4.4%	11.9%	16.8%	-3.0%	2004
2005	2.2%	2.6%	2.4%	13.8%	6.5%	15.2%	24.1%	1.5%	2.9%	10.3%	30.2%	13.9%	2005
2006	1.6%	4.0%	4.0%	4.1%	4.1%	-2.9%	17.3%	16.0%	16.1%	27.1%	32.9%	23.5%	2006
2007	2.4%	4.3%	4.1%	3.4%	3.7%	1.6%	9.8%	-10.3%	-10.1%	-5.0%	18.9%	12.2%	2007
2008	1.2%	2.8%	8.6%	2.7%	6.4%	0.4%	-33.0%	-22.6%	-23.0%	-30.0%	-42.5%	28.2%	2008
Geo Mean	4.5%	7.3%	9.1%	10.3%	10.1%	7.5%	9.1%	9.8%	12.3%	10.0%	11.1%	8.9%	Geo Mean
Std Dev	3.4%	4.0%	5.8%	10.5%	7.8%	8.9%	17.3%	18.1%	17.3%	22.8%	31.8%	29.2%	Std Dev
Average	4.6%	7.4%	9.3%	10.7%	10.4%	7.9%	10.5%	11.3%	13.6%	12.2%	15.3%	12.0%	Average
Min	0.2%	2.3%	-1.0%	-7.4%	-4.3%	-13.7%	-33.0%	-26.8%	-23.0%	-30.0%	-42.5%	-33.1%	Min
Max	12.3%	19.3%	28.8%	46.0%	35.4%	18.8%	44.8%	40.7%	42.1%	67.8%	81.8%	123.1%	Max

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Appendix B

From the web at <http://www.berkshirehathaway.com/letters/2005ltr.pdf>
The 2005 annual Chairman's letter to Berkshire Hathaway Inc. shareholders
Warren Buffett's annual letter

Page 18 in the letter ...

How to Minimize Investment Returns

It's been an easy matter for Berkshire and other owners of American equities to prosper over the years. Between December 31, 1899 and December 31, 1999, to give a really long-term example, the Dow rose from 66 to 11,497. (Guess what annual growth rate is required to produce this result; the surprising answer is at the end of this section.) This huge rise came about for a simple reason: Over the century American businesses did extraordinarily well and investors rode the wave of their prosperity. Businesses continue to do well. But now shareholders, through a series of self-inflicted wounds, are in a major way cutting the returns they will realize from their investments.

The explanation of how this is happening begins with a fundamental truth: With unimportant exceptions, such as bankruptcies in which some of a company's losses are borne by creditors, *the most that owners in aggregate can earn between now and Judgment Day is what their businesses in aggregate earn.* True, by buying and selling that is clever or lucky, investor A may take more than his share of the pie at the expense of investor B. And, yes, all investors *feel* richer when stocks soar. But an owner can exit only by having someone take his place. If one investor sells high, another must buy high. For owners as a whole, there is simply no magic – no shower of money from outer space – that will enable them to extract wealth from their companies beyond that created by the companies themselves.

Indeed, owners must earn less than their businesses earn because of “frictional” costs. And that's my point: These costs are now being incurred in amounts that will cause shareholders to earn *far* less than they historically have.

To understand how this toll has ballooned, imagine for a moment that all American corporations are, and always will be, owned by a single family. We'll call them the Gotrocks. After paying taxes on dividends, this family – generation after generation – becomes richer by the aggregate amount earned by its companies. Today that amount is about \$700 billion annually. Naturally, the family spends some of these dollars. But the portion it saves steadily compounds for its benefit. In the Gotrocks household everyone grows wealthier at the same pace, and all is harmonious.

But let's now assume that a few fast-talking Helpers approach the family and persuade each of its members to try to outsmart his relatives by buying certain of their holdings and selling them certain others. The Helpers – for a fee, of course – obligingly agree to handle these transactions. The Gotrocks still own all of corporate America; the trades just rearrange who owns what. So the family's annual gain in wealth diminishes, equaling the earnings of American business *minus* commissions paid. The more that family members trade, the smaller their share of the pie and the larger the slice received by the Helpers. This fact is not lost upon these broker-Helpers: Activity is their friend and, in a wide variety of ways, they urge it on.

After a while, most of the family members realize that they are not doing so well at this new “beatmy-brother” game. Enter another set of Helpers. These newcomers explain to each member of the Gotrocks clan that by himself he'll never outsmart the rest of the family. The suggested cure: “Hire a manager – yes, us – and get the job done professionally.” These manager-Helpers continue to use the broker-Helpers to execute trades; the managers may even increase their activity so as to permit the brokers

to prosper still more. Overall, a bigger slice of the pie now goes to the two classes of Helpers.

The family's disappointment grows. Each of its members is now employing professionals. Yet overall, the group's finances have taken a turn for the worse. The solution? More help, of course. It arrives in the form of financial planners and institutional consultants, who weigh in to advise the Gotrocks on selecting manager-Helpers. The befuddled family welcomes this assistance. By now its members know they can pick neither the right stocks nor the right stock-pickers. Why, one might ask, should they expect success in picking the right consultant? But this question does not occur to the Gotrocks, and the consultant-Helpers certainly don't suggest it to them.

The Gotrocks, now supporting three classes of expensive Helpers, find that their results get worse, and they sink into despair. But just as hope seems lost, a fourth group – we'll call them the hyper-Helpers – appears. These friendly folk explain to the Gotrocks that their unsatisfactory results are occurring because the existing Helpers – brokers, managers, consultants – are not sufficiently motivated and are simply going through the motions. "What," the new Helpers ask, "can you expect from such a bunch of zombies?"

The new arrivals offer a breathtakingly simple solution: *Pay more money*. Brimming with selfconfidence, the hyper-Helpers assert that huge contingent payments – in addition to stiff fixed fees – are what each family member must fork over in order to *really* outmaneuver his relatives.

The more observant members of the family see that some of the hyper-Helpers are really just manager-Helpers wearing new uniforms, bearing sewn-on sexy names like HEDGE FUND or PRIVATE EQUITY. The new Helpers, however, assure the Gotrocks that this change of clothing is all-important, bestowing on its wearers magical powers similar to those acquired by mild-mannered Clark Kent when he changed into his Superman costume. Calmed by this explanation, the family decides to pay up.

And that's where we are today: A record portion of the earnings that would go in their entirety to owners – if they all just stayed in their rocking chairs – is now going to a swelling army of Helpers. Particularly expensive is the recent pandemic of profit arrangements under which Helpers receive large portions of the winnings when they are smart or lucky, and leave family members with all of the losses – and large fixed fees to boot – when the Helpers are dumb or unlucky (or occasionally crooked).

A sufficient number of arrangements like this – heads, the Helper takes much of the winnings; tails, the Gotrocks lose and pay dearly for the privilege of doing so – may make it more accurate to call the family the Hadrocks. Today, in fact, the family's frictional costs of all sorts may well amount to 20% of the earnings of American business. In other words, the burden of paying Helpers may cause American equity investors, overall, to earn only 80% or so of what they would earn if they just sat still and listened to no one.

Long ago, Sir Isaac Newton gave us three laws of motion, which were the work of genius. But Sir Isaac's talents didn't extend to investing: He lost a bundle in the South Sea Bubble, explaining later, "I can calculate the movement of the stars, but not the madness of men." If he had not been traumatized by this loss, Sir Isaac might well have gone on to discover the Fourth Law of Motion: *For investors as a whole, returns decrease as motion increases.*

* * * * *

Here's the answer to the question posed at the beginning of this section: To get very specific, the Dow increased from 65.73 to 11,497.12 in the 20th century, and that amounts to a gain of 5.3% compounded annually. (Investors would also have received dividends, of course.) To achieve an equal rate of gain in the 21st century, the Dow will have to rise by December 31, 2099 to – brace yourself – precisely 2,011,011.23. But I'm willing to settle for 2,000,000; six years into this century, the Dow has gained not at all.

Appendix C

Yale Endowment 2005

Annual Report

at

http://www.yale.edu/investments/Yale_Endowment_05.pdf

Two page extract (pages 36 and 37) on the topic of

“Degree of Investment Opportunity”

Degree of Investment Opportunity

Yale directs active management efforts to less efficiently priced asset classes and employs less aggressive, diversified approaches for more efficiently priced assets. Given equal expenditure of time and effort, active management promises greater rewards in the infrequently traded, illiquid world of private equity than in the heavily traded, liquid world of government bonds.

In the absence of direct measures of market efficiency, active manager behavior provides clues about the degree of opportunity in various markets. In those markets with limited opportunities for active management, managers deviate little from the market portfolio, tending to obtain market-like returns. Why do managers in efficient markets “hug” the benchmark? In a world of efficiently priced assets, consider the business consequences to investment managers who hold portfolios that differ markedly from the market portfolio. Non-market weightings in security holdings cause portfolio results to vary dramatically from the benchmark. Under-performing managers lose clients, suffering a punishing loss in assets, while overachievers gain clients (and public adulation). Yet, because efficient markets price securities accurately, success will be transitory. Since efficient

markets present no mispricings for active managers to exploit, good results stem from luck, not skill. Over time, managers in efficient markets gravitate toward “closet indexing,” structuring portfolios with only modest deviations from the market, ensuring both mediocrity and survival.

In contrast, active managers in less efficient markets exhibit greater variability in returns. In fact, many private markets lack benchmarks for managers to “hug,” eliminating the problem of closet indexing. Inefficiencies in pricing allow managers with great skill to achieve great success, while unskilled managers post commensurately poor results. Hard work and intelligence reap rich rewards in an environment where superior information and deal flow provide an “edge.”

The degree of opportunity for active management (at least as measured by manager behavior) relates to the distribution of actively managed returns in a particular asset class. Any measure of dispersion provides some sense of where active management opportunities lie. The spread in returns between the first and third quartiles in collections of actively managed portfolios illustrates the notion that more efficiently priced assets provide less opportunity for

active managers and that less efficiently priced assets provide more opportunity.

The accompanying chart shows active manager returns for various asset classes for the decade ending June 30, 2005. U.S. Treasury securities, arguably the most efficiently priced asset in the world, trade in staggering volumes in markets dominated by savvy financial institutions. Since nobody (possibly excepting the Federal Reserve) knows where interest rates will be, few managers employ interest rate anticipation strategies. Without potentially powerful differentiating bets on interest rates, institutional portfolios tend to exhibit market-like interest rate sensitivity, or duration. As a result, managers generally limit themselves to modest security selection decisions, causing returns for most active managers to mimic benchmark results. The spread between first and third quartile results for active bond managers measures an astonishingly small 0.5 percent per annum for the decade.

Stocks provide more difficult pricing challenges than bonds. Instead of discounting relatively certain fixed income cash flows, valuation of equities involves discounting more-difficult-to-project corporate cash flows. The greater volatility in equity markets also

Dispersion of Active Management Returns

Asset Returns by Quartile. Ten Years Ending June 30, 2005

Asset Class	First Quartile	Median	Third Quartile	Range
U.S. Fixed Income	7.2%	6.9%	6.7%	0.5%
U.S. Large Capitalization Equity	11.3	10.4	9.4	2.0
U.S. Small Capitalization Equity	15.3	13.2	10.5	4.7
International Equity	9.7	8.2	5.7	4.0
Absolute Return	15.6	12.5	8.5	7.1
Real Estate	17.6	12.0	8.4	9.3
Leveraged Buyouts	13.3	8.0	-0.4	13.7
Venture Capital	28.7	-1.4	-14.5	43.2

contributes to the wider active manager spread.

Less efficiently priced securities trade in wider ranges. Large-capitalization domestic equities represent the next rung of the efficiency ladder, with a range of 2.0 percent between top and bottom quartiles. Foreign developed market equities exhibit a range of 4.0 percent. Domestic small-capitalization stocks show the biggest performance gap, with a range of 4.7 percent per annum between top and bottom quartiles. The progression of degree of opportunity across types of marketable securities makes intuitive sense.

Absolute return strategies, which generate returns independent of markets and lack a benchmark to “hug,” demonstrate less efficiency than fixed income and equity securities with a range of 7.1 percent between top and bottom quartiles.

Real estate, with its high level of current income, constitutes the most efficient private investment class, with a range of 9.3 percent between top and

bottom quartiles. The radical break comes when moving to venture capital and leveraged buyouts. For the ten-year period, leveraged buyouts and venture capital exhibit extreme 13.7 percent and 43.2 percent per annum spreads.

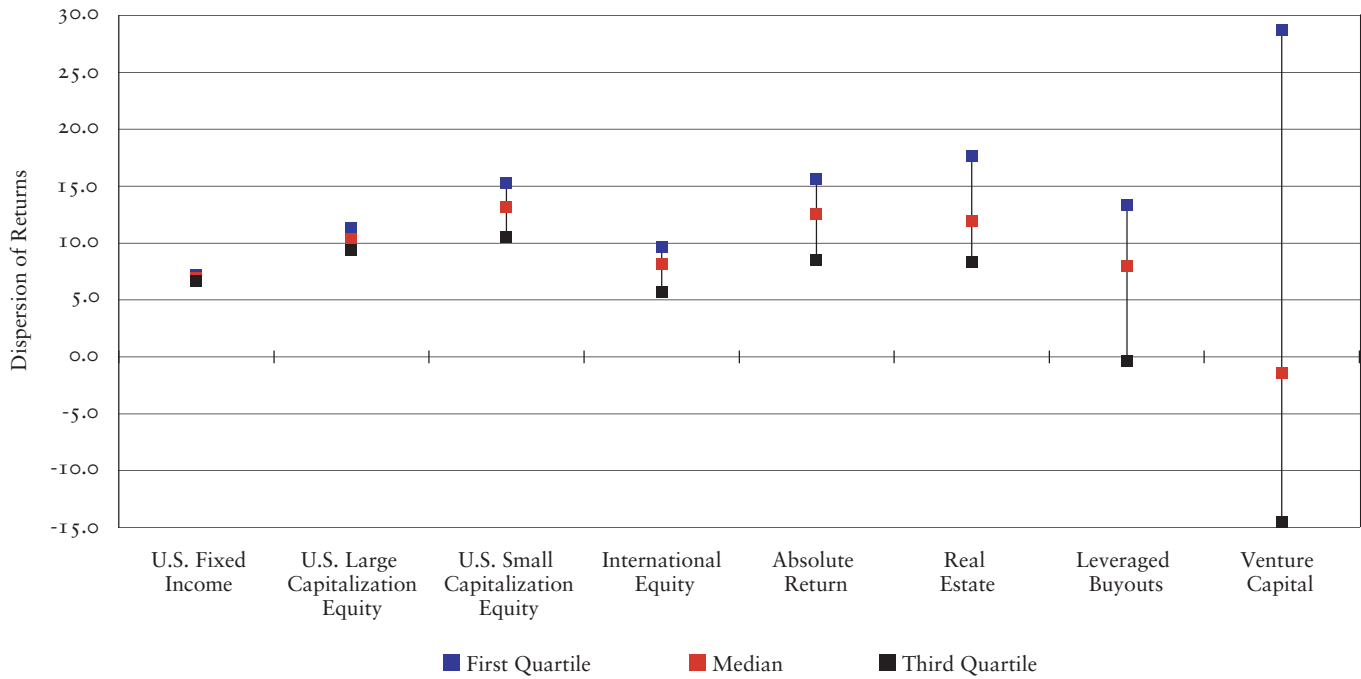
Selecting top quartile managers in private markets leads to much greater reward than identifying top managers in public markets. In the extreme case, over the past decade, choosing a first quartile fixed income manager added only 0.3 percent per annum relative to the median result. In contrast, the first quartile venture capitalist added 30.1 percent per annum relative to the median, providing a much greater contribution to portfolio results. Ironically, identifying superior managers in the relatively inefficiently priced private markets proves less challenging than in the efficiently priced marketable securities markets.

In the ultra-efficient bond market, Yale holds a portfolio with market-like interest rate sensitivity, making occasional carefully controlled security selec-

tion bets. At the opposite end of the spectrum, the Investments Office devotes considerable time and effort to identify opportunities in the far less efficient private equity market. The Endowment bond portfolio, structured with respect for market efficiency, produced a 0.7 percent per annum excess return over the past decade. In contrast, Yale’s private equity positions boast a 39.5 percent per annum return over the last ten years, far exceeding the 21.9 percent per annum results of a pool of private equity managers compiled by Cambridge Associates. While both the bond portfolio and private equity portfolio benefited from superior active management, the absolute contribution from superior results in the inefficient world of private equity far exceeded the contribution from superior results in the efficient world of government bonds. Careful consideration of the degree of market opportunity when structuring portfolios makes an important contribution to Yale’s investment performance.

Alternative Asset Returns Exhibit Significant Dispersion

Asset Returns by Quartile. Ten Years Ending June 30, 2005

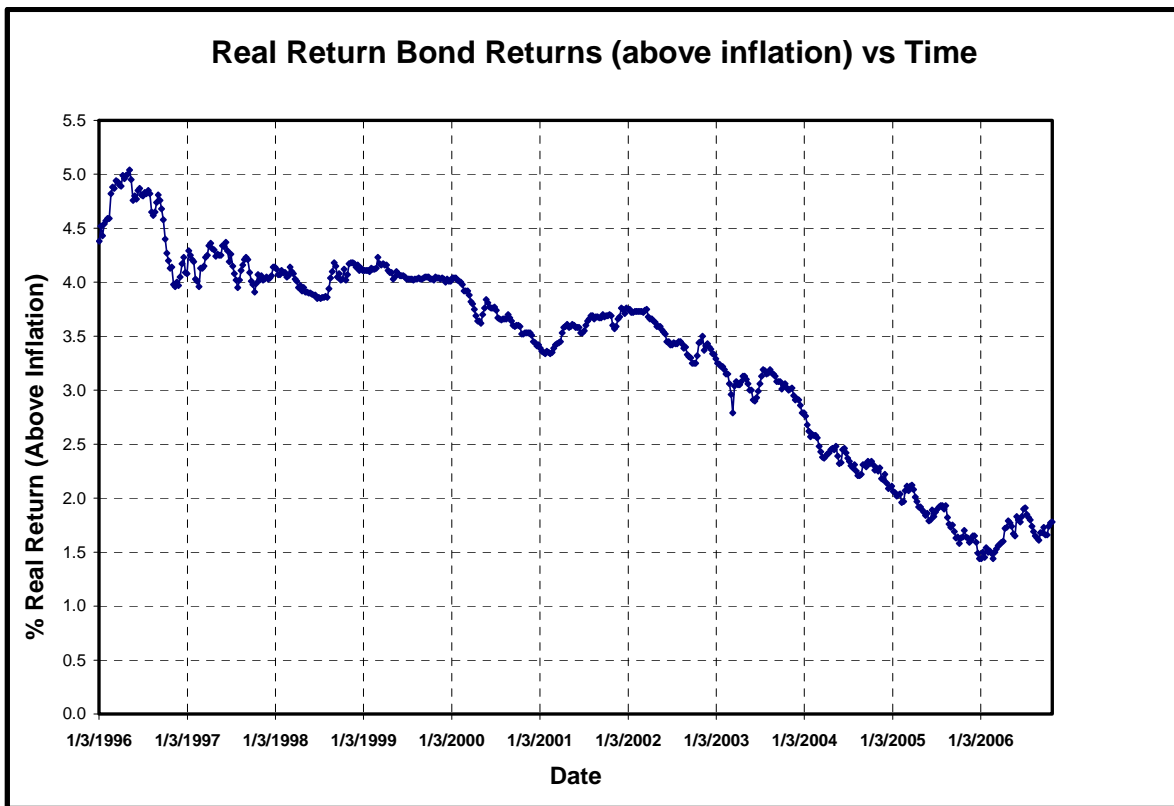


Sources: Data for marketable securities are from Russell/Mellon. The absolute return, real estate, leveraged buyout, and venture capital data are from Cambridge Associates. Real Estate, leveraged buyout, and venture capital represent returns on funds formed between 1995 and 1999, excluding more recent returns so that immature investments will not influence results.

Appendix D

The Lost Opportunity for the RPP- Real Return Bonds (RRBs)

Real Return Bonds are Government of Canada bonds that pay you a rate of return that is adjusted for inflation. Unlike regular (nominal) bonds, this feature assures that your purchasing power is maintained regardless of the future rate of inflation. RRBs pay interest semi-annually based on an inflation-adjusted principal, and at maturity they repay the principal in inflation-adjusted dollars. This bond offers a rate of return that is tied to the value of the Consumer Price Index (CPI). After the bonds are issued by the Government of Canada, promising a fixed % real return on the original bond price, the secondary bond market will of course determine day to changes in the bond price and so determine the actual % real yield of these bonds at the time of purchase by the investor. This investor return is charted below.



The above chart (the data is from the Bank of Canada website) illustrates that the real return of these “zero risk” bonds has been less than 2% in the secondary bond market. Thus any current assumption of a real return above this zero-risk RRB rate today (like the 4% assumption in the UofT pension plan) is not a certainty and has an imbedded risk. The current UofT pension plan stakeholders, faculty and staff, should be asking: “Who bears the risk of a future unfunded liability in our pension plan?”

Prior to 2000 a real 4% return rate could have been guaranteed by the Real Return Bonds issued by the Government of Canada. There was a window of opportunity prior to 2000 to lock in the 4.0% (or better) real return rate. The UofT Administration of the day chose not to exercise this zero risk option and instead established UTAM, took the equity market route and lost the gamble, with hindsight a very expensive gamble.