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Active Asset Allocation:
Does it Work?

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Active Asset Allocation

1. Goals

1. Explore the economic foundations of predictability.

2. Implementing models based on predictability: what information is most important.

3. Attributes and predictability

4. New directions in active management
Active Asset Allocation
2. Resources

Asset Allocation Module in WWW site:

http://www.duke.edu/~charvey

Information on:
- Java-based tools for mean-variance analysis
- Lecture modules from my Global TAA course
- Distribution of returns in many world markets.
- Expected returns and volatilities for 135 countries.
- Analysis of risk-return relations in developed and emerging markets.
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3. Economic Background

For many years, stock prices were assumed to follow a random walk.

- A random walk implies that the best forecast of next period's price is today's price.

→ Implication is that stock returns are unpredictable.
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3. Economic Background

Considerable evidence that stock returns are predictable.

- U.S. -- Keim and Stambaugh 1986 (J. Fin. Econ.)

- International -- Harvey 1991 (J. Finance)

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You don't need much predictability to impact the asset allocation process.

- Kandel and Stambaugh find that even with low precision (R-square of 2%), asset allocation can be dramatically altered as a result of the predictions.
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Intuition of mean-variance analysis

Usual frontier. Each point represents fixed portfolio weights, i.e. contrarian rebalancing.
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Intuition of mean-variance analysis

Frontier with dynamic trading strategies with the same underlying assets. Difference is that weights are allowed to change with pre-determined information.
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Expected returns, volatility and covariance are affected by the expected stage of the business cycle.

- Risk premiums are highest near the troughs of recessions
- Risk premiums are lowest near the peaks of expansions
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Consider the behavior of the ex post returns during U.S. recessions and expansions.

- What happens in the U.S. has a big impact on other mature markets.
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3. Economic Background

Country Equity Returns Based On U.S. Economic State

Annualized Total Returns

-60.0%
-40.0%
-20.0%
-0.0%
20.0%
40.0%
60.0%

WORLD
EAFF
WORLD X US
AUSTRALIA
AUSTRIA
BELGIUM
CANADA
DENMARK
FINLAND
FRANCE
GERMANY
HONG KONG
IRELAND
ITALY
JAPAN
NETHERLANDS
NEW ZEALAND
NORWAY
SINGAPORE
SPAIN
SWEDEN
SWITZERLAND
U.K.
AVERAGE
USA

**NBER Expansion**  **NBER Recession**
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Country Volatility Based On U.S. Economic State

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Country Correlation With U.S. Based On U.S. Economic State

[Bar chart showing correlation with U.S. based on U.S. economic state for various countries, with NBER Expansion and NBER Recession indicated.]
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3. Economic Background

Country Covariance With U.S. Equity On U.S. Economic State

- NBER Expansion
- NBER Recession
3. Economic Background

Variables that help predict returns are often related to the business cycle:

1. Interest rates
2. Term structure
3. Default premiums
4. Dividend yields
5. Other fundamental variables

These variables might also proxy for other sources of predictability.
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4. Implementing Predictability

Top Down Strategies I: Standard

Forecast country returns, volatilities, correlations which feed standard optimizer or screening program.
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Top Down Strategies II: Tracking Error

Forecast country returns in excess of benchmark, volatilities, correlations which feed standard optimizer or screening program.
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4. Implementing Predictability

Return Prediction: MSCI Developed Markets

World Information: world market return, world dividend yield, euro-Tbill spread, US10yr-3mo spread, 30-day Tbill rate

Local Information: local market return, local dividend yield, local term structure, local short-term rate
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4. Implementing Predictability

Predictability in Emerging Markets

- **World Information**: world market return, world excess dividend yield, 3mo-1mo Tbill spread, Aaa-Baa spread.
- **Local Information**: local market return, local dividend yield, local FX rate change, local short-term rate

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Correlation: Equity US$ and 1 Year Change in T-Bill

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4. Implementing Predictability

Correlation: Equity US$ and 1 Year Change in T-Bill

*IFC COMPO
*ARGENTINA
*BRAZIL
*CHILE
*COLOMBIA
*MEXICO
*PERU
*VENEZUELA
*CHINA
*KOREA
*PHILIPPIN
*TAIWAN, C
*INDIA
*INDONESIA
*MALAYSIA
*PAKISTAN
*SRI LANKA
*THAILAND
*GREECE
*HUNGARY
*JORDAN
*NIGERIA
*POLAND
*PORTUGAL
*S. AFRICA
*TURKEY
*ZIMBABWE

*IFC Investables

-50.0% -40.0% -30.0% -20.0% -10.0% 0.0% 10.0% 20.0%
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4. Implementing Predictability

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4. Implementing Predictability

Correlation: Equity US$ and US Term Spread

WORLD
EAFE
AUSTRALIA
AUSTRIA
BELGIUM
CANADA
DENMARK
FINLAND
FRANCE
GERMANY
HONGKONG
IRELAND
ITALY
JAPAN
NETHERLAND
NORWAY
NW ZEALND
SINGAPORE
SPAIN
SWEDEN
SWISS
U.K.
USA

-30.0%
-20.0%
-10.0%
0.0%
10.0%
20.0%
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4. Implementing Predictability

Correlation: Equity US$ and US Term Spread
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Correlation: Equity US$ and US Term Spread

*IFC COMPO
*ARGENTINA
*BRAZIL
*CHILE
*COLOMBIA
*MEXICO
*PERU
*VENEZUELA
*CHINA
*KOREA
*PHILIPPIN
*TAIWAN, C
*INDIA
*INDONESIA
*MALAYSIA
*PAKISTAN
*SRI LANKA
*THAILAND
*GREECE
*HUNGARY
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*TURKEY
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*IFC Investables

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4. Implementing Predictability

Top Down Strategies III: Cross-Sectional

Run screening program based on country attributes or sensitivity to world factors. Regression analysis is limited because there are so few data points.
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Top Down Strategies III: Cross-Sectional

There are a number of issues, foremost being the comparability of attributes across countries. Wayne Ferson and I have made progress on this problem in our "Fundamental Determinants of National Equity Returns: A Perspective on Country Risk in Asset Pricing" (JBF forthcoming).
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4. Implementing Predictability

Top Down Strategies III: Cross-Sectional

Ferson and I also detail "killer attributes", i.e. country-specific variables that have the ability to knock out well known attributes like price to book value.

These attributes are based on time-series regressions of country returns on common world information.
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4. Implementing Predictability

Bottom Up Selection:

Cross-sectional selection based on individual securities. To construct a global model, one must adjust for differences in attributes across countries (as in work with Ferson).

The number of factors can be reduced with killer attributes (current research project with Ferson).
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5. Lessons from Asset Allocation Research

1. Returns are predictable. Hence, active strategies must outperform passive strategies - before transactions costs. However, active strategies must take transactions costs into account.

2. Much of the predictability is common - especially in developed markets (see Ferson and Harvey 1991, 1993). Local information important in many emerging markets (see Harvey 1995, and Bekaert and Harvey 1995, 1996).
Active Asset Allocation
5. Lessons from Asset Allocation Research

3. Differences in expected returns are mostly related to risk. Richer benchmark models have multiple factors, as well as time-varying risks and risk premiums.
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6. New Directions

1. Move beyond the simple OLS prediction models or screening programs. Example is Bekaert and Harvey (1996). The relative weight of world vs. local information is allowed to change through time in forecasting model.
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6. New Directions

2. Development of a truly global asset allocation model. This model merges the top down and bottom up approaches. To do this, attributes must be adjusted to be comparable.
Active Asset Allocation
6. New Directions

3. Integration of transactions costs into the active asset allocation problem. This means that models are not just measured by the R-square of some regression. Sometimes predictability induces excess volatility in asset weights. That is, sometimes the best prediction model is not the most profitable model.
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6. New Directions

4. Uncovering predictability is challenging. Research has shown that significant predictability exist. Exploiting this predictability has important implications for global money management.