Stock Market Predictability and Active Asset Allocation in Emerging and Mature Markets

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Predictability
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.
Predictability
Background

Recent evidence that stock returns are predictable.

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

- International -- Harvey 1991 (J. Finance)


Predictability
Background

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.
Predictability
Economic Foundations

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

Predictability
Economic Foundations

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.
Predictability
Economic Foundations

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. Lagged returns

Predictability
Setting up a Basic Model

Implementing predictability (1):

Start with simple linear regression models.

Forecast stock returns (say the S&P 500).

• If out-of-sample forecasted return is above the Treasury bill rate, invest in equity (if below invest in cash).
Predictability
Setting up a Basic Model

Implementing predictability (1):

Historically, this strategy has produced greater returns and lower volatility than a buy and hold position in the S&P 500.

- Not unusual to get hit rates (correct direction rate) of greater than 65% (monthly) with R-squares<10%.

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Predictability
Setting up a Basic Model

Return Prediction: MSCI Developed Markets

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Predictability
Setting up a Basic Model

Implementing predictability (2):

Hedge strategies:
Forecast difference between S&P and FTSE.
- If forecast is positive, go long S&P and short FTSE
- Could introduce filters to only trade when signal strongest.

Predictability
Emerging Markets and Predictability

World Market Equity Capitalizations

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MSCI France & USA Monthly Equity Returns

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IFC Mexico Monthly Equity Returns: January 1976 - February 1995
Predictability
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Average Cross-Correlations: Emerging and Emerging

Predictability
Emerging Markets and Predictability

Average Inflation: Developed and Emerging Markets

Some countries' inflation rates truncated at 25%.
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Volatility and Inflation

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Predictability in Emerging Markets

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Predictability
Measuring Predictability

Correlation Between US Bond Yield vs. MA and National Equity Returns in US$
Predictability
The Case of Mexico

Mexico illustrates two dangers:

- Consequences of having an undiversified portfolio
- Pitfalls in not using active prediction models for asset management.

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Observation #1

December 1994, January 1995 not the outliers that people would have you believe
Predictability
The Case of Mexico

IFC Mexico Monthly Equity Returns: January 1976 - September 1995

Number of Monthly Observations

Actual
Normal

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Predictability
The Case of Mexico

Observation #2

Prediction models such as Harvey (1993) did not call December 1994 correctly. However, forecasted return was small indicating a neutral position.

January 1995-April 1995 were correctly forecast (direction).

Result: Active Mexican model profitable.

Predictability
New Directions

On the Horizon:
Current prediction methods:
- Neural Nets
- Genetic Algorithms
- Nonparametric density estimators

Future prediction methods:
- Entropy-based coding
- Vector quantization