

Mathematics for the people

software converts theory to practice

A pair of academically-inclined brothers are hoping to upgrade the analytical approach of New Zealand's investors and advisers. David Chaplin reports on the progress of software firm Styleinsight.



The Style brothers: Adam and Gareth Lawrence

Palmerston North is home to what are quite possibly New Zealand's most enthusiastic devotees of modern portfolio theory (MPT) in the shape of the Lawrence brothers, Gareth and Adam.

The pair are the brains behind the financial technology company Mediasculpt and its offshoot Styleinsight – which provide sophisticated software applications to different markets. Mediasculpt, the Lawrence's biggest revenue-generator to date, supplies the technology behind the credit risk analysis firm, Rapid Ratings.

Rapid Ratings has dropped off the radar in New Zealand as a finance company research house but the business continues in the corporate credit market. Earlier this year two New York bankers bought Rapid Ratings and have begun expanding its services in the US. Despite the ownership change, however, Mediasculpt retained the Rapid Ratings software contract (and its biggest client).

But it is the Styleinsight suite of products that the Lawrence brothers are keen to roll out to New Zealand's financial planning and funds management communities. Currently, Styleinsight offers two software tools: a returns-based style analysis system; and, a portfolio optimiser.

Adam Lawrence, the youngest sibling (he's 28 while Gareth is 31), says both tools are based on the work of Economics Nobel winner, William Sharpe – one of the fathers of MPT.

Lawrence says while advisers and fund managers in the UK and US have had access to such quantitative research tools for many years the Australasian market has lagged behind.

"I have an academic background so I'd kept up with what's happening with investment research overseas," he says. "We decided we'd like to bring the MPT tools to New Zealand and we thought we had the skills to do it."

Adam's background in physics and maths meshes well with his older brother's computer and finance qualifications. The two also share duties within the business.

Working together and with a development team of about 15 the Lawrence's built the returns-based style analysis tool to match what was available in the US and UK.

Lawrence says the software is the only system of its kind in New Zealand and brings a new depth to the analysis of managed funds and portfolios. Australia also lacks sophisticated MPT tools, he says, and Styleinsight plans to take its systems across the Tasman as soon as possible.

Returns-based analysis, which was pioneered by Sharpe in the early 1990s, aims to provide an objective method of determining the asset allocation of a fund or portfolio. The technique compares the historical returns of a fund to a variety of indexes over many time periods to come up with a more realistic picture of a fund's risk exposure than that stated by the manager.

For example, Lawrence says, a domestic share fund might in fact be heavily-weighted towards companies that are exposed to overseas markets. Using traditional measurements, such a fund would be expected to track the returns of local companies, however, returns-based analysis would pick up its sensitivity to international markets.

Unlike other fund analytical tools such as the Morningstar Stylebox, returns-based style analysis does not rely on the underlying holdings of a fund but measures its actual behaviour over time.

Lawrence says the Styleinsight tool is also tailored to the New Zealand market and can assess a wide range of investments including fixed interest funds.

The group's major client for the returns-based style analysis tool (which is included along with the portfolio optimiser in the Investment Management Package) is the Goldridge financial planning network, which uses the system to create model portfolios.

The other main tool in the Styleinsight armoury, the portfolio optimiser, is in the final stages of development and is creating a lot of interest from fund managers, Lawrence says.

He says the optimiser, which again is predicated on MPT,

creates a range of efficient asset allocations for any given level of risk.

While the underlying maths and software development might be complex, the outputs are designed to give clients a simple understanding of where their current portfolios sit relative to the “efficient frontier” and suggest ways to boost returns without taking on extra risk.

“We are also going to be optimising with respect to product as well – direct share, funds etc,” he says. “We have decided to do this based on the demand that has been coming from a survey of potential clients.”

MPT, whose founders were the first to apply rigorous statistical analysis to the risk and return characteristics of investments, has come in for criticism recently but Lawrence says the “underlying concepts remain sound”.

“The problems lie mainly in the implementation but there are lots of techniques we use to smooth out the data,” he says.

According to Lawrence, while all financial advisers could use the Styleinsight tools, their best use might be in the hands of an “investment specialist” within a group.

“It’s not time-efficient for all advisers to all be doing their own thing,” he says. “I’ve been thinking a lot about how our tools could save time for advisers so they can focus on servicing their clients.”

The brothers are optimistic about the prospects for the Styleinsight products in New Zealand and are looking beyond the existing range.

The firm already produces simple one-page reports that provide a snapshot of the risk, return and expense profiles of many funds with marks out of 10, which are intended as sales tools for advisers. As well a KiwiSaver default fund analyser is on the Styleinsight agenda.

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Lawrence says he is also keen to introduce a ‘Monte Carlo’ simulation tool to the New Zealand market. Monte Carlo analysis, which is commonly used by US advisers, projects a range of possible return profiles for any given fund, or portfolio, over many time periods.

“Monte Carlo analysis can give, for example, 1 in 20-year scenarios showing what would happen to returns in the worst case,” he says. “Clients considering investments are usually concerned about the worst-case scenario.”

The “holy grail” for Styleinsight, Lawrence says, would be to develop an end-to-end system that: collected the client data; worked out an asset allocation using Monte Carlo and efficient frontier tools; and then produced actual portfolios with returns-based style analysis.

However, the Palmerston North niche software firm is well on the way to its nirvana. The next phase is convincing the New Zealand advisory market that high-level mathematical theory deserves a place in the lives of ordinary investors. **A**



By Grant Henderson

QUESTION

What are the tax implications of a beneficiary owing money to a trust? The trustee and beneficiary are associated persons.

A client has funds in the UK. He will become a non-resident taxpayer because he will be moving overseas.

What are the tax implications in the year he becomes non-resident?

Is he still covered by the financial arrangements rules in the year he becomes non-resident and in the year before that?

ANSWER

(1) We assume that the trust is a qualifying trust, and that no interest has been charged to the beneficiary.

No adverse tax consequences should arise if the trust makes an interest-free advance to the beneficiary.

When a qualifying trust makes an interest-free loan to a beneficiary in its capacity as beneficiary of the Trust (which is effectively the overdrawn beneficiary account) then the loan is likely to be seen as a distribution of capital.

A distribution of capital is not taxable to a beneficiary of a qualifying trust, so the interest-free loan should not give rise to an income tax liability for the beneficiary.

An interest-free or low-interest loan for a fixed period to a beneficiary of a trust is not a gift.

The trust law implications of making an interest-free loan to a beneficiary may also be relevant.

Loans made from the trust fund by trustees are treated as trust investments. The trustees are under a duty to invest trust property in the manner provided by the trust instrument, by statute and in accordance with any court order.

These duties include:

- exercising the powers of investment in the best interests of all and future beneficiaries of the trust;
- acting impartially towards beneficiaries and between different classes of beneficiaries; and
- taking advice, unless they are altered by, or are inconsistent with the Trustee Act 1956 or any other enactment or the instrument, if any, creating the trust.

Sections 13A-13Q of the Trustee Act, unless otherwise modified by the trust document, provide a comprehensive guide to trustee investment to which the trustee will need to adhere.

A trustee is under a general obligation to secure the trust estate and preserve it from loss.

(2) We assume that the person will not be carrying on business through a fixed establishment in NZ.

A person who becomes a non-resident indefinitely is treated as having disposed of all financial arrangements held by that person for market value.

The person must perform a base price adjustment as at the date that the person ceases to be a NZ resident. The purpose is to bring into account for tax purposes, all gains, realised and unrealised (including foreign exchange gains), up to market value at the relevant date.

References:

Income Tax Act 2004 ss EW 29(1), EW 30(1), (2), EW 36, EW 41
CCH The NZ Accrual Regime, A Practical Guide, 2nd Edition, para 215
Trustee Act 1956
New Zealand Master Trusts Guide (2nd Edition) chapter 5, 7, 10, 13