Address to the International Project Managers Symposium in Canberra on 9 February 2007.

Ken Henry

Introduction

Thank you for the opportunity to participate in this symposium. The programme focuses on a number of critical facets of the business of project management in the public sector. The public sector environment is not in all respects different from the private sector one, but it is sufficiently different for practitioners to think very carefully before importing governance and management principles that appear to work effectively in the private sector. A failure to recognise the difference in environments has brought many trail blazers to grief.

This is not to say that public sector project managers don't have a lot to learn from their private sector counterparts. I know they do. But others will talk about that. It falls to me to deliver the cautionary tale.

I'm going to start with a case study in public sector project management. The case study doesn't illustrate all of the messages I want you to take away from this session; but it provides a rather graphic illustration of several of them. I'll round out the messages in the final section of the address.

While my comments are directed to the topic of political awareness, they reflect also on the role of the media. That's inevitable. The simple fact is that it is impossible to say anything sensible about the political environment without recognising the way in which it is influenced by the media. Indeed, I will be emphasising the critical role played by perceptions in the political environment. And I'm sure it has occurred to you that the media has a substantial impact on perceptions, especially on what we might think of as 'public perceptions'.

A case study in public sector project management

The case study concerns the management of the Australian Government debt. This is a somewhat arcane activity. There are few technical experts, and yet a considerable amount of technical expertise is required of those who undertake the activity. It takes place in facilities far removed from the public gaze, and yet it involves vast sums of money: tens of billions of dollars. The Parliament takes little interest in what goes on; the general public even less; until something goes wrong. And when something does go wrong, the intensity of the spot light shone on the activity is blinding. Does this sound familiar?

The case study is a bit technical. I will keep it as simple as I can, but, even so, I'm aware that it involves some level of complexity. That, of course, is also true of the projects you manage. Frankly, I can't see that much would be gained by taking you through a simple case study. If it's any consolation, at least I've only got one chart.

You are probably aware that the Australian Government's *net* debt was eliminated in 2005-06. Clearly, the Government has no need, on financing grounds alone, to have any debt on issue; but it has decided to maintain an amount, currently worth about \$57 billion, in order to support the bond futures market.

The government debt on issue is managed by the Australian Office of Financial Management, a prescribed agency in the Treasury portfolio. Its mandate is to minimise the budgetary cost of Australian government debt, subject to an acceptable level of risk. These days, that management task involves judgement about the maturity profile of the debt — the profile is affected by, and can be manipulated by, the timing and magnitude of primary issuance of government bonds and by interest rate swaps.

Until recently, however, an additional means of debt management was employed. This additional means involved the use of cross-currency swaps, to achieve exposure to United States interest rates. Without going through all of the details, the effect was that debt issued in Australian dollars, at Australian interest rates, was swapped into \$US denominated debt, obtaining exposure to US interest rates.

Since the late 1980s, any exposure to foreign currency debt has been voluntary. The Australian government first issued debt in the form of Commonwealth Government securities in 1912.¹ For the first thirty years, foreign currency debt averaged about 40 per cent of the total debt outstanding. In the post-Second World War period, up until 1988, foreign currency exposure averaged about 30 per cent of the total. Through that period, governments resorted to offshore issuance mainly because they had no real choice: their financing needs were too large for the domestic market to absorb at reasonable cost; off-shore markets exhibited greater depth and liquidity. But by the mid-1980s, the Australian market had developed to such an extent that offshore issuance was no longer necessary. The Australian Government has not borrowed directly in offshore capital markets since 1986-87.

The pattern of currency exposures that emerged when we considered that we had no real option but to borrow directly overseas wasn't based on any formal analysis or the result of rigorous debt management. As you might imagine, it just 'grew up' that way. But in the late 1980s, we started thinking about using cross-currency swaps deliberately to acquire an exposure to \$US denominated debt, even though we were no longer issuing debt in foreign markets. The first cross-currency swaps to achieve \$US exposure were undertaken in 1991-92.

Why would a debt manager voluntarily seek foreign currency exposure?

¹ For an account of the history of foreign currency debt, see the 2003-04 Annual Report of the Australian Office of Financial Management, pp 37-48.

Well, this is an interesting story. In finance theory there is a celebrated equilibrium condition referred to as 'uncovered interest parity'. Essentially, this says that if we compare two market-traded financial instruments that have identical risk characteristics except that they are issued in different currencies, than any gap in their yields must reflect market expectations of a movement in the rate of exchange between the two currencies.

Thus, if Australian interest rates are higher than US rates, uncovered interest parity says that there must be an expectation of the \$A depreciating against the \$US. If interest rates are the same, then there must be an expectation of no exchange rate movement. And if Australian interest rates are less than US rates, there must be an expectation of the \$A appreciating against the \$US.

All of this makes a lot of sense. But does it accord with reality?

Chart 1 tracks the \$US/\$A exchange rate from the end of 1983, which is when the \$A was allowed to 'float'. As you can see, between January 1984 and March 1997, the exchange rate experienced a fair degree of volatility but no clear trend. And yet, as the figure also shows, the gap between the yields on Australian and US 10-year government debt averaged 310 basis points — that is, 3.1 percentage points — over this period. If uncovered interest parity is right, that sort of yield gap must have been based on a market expectation of the \$A depreciating against the \$US by an average amount of 3.1 per cent a year. The fact that the exchange rate did not behave in that manner suggests that there is an unexplained bias in market expectations of the \$US/\$A exchange rate. But if that is the case, then we would have a lower expected cost of government debt if we paid US interest rates rather than Australian interest rates. We could achieve this either by issuing US dollar denominated debt in the US market, or by issuing Australian dollar denominated debt in the Australian market and swapping into US dollar instruments. Principally because of greater depth and liquidity in swap markets, the latter option would usually be the cheaper.

Thus motivated, in the late 1980s we adopted an explicit foreign currency benchmark, initially targeting 13 per cent \$US exposure in the debt portfolio. This benchmark was based on research commissioned from expert external consultants JP Morgan. In 1996, following a review by the Union Bank of Switzerland (UBS), the benchmark was defined as a band of 10 to 15 per cent \$US exposure. Why not 100 per cent? Well, while this would have meant a much larger expected saving to the budget, it would have come at a much higher exposure to risk — specifically, the risk of a large \$A depreciation, leading to a significant loss on the final exchange of swap principal.

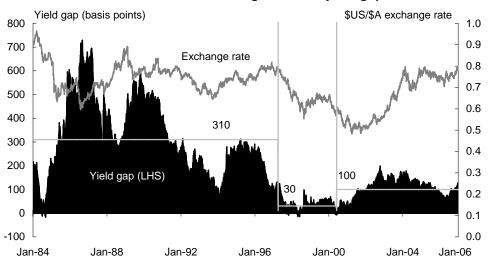


Chart 1: US\$/\$A exchange rate and yield gap

The expected return had two components: an expected saving in interest cost due to lower \$US interest rates; only partly offset by an expected foreign currency loss, due to \$A depreciation, on exchange of swap principal. Note that, as far as the theory as concerned, it doesn't really matter whether the yield gap is positive, zero or negative. What matters is the relationship between the yield gap and the expected movement in the bilateral exchange rate. Thus, even if Australian interest rates were *lower* than US rates, the strategy might still make sense provided there was good reason to think that the \$A was going to *appreciate* strongly. In that case, there would be an expected additional interest cost, more than offset by a foreign currency gain on exchange of swap principal.

The strategy recognised that the calculated economic benefit of a voluntary exposure to US interest rates and to the bilateral exchange rate could be volatile, with quite large swings likely to be observed in a short time period but 'trend' economic benefits to be realised over a longer time period. The strategy was, therefore, a long term one. In a given year, the calculated economic benefit of the strategy might very well be a large negative — perhaps several hundred million dollars of calculated economic loss in any given year; but over a run of several years, there was a good prospect of the strategy delivering significant cost savings.

And, indeed, it did. Up until 1996-97 the cross-currency swaps strategy had realised cost savings averaging more than \$100 million a year, and as at 30 June 1997 the cumulative economic gain on the portfolio stood at a sizeable \$3 billion. Of course, much of this was an *unrealised* gain.

But then, beginning in the second half of 1997, following the onset of the Asian financial crisis, two things happened that called into question the soundness of the strategy: first, the \$US/\$A exchange rate depreciated sharply; and second, the yield gap collapsed.

I probably should mention that, on promotion to the Deputy Secretary level in 1998, I was given executive responsibility within the Treasury Department for, among many other things, both international financial affairs and debt management. These events were something of a baptism of fire.

As Chart 1 illustrates, between March 1997 and May 2000, the \$A depreciated against the \$US by 28 per cent, and the yield gap went negative; falling to -17 basis points. Over that three year period, the yield gap averaged only 30 basis points. Large *unrealised* foreign currency losses, averaging more than \$1.2 billion a year, were reported for the years 1997-98 to 2000-01. By 30 June 2001 the cumulative economic performance of the portfolio was an *unrealised loss* of \$2 billion.²

The strategy had been reviewed externally, and endorsed, on several occasions prior to 2000-01, including by BT, Carmichael Consulting and Coopers and Lybrand in 1997 and UBS Warburg Dillon Read in 1998. The Australian National Audit Office (ANAO), in a report released in 1999, did not recommend that the strategy be abandoned, but rather that it be re-examined as part of the next debt management consultancy.³

In the first half of 2000 the ANAO report was considered by the parliamentary Joint Committee of Public Accounts and Audit (JCPAA). In its report tabled in November 2000 the JCPAA endorsed the ANAO recommendations. While noting the risks associated with \$US exposure, the JCPAA did not recommend any change to the cross-currency swaps strategy.

The story really got running in the early part of 2002, following Senate Estimates Committee hearings in February and March of that year.

It became a major political issue, run hard by the Opposition, both inside Parliament, including in question time, and outside of those chambers. Several public servants were subjected to personal denigration by members of the Opposition. The Opposition's target, of course, wasn't those public servants; it was the Treasurer.

The Opposition's campaign had a fair measure of support in the media.

² That is, had the portfolio been liquidated on that date, at prices and exchange rates applying at that date, the loss would have been \$2 billion. These losses were not realised.

³ Report no. 14, 1999-2000: Commonwealth Debt Management.

The *Sun Herald*, for example, carried a photograph of me, captured while shopping on a Saturday morning in Queanbeyan, under the headline: '\$7 billion loser'. I have no idea how the \$7 billion figure was computed; but, then, neither, I'm sure, would the journalist.

Even the serious press gave the story a run. *The Australian*, in an editorial of 6 March 2002 headed 'Billions of bucks stop with Costello', warned that,

the ... deals ... are ... threatening to cost us billions' and opined that the 'swaps program was a deliberate attempt to make a quid by putting at risk billions of taxpayers dollars ... Private companies would never do this, and even those company managers who hedge their bets and still lose money get thrown out.'

The Australian accused the Treasurer of several serious failings. These accusations were levelled by people who held themselves out as serious editors of a serious newspaper. They were very personal charges, clearly intended to be hurtful and politically damaging. And they were, it has to be said, opportunistic, unfair and inappropriate.

As it happens, the Treasurer's role in all of this was — on my assessment — beyond reproach. He had inherited the strategy from a number of his predecessors. When issues arose he dealt with them in a speedy fashion; immediately they were brought to his attention. His defence, if he needed one, was rock solid.

Our defence, on the other hand, didn't seem to convince anybody. Our strongest line of argument was that we always anticipated that we would lose money on the final exchange of swap principal through currency depreciation, and that while in some years this loss might more than off set the saving in interest cost, over the long term there would be a net saving. It was simply inappropriate, we maintained, to evaluate the performance of the strategy with reference to one year's movement, or even a few years' movement, in the market value of the portfolio.

As is often the case with political issues, as quickly as the controversy flared, it died out. It wasn't exactly a 'one-day-wonder', but by the second half of 2002 the only journalist still writing about it was Kenneth Davidson in *The Age*. Typically, Kenneth hasn't stopped writing about it.

There are, I think, four reasons why the story died.

First, many people would have had great difficulty accepting the proposition that the tight-fisted conservative Treasury, usually doing whatever it could to stop other people from squandering taxpayers' money, was itself gambling recklessly with the public purse.

Second, the Opposition's attack was blunted because:

- the cross-currency swaps strategy had been initiated by them when in government;
- the strategy had produced losses in its first four years of operation, cumulating to more than \$600 million as at 30 June 1991 (measured in 2002 dollars); and
- people were confused by the Opposition's argument that, on the one hand, the Treasurer was engaging in risky currency speculation and, on the other, he should have quit his position when the numbers started going negative.

Third, by the middle of 2002, it was apparent that the \$A had at least stabilised, and was probably in trend appreciation.

And fourth, and most importantly, the story was simply too complex. I must have read just about everything written on the topic at the time, and I have recently re-read a lot of it, and almost none of it makes any sense; an exception is the piece written by Ross Gittins in *The Sydney Morning Herald* on 4 March 2002, which carried the headline: 'Forex bum rap for Costello'.

Let's get back to the history.

Ironically, it was our seeking to *reduce* our \$US exposure that brought the strategy unstuck. We had a benchmark that obliged us to keep the \$US exposure between 10 and 15 per cent of the total stock of debt. The 15 per cent upper limit was a hard ceiling. Our problem was that the total stock of debt was declining as a result of the budget being in surplus and the \$A value of the \$US debt was increasing because of the weakening exchange rate. Denominator down, numerator up. We were in trouble. The only way to prevent the \$US exposure from exceeding 15 per cent was to close-out a substantial volume of our cross-currency swaps. But this would have meant large purchases of \$US — that is, large sales of the \$A — in the foreign exchange market. In the view of the Reserve Bank of Australia, this 'would probably have speeded up the rate at which the currency was falling'.⁴

Following representations from the then Governor, a decision was taken in December 2000 to permit the benchmark upper limit to be breached. In September 2001, following a review of the benchmark, the Treasurer agreed that we should target zero foreign currency exposure. At that time, the exposure stood at \$US 6.4 billion. This exposure was unwound according to a schedule agreed with the

-

⁴ Statement by the Governor, Mr Ian Macfarlane, 4 March 2002.

Reserve Bank. By the end of 2003 the net currency exposure on foreign currency derivatives had been eliminated.

So how did the programme, after nearly 16 years of operation, finish up? Well, as Chart 1 shows, as the unwinding was occurring the \$A was appreciating, from around \$US 0.49 back up to \$US 0.73. The \$US exposure was unwound at a weighted average exchange rate of \$US 0.647. Over the entire life of the policy net interest savings of \$1,958.1 million were realised, partly off-set by losses of \$1,174.4 million on exchange of swap principal, leaving a net realised *gain* to the taxpayer of \$783.7 million. It has probably occurred to you, in looking at Chart 1, that had we not terminated the policy we would, today, again be sitting on a cumulative economic gain of several billion dollars. This might strike some of you as ironic.

Lessons for public sector managers

What are the lessons to be drawn from this episode, and how, in particular, do those lessons relate to your business?

The first lesson is that people who manage projects on behalf of taxpayers operate in an adversarial, combative, political environment. Everything they do has the potential to embarrass the government of the day and, if there is any prospect of its doing so, will be exploited by the opposition. In political jousting, facts play poorly relative to perceptions. And the jousters don't always care about the 'collateral damage' that may be inflicted on the professional reputations of public servants.

Second, while there may be many things that public sector project managers could do that they would have good reason to expect might save the taxpayer some money, that doesn't necessarily mean they should do them. They should think about the environment in which they operate. When the cross-currency swaps strategy was saving the taxpayer about \$100 million a year, no commentator and no politician, government or opposition, had a thing to say about it. Even now that it is all over, the fact that it turns out to have benefited the taxpayer to the tune of nearly \$800 million has gone almost completely unremarked. The only time any commentator or politician, other than the Treasurer, took any interest in the policy was when it looked like it was going wrong.

To put this in more abstract, but more general, terms, in the environment in which you work, penalties and rewards are not scored symmetrically. Losses are valued much more heavily than gains. And opportunity costs (that is, the expected return from doing something other than what one is currently doing) are very much undervalued. If you do something that saves the taxpayer a bucket of money, don't expect any external praise. But if you do something that costs the taxpayer any amount of money,

expect criticism, and expect that you are going to have to devote a lot of valuable time and effort in responding to that criticism. Accordingly, if there is something you can see to do that, from a project management perspective, has an expected cost saving, but would involve some risk of cost increase, think long and hard before proceeding. If you can cover your downside risk at acceptably low cost, you might want to do that. If you can't, you would want to be satisfied that the probability distribution is skewed very heavily in favour of a cost saving.

Note, too, that your political masters face the same asymmetry between penalty and reward as you do; or, at least, they perceive the same asymmetry and act as if the asymmetry exists.

A political career is, in itself, a risky choice. In seeking to ameliorate political risk, most politicians take a keen interest in 'issues management'. This can make them appear even more risk averse than the general population. With some notable exceptions, ministers usually appear to have a tolerance for risk that is close to zero. There are two main reasons for this. The first has to do with the relationship between politicians and the media: as a general rule, good news doesn't sell whereas scandal does. The second reason has to do with the relationship between the government and the opposition. Oppositions don't often praise government success but, for obvious reason, they do tend to be highly critical of failure — even when the failure is more imagined than real.

The third lesson keys off the observation just made about the media. It is that your performance may be judged, by your political masters, according to how well it plays in the media, or how well it would play if it became a matter of media interest. What you think of as 'project management', your political masters may well think of as 'issues management'. Now, I'm sure you have heard people say that you shouldn't believe anything you read, watch or hear in the media. Most people working in government would be aware of instances of highly inaccurate media report of things in which they are expert. You may well have formed the view, by extension, that all media stories are wrong. Well, believe it or not, that's beside the point. In the political environment in which you operate, what matters is not whether the story is true or false, accurate or misleading. What matters is whether the story is positive or negative, complimentary or critical, supportive or hostile. An important corollary of this observation is that if you are managing a risky project it might be worth devoting some effort to public education - in other words, media management - up-front, long before a risk materialises. It is clear, in retrospect, that we didn't do nearly enough of this in the cross-currency swaps project. When that story broke, we were on the back foot from day one. In managing the story, our task was made especially difficult by the complexity of the subject. As a general rule, the more complex the subject, the easier it is to criticise, and the more difficult it is to defend. The defence will always involve a level of complexity far higher than the, often simplistic, criticism. And complexity is very easily interpreted as obfuscation. There is a fair chance that anything you say will be construed as a cover-up.

By the way, good politicians understand very well the importance of conditioning public expectations. Consider how often you hear a minister say, in response to a negative development, 'I've been saying all along that this could happen'? What they are really saying is 'I prepared you for this bad news, so it's not really bad news at all; indeed, it's not even news'.

The fourth lesson is that events in the short-term time horizon are overvalued relative to events at a distance. In the cross-currency swaps debate our argument, that it was inappropriate to focus on the performance of the strategy over a year, or even a few years, had no traction. Nobody bought it. If you have managed half a dozen projects, meeting all criteria relating to timeliness, scope and cost, and then have one, even relatively small, project that fails against one of those criteria, you will find that in the public consciousness that failure will — for some time at least — represent your entire biography.

These four lessons are the product of casual — if strongly motivated — empiricism spanning a couple of decades of public service. They don't come out of a political science text book. But it turns out that they do have considerable support in the relatively new area of behavioural economics. In the language of that discipline, the lessons are as follows:

The statement that you operate in a political environment is merely descriptive. But the first lesson also contained the proposition that, in the political environment, facts play poorly relative to perceptions. The central insight of behavioural economics is that people form judgements intuitively, not rationally. Intuition is not precisely the same thing as perception, but it has strong links to the essentially automatic processes of perception. Thus, judgments tend to be made quickly, effortlessly, automatically and emotionally. And they are affected strongly by current stimulation. As Nobel Laureate Daniel Kahneman (2003) puts it, 'the central characteristic of agents is not that they reason poorly but that they often act intuitively. And the behaviour of these agents is not guided by what they are able to compute, but by what they happen to see at a given moment.'

The second lesson is an illustration of what is called 'prospect theory'. The core ideas of prospect theory are that how you feel about some development depends upon your starting point (in technical language, your 'reference point'), and that people exhibit

loss aversion.⁵ For example, if your income increases from \$500 a week to \$750 a week, you will be happier than if your income falls from \$1,000 to \$900 a week; even though in absolute terms you are financially better-off in the second case.

From the perspective of prospect theory, your typical minister exhibits extreme loss aversion.

Of course, the fact that your political masters might appear to have a close to zero tolerance for risk doesn't mean that they don't, in fact, take decisions that involve risk. I have already noted that the choice of a political career is inherently risky. But, beyond that, it needs to be observed that even doing nothing is not risk-less.

The consequence of 'doing nothing' can be labelled the 'counterfactual'. It might be tempting to think that the counterfactual is the relevant 'reference point', and that it is departures from the counterfactual that generate positive and negative outcomes. But, in fact, it is not that simple. It all depends on what people have been conditioned to expect. And that takes us to the third lesson.

The third lesson is an illustration of what is referred to as 'framing'. Ross Gittins explained this rather well in the article of his to which I referred earlier. As he explains it, 'the learned financial commentators fulminating about a "currency casino" have been led astray by the packaging'. One of the framing issues he identified was that the losses were perceived to have arisen from the *unnecessary* use of derivatives. Had the foreign currency exposure been obtained through the traditional method, accepted since 1912, of issuing conventional government bonds in foreign markets, 'we wouldn't be hearing a peep from the commentators, pollies or anybody else. The (hidden) forex loss would be accepted as no more than an inevitable consequence of the dollar's fall.'

And the fourth lesson illustrates two other phenomena frequently encountered in behavioural economics: 'accessibility' and 'prototype heuristics'. A 'fact' that has just been related to you is more accessible than an assessment of performance over time, especially since the latter requires computational effort. And in evaluating an experience that extends over time, there is a tendency to discount everything other than the most intense, and the most recent, instants of experience.

Behavioural economics, borrowing from the literature of behavioural psychology, is concerned, principally, with behaviour at the level of the individual. But it seems to me to describe pretty well what we observe in the political environment most of the time.

12

⁵ In this material, and in much of what follows, I am drawing on Kahneman's (2003) excellent review article.

Had we understood these lessons of behavioural economics back in the late 1980s we probably would not have embarked on the cross-currency swaps strategy, even had we known with certainty that it would end up saving the taxpayer almost \$800 million. At the very least, we would have devoted a lot more resources to 'framing'; to the conditioning of public expectations. The cross-currency swaps programme was a mistake; not in financial terms, but because our management of it turned out to be not well suited to the political environment in which public sector project managers operate.

In managing defence projects you have to be mindful not only of financial risks, but also others, such as technical and scheduling risks. I have concentrated, in these remarks, on financial risks. The lessons sketched out here apply equally to those other risk categories, each considered in isolation. But what if the levels of risk across these three categories are interrelated?

Well then we have a whole new level of complexity.

I'm not going to go through all of the permutations that are possible in the incredibly complex environment in which the public sector project manager operates. I'll simply illustrate one permutation, in which all three risk categories are, generally, positively correlated. This is a highly significant case, arising in almost all cases in which a decision is taken to source a large acquisition domestically — that is, from Australian producers — rather than to import it. These decisions don't always imply higher levels of financial, technical and scheduling risk; but often they do.

I draw attention to this case because some of you will be wondering why, if political decision makers are so risk-averse, they would ever take a decision to source complex product domestically.

I can think of two reasons. The first is that, because of the popular appeal of domestic sourcing (Australian production is 'good', imports are 'bad'), a decision to import is, by far, the more politically courageous. The second reason is that when things go wrong with a domestically sourced project, it is extremely unlikely that the political opposition — or the media for that matter — will pin the blame on the sourcing decision. More likely, the failure will be perceived to have been one of project management; your failure, not 'theirs'.

Responding to governments' approach to risk

So what protections do you have?

Well, the project approval arrangements implemented following the Kinnaird review afford you a considerable measure of protection; but only if you insist on those arrangements being followed.

Following the Kinnaird review, there is an increased focus on identifying and managing cost, schedule and technology risk as part of a rigorous two-pass project approval system. The rules require that an 'off-the-shelf' option is considered along with the more attractive customised options.

Defence projects examined by the National Security Committee of Cabinet first run the gauntlet of Defence's internal clearances, the Secretaries' Committee on National Security, and the Cabinet Secretariat. And they are commented on by other departments, including the Treasury.

I would want to encourage you to embrace these processes. I'm sure they will sometimes seem to you to be a nuisance; an unnecessary, cumbersome, overly bureaucratic set of arrangements designed simply to slow things up and make your job more difficult. But the fact is that you have much to gain from these processes and even more to lose if you don't. They are your opportunity to 'frame' the project; to condition expectations; and to protect yourself from unfair criticism down the track.

I appreciate that, in the contemporary environment, where there is an understandable, and appropriate, emphasis on public servants being responsive to ministers, there could be, on occasion, a temptation to cut corners, to facilitate a rapid decision and the staging of a high publicity announcement. Just keep in mind how exposed you might be if and when the whole thing turns pear-shaped and the world learns that you have flouted the post-Kinnaird procurement guidelines.

Of course, the rules are there also for the benefit of ministers. They aim to ensure that ministers are given comprehensive and clear advice on options, their implications and key risks. Ministers have endorsed the rules because, among other things, they test whether you understand and have considered all of the risks in formulating your advice. They provide a level of assurance that your professional judgment — which ministers would prefer not to second guess — can be relied on.

Having said that, the rules only take you so far. A lot still depends on the personal judgements you make; in particular, on the options and information you present to ministers and how you present them.

These judgments can be difficult to get right at the best of times. They can become next to impossible if you are unaware of the rigours of the political environment in which you operate.

In everything you do, keep these four things in mind:

- perceptions play stronger than facts;
- losses are valued much more heavily than gains;
- public education investments should be undertaken long before risks materialise;
 and
- when something goes wrong, few people will be talking about your record of outstanding prior achievement.

Reference

Kahneman, D 2003, 'Maps of bounded rationality: psychology for behavioural economics', *American Economic Review*, vol 93 no. 5, December, pp 1449-75.