Strategic Investment Planning in These Turbulent Times

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Contents for today’s discussion

1. Dynamic asset allocation: facts and fallacies
2. Retirement finance: The Full Monty
3. Structured innovations: Inflation-Indexed Participating Annuities for Life
4. The role of alternative investments such as hedge funds
5. Conclusion & discussion
6. Appendix: A caveat about hedge funds: Asia versus US experience
Asset allocation and risk management – The issues

• **Liquidity** (*cash is king*), **Transparency** (*truth-in-labelling*), and **Downside Risk Management** (*capital preservation*) have become paramount concerns of investors, especially in retirement investing.

• Diversification helps but that does not mean a well-diversified basket of stocks are as safe in the long run. If they were safe in the long-run:
  
  ➢ they wouldn’t command an “equity risk premium”!

  ➢ Warren Buffet would be offering downside insurance on stocks which premiums becomes cheaper as your investment horizon increases!

• Absolute return strategies (alternative investments, hedge funds) deserve a closer look in the modern capital allocation program.
A well-diversified, all equities portfolio ain’t less risky in the long run

- Volatility of average compound rate of return on stocks declines with the length of time horizon.

- Probability of a shortfall declines with the length of time horizon.

- However, the severity of the shortfall (“penalty of being wrong”) increases with the length of time horizon.
Emerging equity markets exhibit volatility clustering and increase in correlations!
Risk management for retirement: Hope for the best, prepare for the worst

- Ageing population and changing demographics in Singapore, Japan and Hong Kong, and other parts of Asia. Declining “support ratios”

- As a consequence, expect **compressed equity risk premiums** and disappointing long-only equity returns

- An attendant issue: the development of cutting-edge financial innovations & solutions to meet investment and retirement planning needs

- Principal-protected and/or inflation-linked investment products, equity-indexed guaranteed life annuities (a.k.a. ratchet or click funds), hedge funds, alternative investments, etc.
  
  - Caveat: Not all products exactly match the purpose or objectives of our future spending profile and consumption needs, which may be sensitive to inflation
  
  - For a matching strategy, the basic building blocks must be denominated in units that match our purposes and objectives, and have known maturities (a.k.a. asset-liability management)
### Debunking some myths with facts

<table>
<thead>
<tr>
<th>Popular literature (Myths)</th>
<th>Financial Economics (Facts)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Saving is for the short run, investing is for the long run</td>
<td>Saving means income minus consumption; investing means selecting your portfolio of assets, including cash</td>
</tr>
<tr>
<td>The only way to reduce risk is to diversify</td>
<td>The simplest ways to reduce risk are to hedge, insure, or hold safe assets. A safe way to achieve a future spending target is with CPI-linked (inflation-indexed) bonds</td>
</tr>
<tr>
<td>Stocks become safe in the long run due to “time diversification”</td>
<td>Stocks do not become safe even in the long run. If they did, they would not have a risk premium</td>
</tr>
</tbody>
</table>

Source: My favorite coauthor, Prof. Zvi Bodie
Debunking some myths with facts

• Identify financial goals – building up a nest egg, buying a house, having sufficient funds for medical emergencies, retiring comfortably, taking care of aged parents, etc.

• Design a financial and asset-liability management program that gets you there via diversification, hedging, and insurance

• Implement the plan

• Monitor and review regularly – it’s all about risk management!
Structuring "matching" and "return seeking" portfolios

Returns-seeking (but well-diversified) portfolio:
- Equities, hedge funds, commodities, real estate, private equity / infrastructure

Matching (or “hedging”) portfolio:
- Fixed income, laddered bond portfolios (including active management, high yield, EM debt)
- Interest rate and inflation total return swaps

Downside Protection = Insurance

Performance + Risk Reduction = Diversification, Asset-Liability Management and Risk Management via Financial Engineering
It’s getting harder all the time: The retirement problem

- We think the average investor is concerned about 3 fundamental issues during retirement:
  - Receiving a reasonable, level payout every month
  - It should last for as long as the investor lives
  - It should be indexed to his or her cost of living
Safe investing in risky times

• Conventional investment advice today is based on a mistaken principle of “time diversification,” which inadvertently has led to portfolios that are riskier than investors realize... until it is too late!

• Starting point of any retirement portfolio should be 100% inflation-proof, guaranteed annuities (our “safety-net” portfolio)

• Always hope for the best, but prepare for the worst

• Principal-protected, inflation-linked investment products

• Participating equity-indexed and inflation-indexed annuities
The retirement solution

- The most commonly-cited product that provides a level real payout (i.e., inflation-indexed) for life is an inflation-linked retirement annuity.

- Such a product would convert accumulated investment capital (say, from your Provident Fund) to lifetime real cash flows for retirement consumption, expenses, and spending.

- Ageing populations and changing demographic landscapes in Asian countries will increase the demand for such retirement annuity products.

- An alternative: Financially manufacture a laddered portfolio of inflation-indexed bonds from the respective sovereign, assuming such bonds exist.
Life-cycle investment products around the world today

- Target-maturity retirement accounts – very popular in the U.S.
- Target-maturity college tuition accounts – newer vehicles, popular as well
- Health saving accounts
- Common characteristics
  - Specific purpose
  - Specific maturity date
  - Tax advantaged
- Most of the money in these accounts is invested in risky equity and bond mutual funds, which have no guarantees against downside risk or inflation!
- In Singapore:

  “The top two performing CPF-approved funds in 2Q2009 were United Growth Path 2010 and United Growth Path Today — these are "target maturity” funds, which means they have a limited lifespan. Such funds typically start off by investing in riskier, higher-yielding equities before gradually shifting to bonds and other safer assets as the maturity date approaches.”

  The Edge (Singapore), August 2009
U.S. Treasury Inflation-Protected Securities (TIPS) example

- TIPS’ Principal (or Face Value) is adjusted by changes in the CPI. With inflation, the principal increases. With deflation, the principal decreases.

- 5, 10, and 30 year issues are available online in increments of US$100 via TreasuryDirect.

- Interest rate (or coupon) is determined in a competitive auction.

- Both the sum paid when a TIPS matures and the amount of interest paid every six months is affected by adjustments in the Principal due to changes in the CPI.

Let’s say you need $100,000 in real cash flows per annum in retirement and have $2,200,000 in accumulated Provident Fund capital at the point of retirement (today)\(^1\)

It will cost you $2.2M today to buy a laddered portfolio comprising of a series of 30 inflation-indexed government bonds with maturities of 1 to 30 years.

Assuming the government-linker is correctly tracking your cost of living during retirement, you should be able to meet your target consumption needs annually by maintaining purchasing power.

1. Assume the real interest rate is 2% p.a. and the inflation rate is 3% p.a. (both flat) over the next 30 years.
How do we get to $2.2M?
Option 1

**“Saving / Accumulation Period”**
Invest in equities, mutual funds, commodities, balanced funds, etc., during Saving / Accumulation Period

**“Take a Chance On Me” (AββA)**
Hope For The Best
Accumulated Investment Capital reaches $2.2M at retirement (hopefully!)

**Purchase an “Inflation-linked retirement annuity stream”**
Real Cash Flows

<table>
<thead>
<tr>
<th>Year</th>
<th>Cash Flow</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>$100K</td>
</tr>
<tr>
<td>1</td>
<td>$100K</td>
</tr>
<tr>
<td>2</td>
<td>$100K</td>
</tr>
<tr>
<td>3</td>
<td>$100K</td>
</tr>
<tr>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td>30</td>
<td>$100K</td>
</tr>
</tbody>
</table>

Nominal Cash Flows

- √ diversification
- √ hedging (some form)
- √ insurance ("")

Note: Assume the real interest rate is 2% p.a. and the inflation rate is 3% p.a. (both flat) over the next 60 years
How to get there prudently? Option 2

Start buying today (say, at age 32) $55,000 worth of 30-year, government-guaranteed inflation-linked bonds annually for the next 30 of your working years, and hence remove ALL uncertainty about future cash flows.

<table>
<thead>
<tr>
<th>Age</th>
<th>30 YR I-Bond Cost</th>
<th>Real Cash Flow</th>
<th>Pays At Age</th>
<th>Nominal Cash Flow</th>
</tr>
</thead>
<tbody>
<tr>
<td>32</td>
<td>$ 55</td>
<td>$ 100</td>
<td>63</td>
<td>$ 102</td>
</tr>
<tr>
<td>33</td>
<td>$ 55</td>
<td>$ 100</td>
<td>64</td>
<td>$ 109</td>
</tr>
<tr>
<td>34</td>
<td>$ 55</td>
<td>$ 100</td>
<td>65</td>
<td>$ 111</td>
</tr>
<tr>
<td>35</td>
<td>$ 55</td>
<td>$ 100</td>
<td>66</td>
<td>$ 113</td>
</tr>
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<td></td>
<td></td>
</tr>
<tr>
<td>59</td>
<td>$ 55</td>
<td>$ 100</td>
<td>90</td>
<td>$ 222</td>
</tr>
<tr>
<td>60</td>
<td>$ 55</td>
<td>$ 100</td>
<td>91</td>
<td>$ 229</td>
</tr>
<tr>
<td>61</td>
<td>$ 55</td>
<td>$ 100</td>
<td>92</td>
<td>$ 236</td>
</tr>
<tr>
<td>62</td>
<td>$ 55</td>
<td>$ 100</td>
<td>93</td>
<td>$ 243</td>
</tr>
</tbody>
</table>

(All cash flows in ‘000)

Inflation-linked retirement savings stream

Note: Assume the real interest rate is 2% p.a. and the inflation rate is 3% p.a. (both flat) over the next 60 years.
Getting better all the time: What about Inflation-Indexed Participating Annuities?

Future Realized Annual Investment Value
(SGD - in real dollars)

“Real” Forward Price (F)

K = SGD 93K p.a. (floor in real dollars)

F = SGD 100K p.a. (real dollars)

Strictly limited downside (& indexed to inflation)

√ diversification
√ hedging (some form)
√ insurance

No hedging (full participation in upside)

Retirement Receipts at T

Some participation in upside

Plain forward contract

Investment depreciates

Investment appreciates

Future Annual Risky Investment Value $S_T$
(SGD - in real dollars)
What Should The Basket of Risky, Upside Participation Assets Be (ST)?

“Upside Participation Portfolio, $S_T$”

Invest in a diversified portfolio of equities, mutual funds/ETFs, hedge funds, commodities, real estate, etc., based on your individual risk tolerance profile.

- ✓ diversification
- X hedging
- X insurance
Discussion: Future Innovations in Retirement Finance

• Integration to include other retirement-dedicated assets including those from previous employment, after-tax dedicated personal savings, and house [pre-paid consumption and retirement-funding asset]

• Bequest and asset-use efficiency: reverse mortgages (home equity monetization)

• Longevity bonds, swaps and other cohort-based tradable longevity hedging instruments

• Product efficiency: long-term care and lifestyle preservation

• Age, means, and interest-rate-dependent employer contribution rates to reduce participant duration-mismatch risk

• Standard of living risk: consumption-linked income units

• Tail-insurance on longevity: >85 life annuities

Above as suggested by Nobel Laureate Professor Robert C. Merton©


• To get even more educated on personal financial investing and investments science, please visit Professor Zvi Bodie’s website: http://zvibodie.com

• Or visit the CAMRI Life-cycle Saving and Investing in Asia Research Series (NUS Business School, Singapore)
APPENDIX:
An Aside on Hedge Funds
The evidence: Hedge fund correlations and skew

LOW CORRELATIONS TO TRADITIONAL ASSET CLASSES & POSITIVE SKEW RESULTED IN HIGH_INCREMENTAL RETURNS FOR LOW MARGINAL RISKS
On a historical basis, an allocation to hedge funds would have yielded significantly higher returns from:

- Jan 2002 until now (multiple market cycles)
- Aug 2008 until now (Global Financial Crisis)

Optimal allocation to hedge funds:
- The less dependent or correlated the assets, the more the potential gains from diversification
- Addition of uncorrelated assets with high information ratios results in significant expected return enhancement, thus enhancing portfolio risk-adjusted returns

Introduction of alternative strategies improves the portfolio’s potential return per unit of risk even at low overall portfolio risk levels (Sharpe ratio)

Source: Bloomberg
## Asian versus American hedge funds – some summary stats (Jan 2000 to Sep 2012 = 153 months)

<table>
<thead>
<tr>
<th>Eurekahedge North American Hedge Fund Indices</th>
<th>HF Index</th>
<th>Arbitrage</th>
<th>Fixed Income</th>
<th>Long-Short Equities</th>
<th>Macro</th>
<th>Multi Strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of months of negative returns</td>
<td>44</td>
<td>22</td>
<td>26</td>
<td>53</td>
<td>54</td>
<td>42</td>
</tr>
<tr>
<td>% of negative returns</td>
<td>28.6</td>
<td>14.3</td>
<td>16.9</td>
<td>34.4</td>
<td>35.1</td>
<td>27.3</td>
</tr>
<tr>
<td>Sharpe ratio</td>
<td>1.34</td>
<td>1.61</td>
<td>1.90</td>
<td>0.82</td>
<td>1.19</td>
<td>1.28</td>
</tr>
<tr>
<td>No. of 3 month consecutive negative return periods</td>
<td>1</td>
<td>4</td>
<td>5</td>
<td>11</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>No. of 6 month consecutive negative return periods</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Number of funds</td>
<td>689</td>
<td>41</td>
<td>43</td>
<td>297</td>
<td>9</td>
<td>33</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Eurekahedge Asian Hedge Fund Indices</th>
<th>HF Index</th>
<th>Arbitrage</th>
<th>Fixed Income</th>
<th>Long-Short Equities</th>
<th>Macro</th>
<th>Multi Strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of months of negative returns</td>
<td>54</td>
<td>46</td>
<td>49</td>
<td>58</td>
<td>59</td>
<td>57</td>
</tr>
<tr>
<td>% of negative returns</td>
<td>35.5</td>
<td>30.3</td>
<td>32.2</td>
<td>38.2</td>
<td>39.3</td>
<td>37.5</td>
</tr>
<tr>
<td>Sharpe ratio</td>
<td>0.73</td>
<td>0.98</td>
<td>0.62</td>
<td>0.61</td>
<td>0.37</td>
<td>0.75</td>
</tr>
<tr>
<td>No. of 3 month consecutive negative return periods</td>
<td>8</td>
<td>13</td>
<td>9</td>
<td>11</td>
<td>7</td>
<td>11</td>
</tr>
<tr>
<td>No. of 6 month consecutive negative return periods</td>
<td>1</td>
<td>5</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Number of funds</td>
<td>378</td>
<td>6</td>
<td>20</td>
<td>265</td>
<td>4</td>
<td>43</td>
</tr>
</tbody>
</table>

Source: Eurekahedge
Factor analysis: Hedge fund risk exposures have decreased post-GFC

Based on Historical Returns From Jan ‘00 to Sep ‘08 (Pre-GFC) and Oct ‘08 to Sep ‘12 (Post-GFC)

Source: Eurekahedge
Almost 1 in 2 Asian hedge funds pass away…

Survival rate of Asian hedge funds by strategy
(Jan 2000 to Sep 2012)

Value: 94.3%
Relative Value: 57.1%
Others: 42.9%
Multi-Strategy: 57.1%
Macro: 52.6%
Long Short Equities: 50.7%
Fixed income: 69.1%
Event driven: 50.6%
Dual approach: 61.6%
Distressed debt: 47.1%
CTA/Managed Futures: 60.2%
Bottom-up: 77.9%
Arbitrage: 57.1%

Average survival rate across strategies: 56.5%

Source: Eurekahedge
Flows have shifted out of Asian long-short equities into alternatives strategies

### Strategic mandates to Asian hedge fund strategies by percentage of AUM

<table>
<thead>
<tr>
<th>Strategy</th>
<th>2006</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Others</td>
<td>1.5%</td>
<td>2.7%</td>
</tr>
<tr>
<td>Distressed debt</td>
<td>4.0%</td>
<td>3.4%</td>
</tr>
<tr>
<td>Arbitrage</td>
<td>6.5%</td>
<td>5.2%</td>
</tr>
<tr>
<td>Relative value</td>
<td>1.9%</td>
<td>1.9%</td>
</tr>
<tr>
<td>Fixed income</td>
<td>3.0%</td>
<td>6.6%</td>
</tr>
<tr>
<td>Macro</td>
<td>4.7%</td>
<td>6.7%</td>
</tr>
<tr>
<td>CTA/Managed futures</td>
<td>10.3%</td>
<td>15.0%</td>
</tr>
<tr>
<td>Multi strategy</td>
<td>4.9%</td>
<td>15.2%</td>
</tr>
<tr>
<td>Event driven</td>
<td>60.1%</td>
<td>36.6%</td>
</tr>
<tr>
<td>Long-Short Equities</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Large drop in long-short equity fund allocations
- Investors allocating to newer and less crowded strategies
- Strong performance of CTA/Managed Futures and Macro Funds during GFC bolstered flows into these strategies

Source: Eurekahedge
Strategies Asian HFIs are excelling at

- Top performing strategy in 2011 was CTA/Managed Futures
- Event driven also performed well in 2011
  - High volume of Asian corporate activities, particularly IPOs in North Asia
  - Large volumes of M&A within Asia

Source: Eurekahedge
Investors should seek hedge fund managers who have:

- Deep experience in portfolio management and a culture of continuous innovative research

- Robust security selection models tested under live performance, historical backtests, and Monte Carlo simulations, covering multiple economic environments

- Systematic and consistent, yet unconstrained, investment process that applies experience and model analytics to all relevant markets, asset classes, and opportunities

- Disciplined portfolio construction and downside risk management

- Flexible modeling capable of meeting specific client needs
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Managing Director at FABBRI Global Economics
Visiting Research Fellow at CAMRI
Strategic Investment Planning in Turbulent Times

1. Globalization and its effect on business cycle and equity market synchronization.

2. The interest rate conundrum: they are too low.

3. Forced austerity within the EU will doom Europe into a lost decade.

4. The widening income disparity will raise social turmoil.

5. Some key Recommended investment themes.
2013 Estimated Economic Growth

Developed world: 50% of total
Estimated growth 0.1%
Interconnectedness: US and Asian Stock markets
The Rise and Fall of 10-Year Treasury yields
Debt and Equity Relative to GDP

- Debt/ngdp
- S&P/ngdp

Credit fueled bubble
Dot com bubble
Treasury Yield Curve Pointing Toward Growth Below 2%
Corporate Cash Flow Exceeds Capital Expenditure (bn $)
N F Corporations Maintained Financial Assets while Net Worth Declined
Current Borrowing Rates Are Greater than Present Growth Rates

Borrowing rates (red)

Estimated 2013 GDP Growth (blue)
Countries with Debt/GDP ratio above 100% are Vulnerable

Debt/GDP ratio

Danger Line

Ireland, Greece, Spain, UK, France, Netherlands, Portugal, Italy, Belgium, Germany
Some Differentiation: US vs EU Returns

Stock Performance Indexed to 100 in 2007
Income Flows Up to The Top 1%
HH Financial Assets Recover Losses RE Doesn’t

Comparison of Household Financial and Non Financial Assets (Bns $)

Financial

Non financial
Global Warming Will Affect Food Production and Water Usage
The World’s Population is Aging Rapidly

![Chart showing the percentage of children and elderly populations from 1950 to 2050. The percentages for children (0-14) and elderly (60+) are decreasing and increasing respectively over time.]
Questions & Answers
Thank you