Risk Management

Solutions for Pension Funds

Adequate answer to multiple dimensions of risk management

What does it mean to manage investment risk?

Managing investment risk in a financial institution is far too often associated with only the security level statistical analysis. Standard risk measures, such as VaR and tracking error, are adequate for measuring the risks taken by asset managers and traders. Although the asset allocation risk has far greater impact than the security-level risk, institutions spend less effort on managing this risk. Finally, exposure to systemic events that may have the greatest impact on a fund at the strategic level is largely ignored. Effective market risk management for principal investors requires control over all three levels of investment risk.

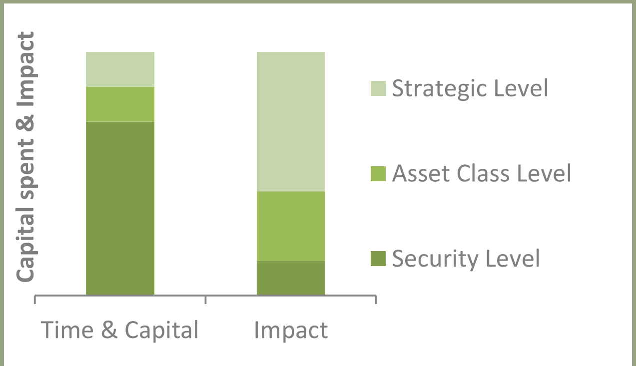


Figure: Multiple levels of investment (market) risk and time and capital commitments by institutional investors to each level
Source: LINKS Analytics

Build a proactive and forward-looking risk management process that takes into account the economic threats and opportunities in the real world.

Multiple Levels of Investment Risk

Often driven by the type of the mandate and institutional arrangements, investment risks are concentrated in one or more of risk levels.

LINKS Risk Management offers state-of-the-art solutions for all three levels of risk management achieving comprehensive control over multiple dimensions of investment risk.

Institutional investors have to control multiple dimensions of investment risk:

- ***security level:*** *whether traders or asset managers take risks within the agreed limits*
- ***asset class level:*** *whether the fund is taking extreme risks in overpriced asset classes as a result of the current asset allocation*
- ***strategic level:*** *whether the fund can survive a major economic crisis*

What can you achieve with LINKS Risk Management?

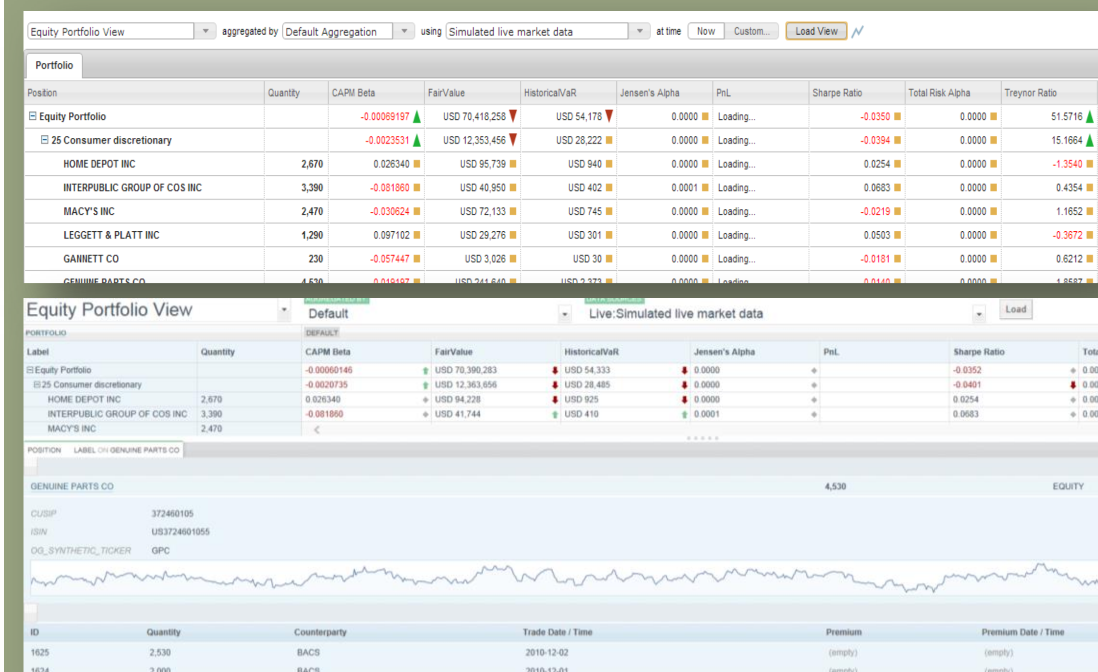
- *Security level risk management*

Risk management at the security level provides the comfort that the traders and asset managers charged with managing the fund's assets remain within the agreed risk limits.

LINKS offering at the security level covers all traditional and exotic asset classes and is flexible and extensible.

With so much effort and capital spent on security-level system implementation, it is important to have a future-proof solution that does not depend on the fortunes of an individual vendor.

Figure: A collection of security-level reports



LINKS addresses the security-level risk with an open source platform; this means that the client has full access to the code, risk and pricing models and underlying data.

Open source: the security level risk management solution offered by LINKS is an open source package, which among other things implies exceptionally low total cost of ownership compared to state-of-the-art proprietary systems.

Real time: our solution is designed to perform well in a real-time trading environment.

All asset classes: our solution covers all standard and exotic asset classes, including swaps, swaptions, standard and exotic equity options.

Extensible and flexible: our solution has a flexible interface with external high-level scripting languages and extensive documentation, which cuts significantly response time to custom report requests.

- *Asset-class level: LINKS Graham Risk Value ALM*

The most damaging risk that principal investors are exposed to is the risk of acquiring overpriced assets. Whether it is extreme equity market dislocation in one of the regions or a new investment proposal pertaining to an asset class, the key metric determining the medium-term returns on the investment is the pricing: is the fund entering at the top of the pricing cycle as it often happens, or is there sufficient amount of value cushion to protect the investment in potentially adverse market conditions?

LINKS Graham Risk Value ALM combines comprehensive actuarial data with an advanced asset valuation and allocation framework to enable funds steer long-term asset allocation risk thus avoiding naïve and unrealistic asset return assumptions.

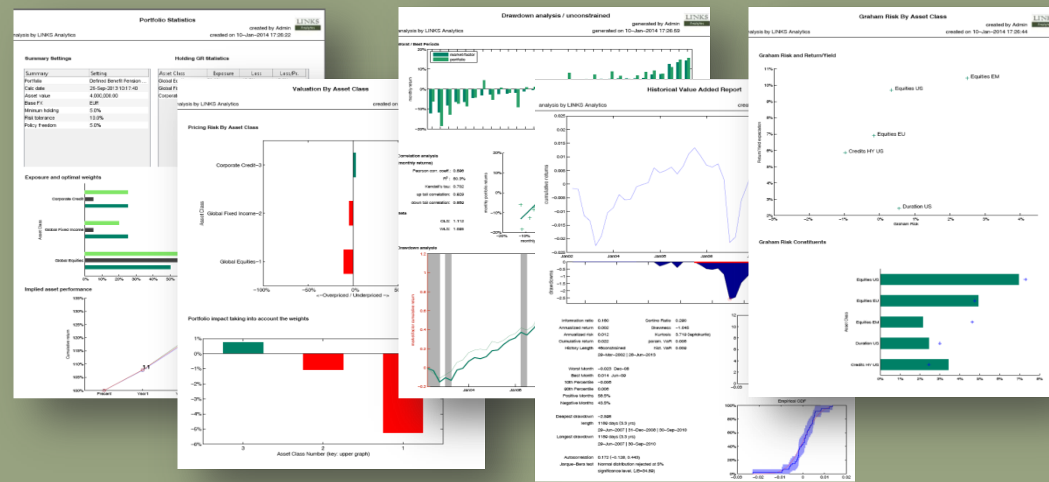


Figure: A collection of LINKS Graham Risk Framework reports

The greatest risk is overpaying for assets

There is a strong relationship between long-term returns and the acquisition price of risky assets – a relationship that is overlooked by the traditional Strategic Asset Allocation (SAA)/Asset Liability Management (ALM) framework. In one of the long-term studies of time varying returns R. Arnott and P. Bernstein show the relationship between the Equity Risk Premium (ERP) and the 10-year forward return. Since the expected return varies significantly over time, the overpricing risk is by far the most dominant type of investment risk for an asset owner.

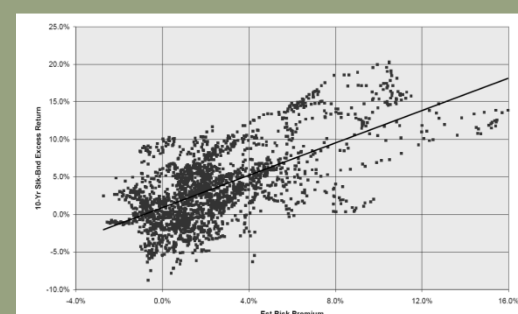
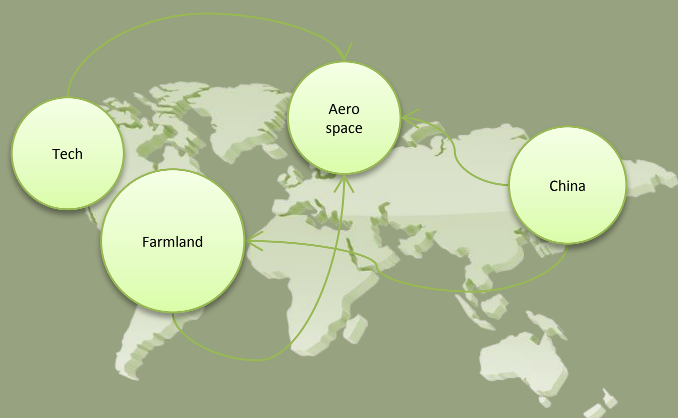


Figure: ERP and 10-year forward returns **Source:** What Risk Premium is "Normal"?, R.D. Arnott & P.Bernstein, Financial Analysts Journal, Mar/Apr 2002

What are the Global Systemic Risks?

Asset allocation should be cognizant of not only static risks of overpricing of different assets, but also the economic drivers behind returns for various assets and asset bubbles. Although the impact of asset bubbles is marginal for many asset classes, some asset classes and sub-classes may be entirely driven by them. LINKS GSR is a review of all current asset bubbles that threaten to destabilize the capital markets, complete with assessment of the companies, banks, governments and assets involved.



- *Strategic level: global systemic risks and exposure to them*

Every so often established trends are broken. Government intervention or technological advances cause imbalances in the markets.

Although in the near term the impact of these imbalances is marginal, over time they grow, and when critical tipping points are reached, cause seismic shifts in asset risk and returns in a very short period of time.

The technology bubble, the property and financial crises are few examples of these shifts.

LINKS Global Systemic Risks (GSR) focus on these imbalances and asset bubbles caused by them. By continuously monitoring the GSR news flow and intensity, institutions can anticipate the next asset bubbles to burst and take remedial actions. Combined with the Graham Risk framework, the GSR research will indicate generic asset risks and returns if the trigger points are reached.

Exposure of a typical fund to the Global Systemic Risks may be through the standard asset classes such as global equities or sovereign debt, or alternatives, such as infrastructure or private equity.

Whatever the underlying instrument, it is the source of economic risk that matters. In the Strategic Risk Management process LINKS will audit the portfolio across all liquid and alternative asset classes.

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