

beyond... the mbh newsletter



Feb 2004

Editorial

In our last newsletter we quoted a survey that was conducted by Kellogg school of management on IT portfolio management http://www.kellogg.northwestern.edu/faculty/jeffery/htm/publication/ITPM_Study.pdf

In January's newsletter we firstly commented on the fact that portfolio management and IT portfolio management is the same thing and in fact there really should be no such thing as IT portfolio management just portfolio management. As per the article by Nicholas Carr in the Harvard Business Review, technology itself does not create competitive advantage, it's the use of the technology by the individuals in the business that creates competitive advantage. In this way, early adopters of technology often miss out on the advantage as they pioneer the way for the followers who learn from their mistakes and then capitalise on a far more efficient and productive use of that technology. There are literally hundreds of examples where this is the case and can often be the case in areas outside of IT (e.g. Bunnings Warehouse learning from the mistakes of BBC hardware who were first to market in Australia with the hardware-house concept and yet made less profit per square metre than the copy cat Bunnings).

However, this newsletter is about tackling the other issue raised in Jan, that of the methods used to implement portfolio management. In the Kellogg survey, the Investment approval factors were rated against the primary factor (that being alignment to strategy). Some of these approval factors (payback and IRR) have been covered in previous mbh newsletters and we have included excerpts in this newsletter as a reminder of our thoughts on these factors. Others are very abstract (e.g. ROI and operational factors) and we hypothesise what these factors might mean. For the rest, we assess the effectiveness of the factor and why it would be used ahead of more useful factors like NPV and option pricing.

Finally, on the business development front, mbh training has just released a one day training course in change management. This essential component of the Managing by Project philosophy now has its own dedicated one day course. This provides an elective for our Diploma PM students and a way for non project managers to learn about stakeholder management, communicating to influence and creating a targeted and effective comms plan.

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The vagaries of portfolio management

The fascinating survey on IT portfolio management carried out by the Kellogg School of Management last year listed the criteria used by organisations in selecting and prioritising projects. Before listing what the criteria was, a definition of portfolio management used by mbh may assist the reader in following how we have assessed the effectiveness of this criteria. Portfolio management, when applied to real assets, is about selecting a collection of investments that will maximise shareholder wealth. In a practical sense, the optimal portfolio will be that combination of current and future projects that will result in the greatest combined NPV + option value than any other combination. This optimised portfolio becomes the programme of projects being managed by the business. Hence, a more simplified definition could be an organisation's prioritised list of programmes and projects being run or to be run.

The list of investment factors that came out of the Kellogg survey are outlined below in order of their usage versus the number one factor of alignment (in other words, for every 10 projects assessed for alignment to strategy, 7.5 will also have ROI measures, 5 ability to execute, 4.8 payback time etc):

- Alignment 100%
- ROI 75%
- Ability to execute 50%
- Payback Time 48%
- IRR 47%
- Cash need 25%
- Portfolio fit 22%
- Operational 22%

- Risk 22%
- Productivity 20%
- NPV 20%
- Option Value 1%

Many portfolio management systems use a combination of the factors listed above. We as a consultancy have assisted businesses in building the portfolio systems. And as per the definition above, this portfolio system is based around a prioritisation framework. However, there is a significant error in these combination lists. Some of the component factors listed are of no benefit to an organisation at all and are outright dangerous (e.g. Payback). Others, while being important ingredients, are subjective measures that require some sort of points system to be created. This points system allows for the portfolio to compare apples and oranges. This is one of the key points of portfolio management, you need to be able to compare apple and orange investment opportunities and prioritise them. For example, a bank looking at expanding its distribution network versus investing in productivity. Both projects are like are completely different but need to be compared. Telling which is more important is not easy and next to impossible using a points based prioritisation framework. However, if both projects have been objectively assessed using NPV and option pricing, then we have a common platform to compare them. Whichever creates the highest value (i.e. has the highest NPV + options value) is of the higher priority.

I will now look to explain the deficiencies of each of the factors in the list one by one.

Alignment

As quoted to us recently by a senior GM at a big four bank, strategic objectives are couched in such high level terms that any investment can be described and aligned to them. This makes the use of strategic alignment as a prioritisation tool basically useless. The other issue is that your investment decision making should be testing your strategy (i.e. if projects that are aligned to the strategic objectives have negative NPV and limited option value then the chances are the strategy is wrong)

ROI

Not sure what is meant by this rating. ROI is a summary statement describing the various techniques for calculating ROI. (e.g. Payback, IRR, NPV, Option Value are all ROI techniques) If an executive asked the question “what is the return on investment?” The response would have to be “using what method?” Once this is known an answer can be made. For instance in non-profit organisations, or with triple bottom line reporting, the ROI may be communicated in terms of the amount of carbon credits created by the project or the level of toxic outputs from a manufacturing plant reduced by x.

Ability to execute

If a project is going to be difficult to execute, then a greater discount rate should be used to forecast the cash flows of the project. This would ensure that the hurdle rate is sufficient to compensate for the extra risk being taken on. If the benefits are

not great enough to leap this hurdle rate then the NPV will be negative and hence the use of “ability to execute” as a prioritisation tool becomes obsolete. It is an input into the NPV that is calculated rather than a rating on its own.

Payback time

Our newsletter dated Nov 2001 covered this evil measure that is the scourge of capitalism, I have re-printed our comments below:

“The biggest error made when analysing capital investments, or investments in real assets by corporate Australia, is the desire for short-term returns. Management’s duty to announce ever-increasing profit growth (quarter on quarter) leads them to invest in short payback periods rather than projects that would offer greater value over the long term.

It is the demand from city analysts for ever-increasing profits from the businesses they invest in, and their use of a maximum 5 years when applying Discounted cash flow (DCF) analysis when valuing companies that leads to this short term focus. Most analysts apply a residual amount to a company’s cash position after 5 years. This residual is usually the last year’s cash flow calculated in perpetuity. It is my belief that this perpetuity calculation is the bane of capitalism. A paradigm shift needs to occur in the thinking of the modern investment analyst. If analysts were to remove the false assumption that all companies are a going concern, then the ability to just lazily forecast the fifth year’s cash flow into perpetuity would be removed.

What would replace it? If the going concern of a company (from an investment analysts perspective) was removed, then analysts would have to delve deeper into the capital budgeting programme being carried out by each company. If that analyst could not find the innovation required for the company being assessed to remain a going concern, then the DCF model would be adjusted accordingly. This would result in a significantly lower share price value for that company than the level it currently affords. Over time, managers would come to realise that to achieve their stock option exercise price, they either have to continually con their board to lower the share price hurdle or invest in longer term projects or true positive NPV projects that will provide the firm with a future that goes beyond the next reporting period.”

IRR

AND from the same newsletter in Nov 2001 another dangerous measure used was commented on, again I have included the relevant section for your perusal:

“Most people when talking financial matters like to talk in terms of returns. These returns are always expressed in terms of percentages. Board members, managing directors, and executives around Australia aren’t any different to the norm (even though they are paid significantly more) and it is for this reason that executives often demand the financial analysts to present their analysis on a project’s worth in terms of its Internal Rate of Return (IRR). If this IRR is higher than some pre-defined hurdle rate (hopefully, the company’s opportunity

cost of capital), then the project is perceived to be of value and should go ahead.

The only time IRR gives the same result as NPV is when the cash flows and hence the NPV is a smoothly declining function of the discount rate. Where a project has a considerable time horizon or when its cash flows fluctuate during the life cycle, then the chances of the IRR result calculated being in error is heightened. There are three main areas where IRR provides an erroneous answer when making a capital budgeting decision they are:

1. Are you lending or borrowing?

Cash flow is not necessarily smooth throughout the project. Consider the example of writing a book: The publisher lends money to the author (i.e. project receives capital injection) then spends the money during Year 1 and Year 2 (creating negative cash flow in Year 2). In Year 3, the publisher lends to the project again which is followed again by cash outlays to form a negative cash flow in year 4. The results is that the IRR will potentially give a dubious answer because of the changing sign (positive/negative) of cash flows in each year.

2. Multiple rates of return

Under the same cash flow scenario outlined in 1 above (i.e. multiple changes in the sign of the cash flows over the time period invested), many projects will return more than one IRR. How? The calculation of IRR is simply any number that will solve for $NPV=0$ thus there can be more than one number that solves the equation. So, why not just calculate the NPV?!

3. Mutually exclusive projects

IRR's calculated on mutually exclusive projects with differing upfront investments can lead to erroneous choices. The cause of this error can be removed if the more expensive project is analysed on an incremental basis compared to the less expensive project. However, the chance of this being done is low, and the temptation to make the straight comparison of IRR between one and the other is too great for most analysts.

This is why being able to supply a simplistic rate of return to an executive or board may enable that team to feel comfortable at the corporate round table but it won't actually solve the problem of which projects are best to invest in."

Cash need

The flaws of capital rationing in a capitalist framework are well documented, so too are examples of business investing way beyond what most believe would be prudent levels considering their balance sheets. Like all investments, some of these have been disasters and others have been great successes. One recent example is the Burns Philp takeover of Goldman Fielder. The jury is still out as to whether this was a good investment or not, but it does demonstrate that it is potentially the right investment, financing it is always possible. The fact that there have been some successes leads to the fundamental finance principle – **Don't mix financing and**

investing decisions! Look at an investment for its worth in the business. If a project is worth investing in (i.e. has a valid, objectively assessed positive NPV + Option value amount) then find ways to fund it efficiently. If it has been assessed objectively, then it can't be that hard to find an investor to fund it. With the wonders of merchant bankers constantly bamboozling markets with new financial products, the differing ways of funding a project are almost limitless and the variety of investors willing to take a variety of levels of risk next to limitless also.

Portfolio fit

While in concept this is an important factor, the difficulty is in telling what is the optimal portfolio and then which projects fit into that portfolio? In resolving this difficulty, we are again led to the same factors that we are continually mentioning. Objectively model the variety of projects that are currently on the table. Portfolio management is all about investing in a collection of assets (i.e. projects) that are going to maximise the return given a certain level of risk. For this to be achieved one should model the NPV and option values created by programmes of projects and the one which creates the highest value for the business is the portfolio which is then invested in. Risk is accounted for in the discount rate applied to the NPV calculation and in the volatility applied to the option pricing model.

Operational

We are not 100% sure what this factor means. It may mean the project is required for the company to remain operational, or it may be how well the project fits into the operational structure of the business. Either way, we are sure that as a criteria, it should still be a sub set to the measurement otherwise developed. For example, if a project is required to remain in operation, then its NPV is equal to the current value of the business (as this is what you are protecting by doing the project). If the project is a compliance project (which are commonly approved without an NPV) then what is the downside cost of non-compliance and how likely is it that the downside will occur. Answering the question creates the benefits side of the discounted cash flow equation. For example, if non-compliance is a slap on the wrist and \$50k fine, and that is only when someone complains to some regulatory body, then is it worth spending \$2m ensuring that you do comply? Obviously not, and this would clearly be shown by the NPV calculation with the operational reasons for the project supporting the figures, not the other way round.

Risk

As mentioned throughout this newsletter, risk is a component of the valuations carried out in NPV and option pricing. The riskier the process, the higher the discount rate and the more volatile the forecasts hence the greater the volatility applied to the option value. This is one of the crucial and beautiful components of combining NPV and option pricing.

The CAPM (Capital Asset Pricing Model) utilises a measure known as beta to estimate the risk of an asset. While there are flaws in the assumptions of this model it does provide a reasonably robust way of including risk in the measures used

to track a prioritise a portfolio based on NPV. It certainly has more rigour to it than the subjective measure of saying the project has high risk therefore we should not do it. If the project or investment will potentially reward the business in a far greater way than the potential risk, then surely it still may be worth investing. How do we know if it is worth investing, by estimating the potential benefits (both soft and hard) and by discounting those NET benefits by a discount rate that is risk adjusted.

Productivity

This is a direct benefit driver that should be a subset of the NPV valuation. We are going to achieve a 20% productivity improvement in our call centre operations, which means on current forecasted call volumes we will save \$10m call centre expenditure. This type of analysis is a productivity analysis but it leads to the ability to prioritise the investment. If this \$10m is offset by a \$9m cost to achieve it (i.e. \$1m NPV result) then the chances are, when compared to the NPV results of the other businesses, it will be of low priority to the business. This is a significantly more robust method than saying it is productive therefore it gets a priority weighting of x.

Concluding thoughts

Why was NPV and option value the bottom two on the Kellogg survey table? This is the constant question debated in the mbh offices and with clients and peers at conferences around Australia. We believe, but have not tested a number of theories. Some include the desire for a laissez-faire approach to senior management and boards, a lack of understanding of financial principles in the CFO's area (ala the survey reported in the economist October 2001 stating that only 4 finance directors on the FTSE 100 had heard of option pricing of real assets) and a lack of demand for transparency in decision making. Anyone out there who has competing theories, or if you just think our whole argument is bunk, please [email us](#) as the mystery is still unsolved. For those who would like to improve their company's use of Investment Management techniques, give us a call, we'd love to help.