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Portfolio risk from a different vantage point

The thin line between forces of nature and the markets

Passion to Perform

Financial Standard Best Practice Seminar,
17 September 2012

Paul Newland
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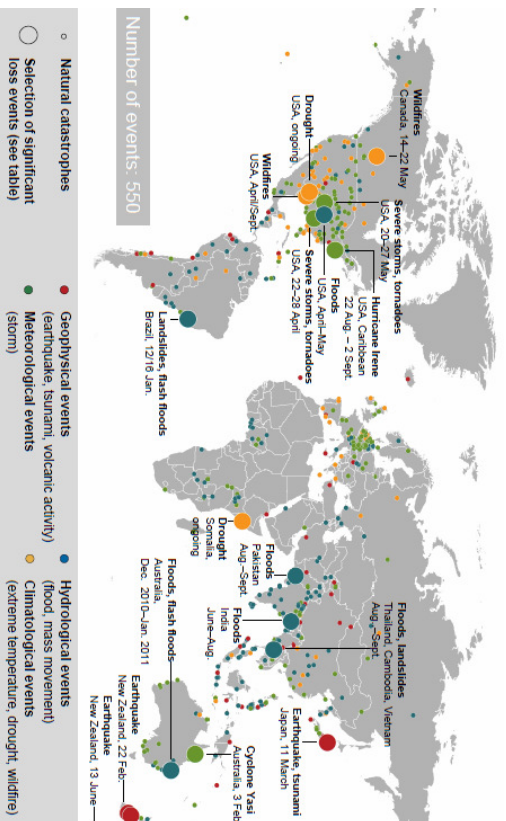
Aspects of risk when resilience is important

The thin line between natural hazard and market risk



What do natural hazard risks look like?

Loss events 01.01.11 – 31.09.11

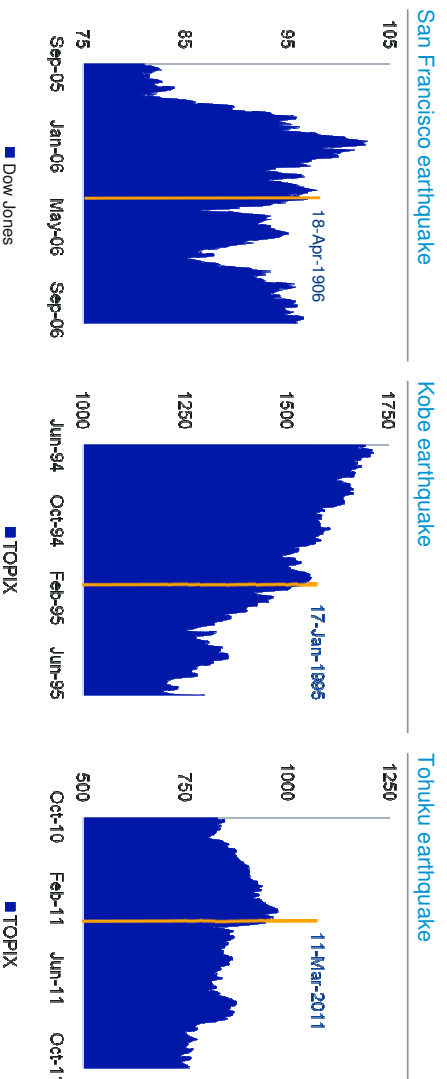


Source: Munich Re
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How natural hazard and market risks interact?

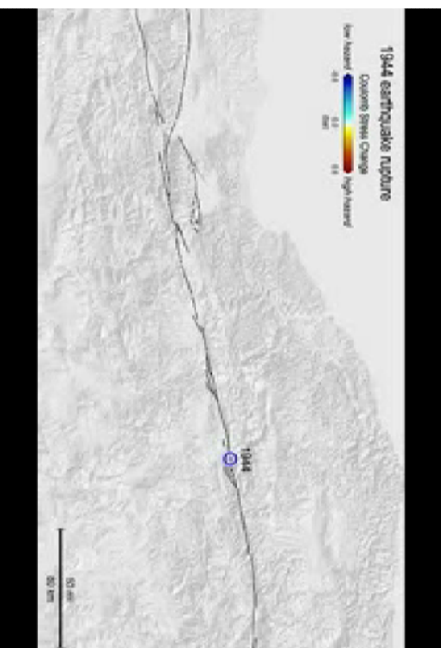
The case of earthquakes



Source: Bloomberg
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What can we learn from stress transmission in nature?
video



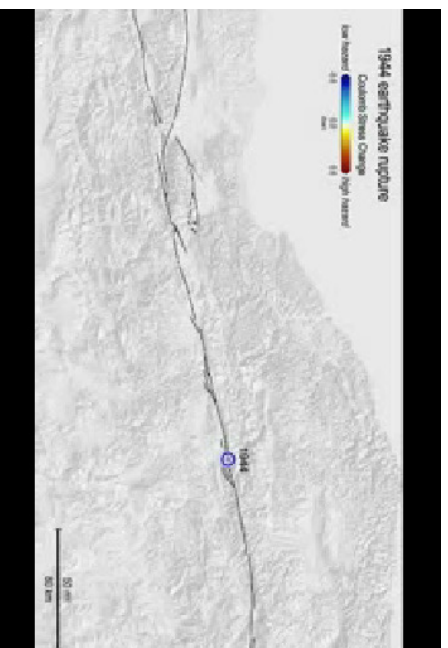
Source: US Geological Survey

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What can we learn from stress transmission in nature?
video



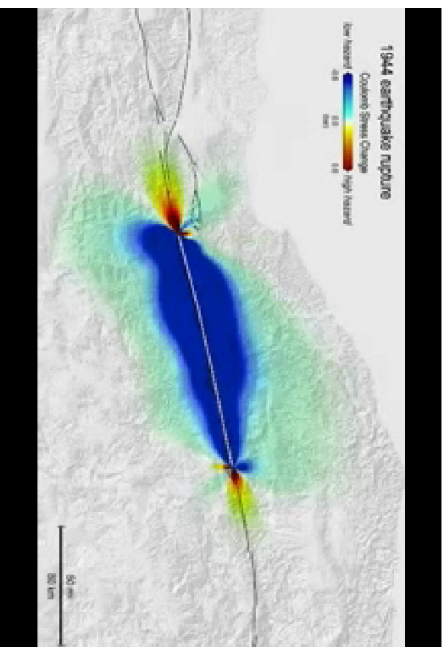
Source: US Geological Survey

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What can we learn from stress transmission in nature?
video



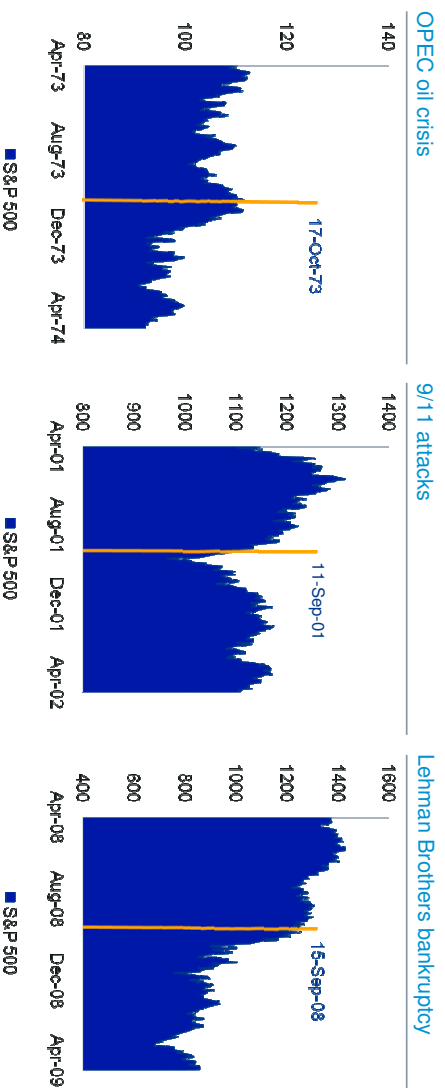
Source: US Geological Survey

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How systemic stress and markets interact
Geopolitical, terrorism and financial drivers



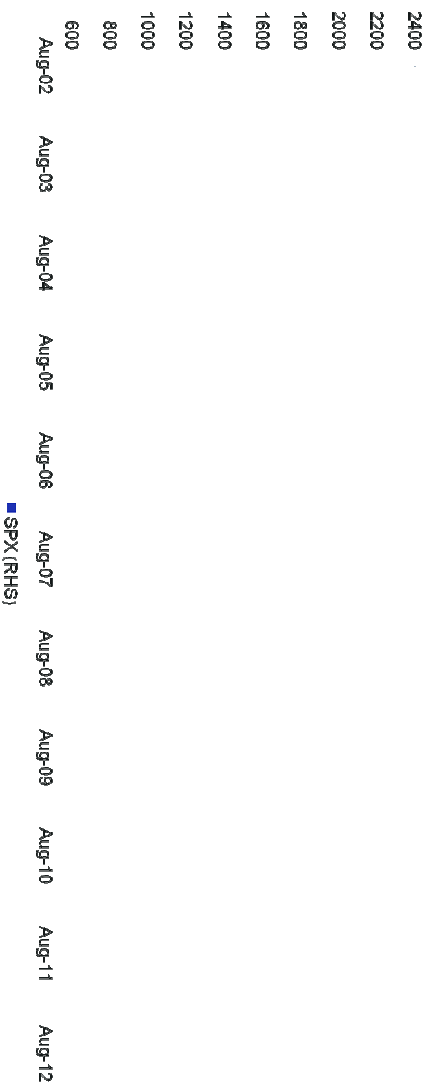
Source: Bloomberg

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What can we learn from stress transmission in markets?



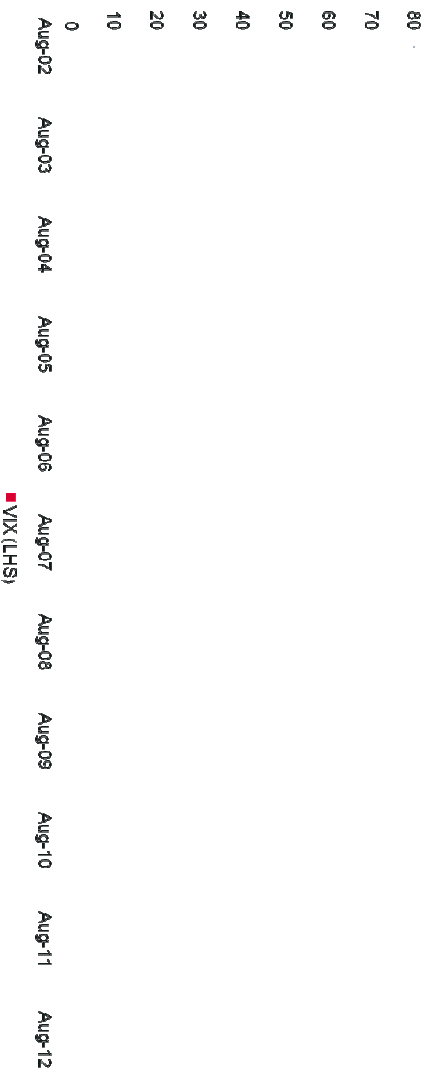
Source: Bloomberg

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What can we learn from stress transmission in markets?



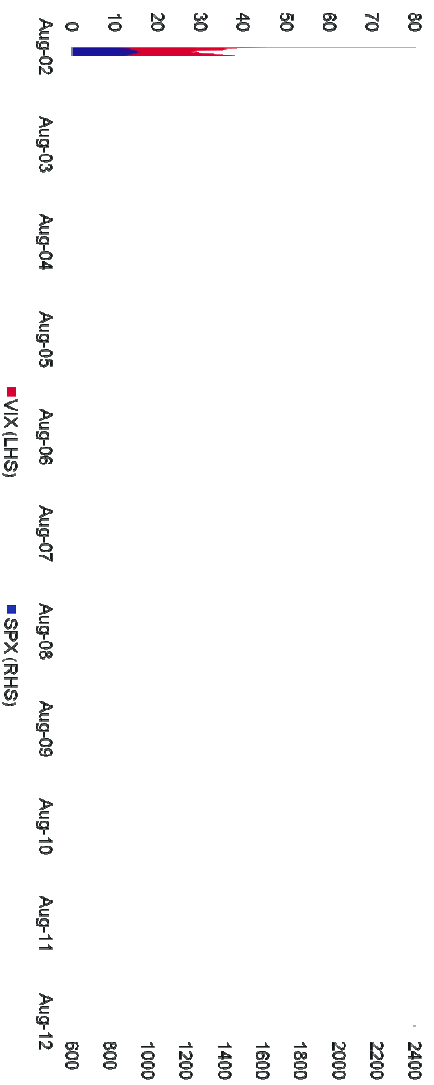
Source: Bloomberg

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What can we learn from stress transmission in markets?



Source: Bloomberg

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Aspects of risk when resilience is important



About nature and markets

- Periods of calm can indicate a build up of stress
- Fault lines are usually evident before an event
- Stress can be released quickly
- There are usually aftershocks

What does this mean?

- Assets and liabilities can and do interact for the worse
- Profits can become illusory very quickly

Resilience:

1. The power or ability to return to the original form, position, etc., after being bent, compressed, or stretched; elasticity.
2. Ability to recover readily from illness, depression, adversity, or the like; buoyancy.

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Striving for resilience

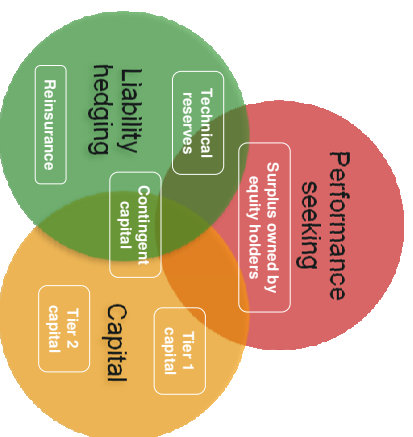
What individuals can learn from insurers



Striving for resilience

A framework for insurers

Linkages across assets and liabilities for an insurer



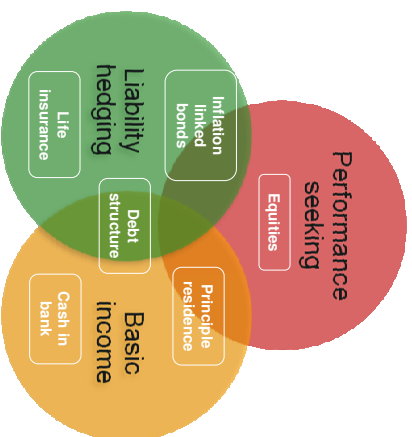
Research¹ has shown that an optimal investment strategy should involve three building blocks:

- A **performance-seeking portfolio** longer-term growth oriented e.g. credit, equity, real-estate
- A **liability-hedging portfolio** hedging liabilities e.g. long-term bonds and inflation linked bonds
- An **endowment-hedging portfolio** hedging cash-flows e.g. cash, short-term fixed income, contingent capital

¹ EDHEC Risk Institute, *What Asset-Liability Management Strategy for Sovereign Wealth Funds?*

Striving for resilience A framework for individuals

Linkages across assets and liabilities



What is the default position for an individual?

- Performance seeking portfolio**
Allocated to achieve appropriate returns
Equities, hedge funds, growth, balanced, diversified, protected income, annuity
- Liability hedging portfolio**
With a range of payoffs that manage risk
Long bonds / income protection insurance / life insurance / house insurance
- Basic income portfolio**
An adequate level of capital or cash inflow
Allocated to: property / cash in bank / credit

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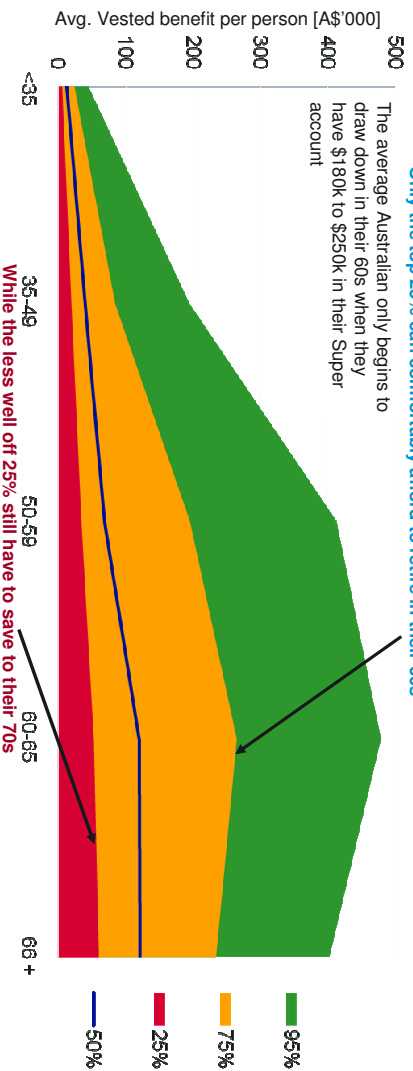
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What is the risk for individuals? Average vested benefits by age



Only the top 25% can comfortably afford to retire in their 60s



For an individual, we define risk as the chance of outliving one's Superannuation assets

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Source: APRA Superannuation Statistics

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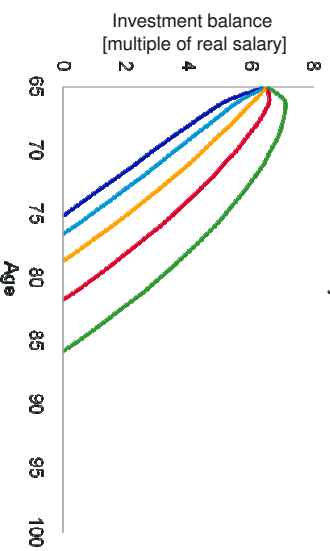
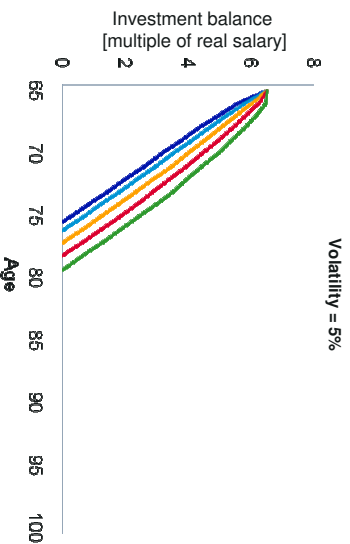
Performance seeking portfolio

How much investment risk is optimal after retirement?



Investment balance - Volatility = 5%

Investment balance - Volatility = 10%



— q=10% — q=25% — q=50% — q=75% — q=90%

— q=10% — q=25% — q=50% — q=75% — q=90%

Both studies assume an initial retirement endowment of 6.5 times the avg. annual salary and a replacement ratio of 60% of the avg. annual salary (inflation-indexed). Investment returns are expected to be 4% real p.a.

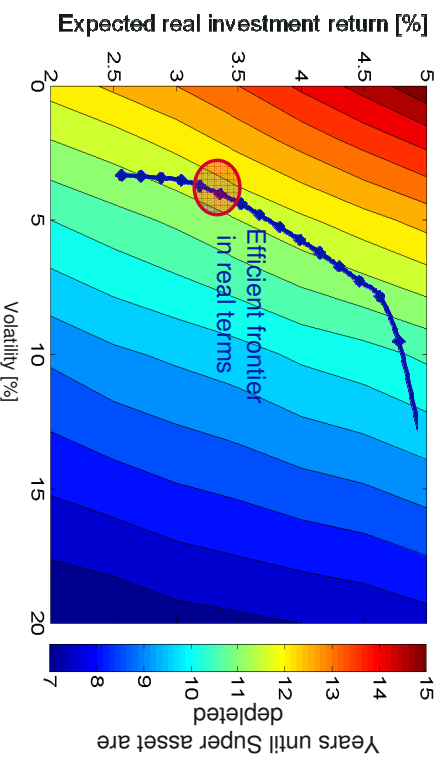
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Performance seeking portfolio

90% chance of securing retirement income



Based on a Superannuation balance at age 65 of **6.5 times** the annual salary and a **60%** replacement rate.

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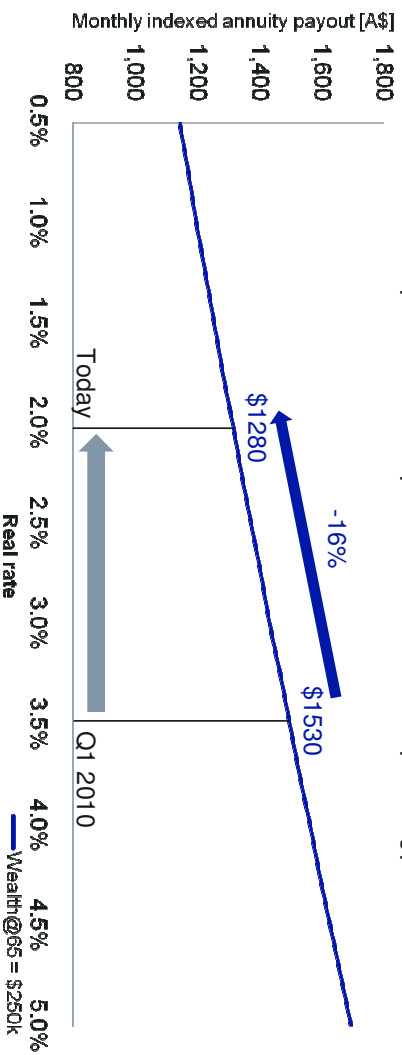
Liability hedging portfolio

The case of annuities, is \$250k really enough?



[Indexed annuity equivalent of Superannuation wealth at age 65](#)

Have asset portfolio returns compensated for this loss in future purchasing power?



Based on a life expectancy of 84.1 years Source: Deutsche Bank and Australian Bureau of Statistics

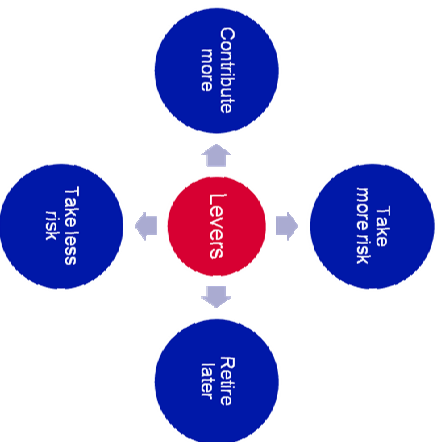
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Summary

How can we manage the risk of outliving the assets?



There are three primary decisions here:

1. The contribution rate
2. The asset allocation
3. The hedges to put in place

We focus on the capital markets decision:

How much investment risk is optimal to minimise the chance of outliving ones superannuation assets?

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Achieving resilience

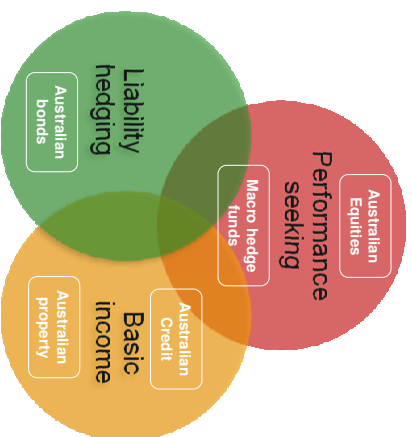
Implementing the concept



Achieving resilience

Our sample portfolio

Linkages across assets and liabilities



Statistically significant relationships

- AU property correlations
 - 60% to CPI
 - 30% to Average Weekly Earnings
- Macro Hedge Funds
 - 50% to AU bonds
 - -20% to AU equities

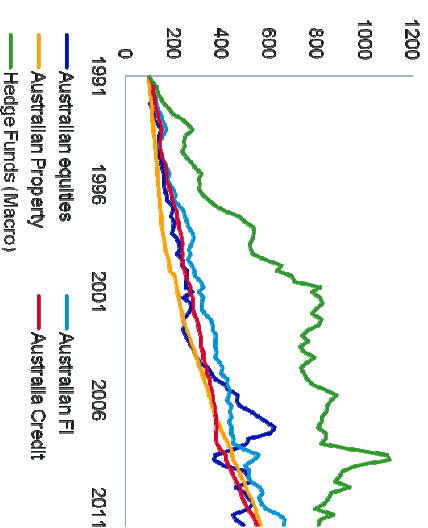
Note: based on indices noted overleaf, correlation of quarterly observations, 1990 until present

Achieving resilience

Asset class returns



The asset performance



Source: Bloomberg

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The asset universe

Asset class	Index
Australian equities	MSCI Australia TR
AU Bonds	UBS AU Composite Bond Index 10Y+ TR
Australian Property	Home Price Index - Weighted Average of 8 Capital Cities + rental yield
Australia Credit	UBS AU Credit 3-5Y TR
Hedge Funds (Macro)	HFRI Macro Hedge Fund Index in AU

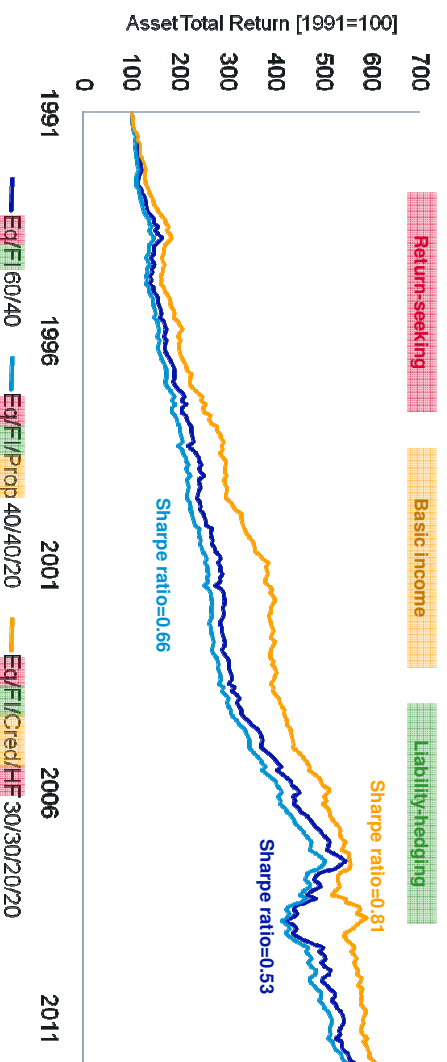
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Achieving resilience

Asset allocation is a critical decision



Source: Bloomberg and Datastream

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Achieving resilience

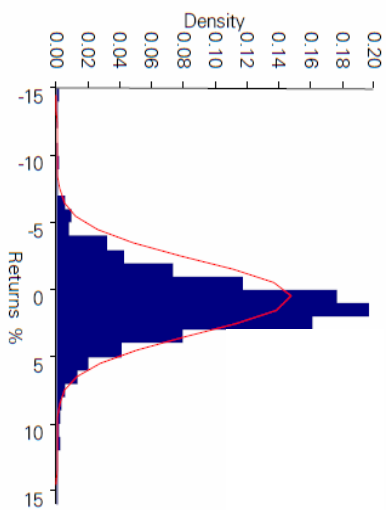
Some concluding observations



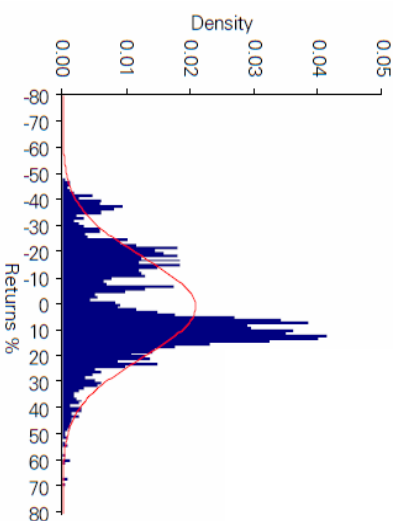
Should we take resilience seriously? Rolling returns S&P 500 Jan 2000 – Jan 2012



7 day returns



1 year returns



Source: Bloomberg Finance LP, Standard & Poor's, Deutsche Bank GMR
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Appendix and disclaimer



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