Stock Selection in Emerging Markets

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Stock Selection in Emerging Markets:
1. Introduction

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Stock Selection in Emerging Markets:
1. Introduction

**Issue**

Two decisions are important:
- Asset Allocation (country picks)
- Asset Selection (equity picks)

Stock Selection in Emerging Markets:
1. Introduction

**Issue**

- Considerable research on the asset allocation side
- The allocation is enormously important given the recent bloodbath in many emerging markets
- Research has paid off in that many models avoided “overvalued” Asian markets
Stock Selection in Emerging Markets:
1. Introduction

**Issue**
- Little research on the stock selection side.
  Why?
  - Sparse data on individual stocks
  - Information asymmetries among local and global investors
  - Extremely high transactions costs

Stock Selection in Emerging Markets:
1. Introduction

With recent plummet in emerging markets, stock selection is important.

If market is deemed “cheap,” (as many asset allocation models would now suggest), which stocks do we select?
Stock Selection in Emerging Markets:
2. Stock Selection Metrics

Ingredients for success:
• Identify stable relationships
• Attempt to model unstable relationships
• Use predictor variables that reflect the future, not necessarily the past
• Do not overfit
• Validate in up-markets as well as down
• Tailor to country characteristics in emerging markets

Stock Selection in Emerging Markets:
2. Stock Selection Metrics

Methodologies:
• Cross-sectional regression
• Sorting
• Hybrids
Stock Selection in Emerging Markets:
2. Stock Selection Metrics

**Cross-sectional regression:**
For country $j$, estimate:

$$R_{i,t} = \gamma_0 + \gamma_1 A_{i,t-1} + \varepsilon_{i,t}$$

where
- $i$ denotes firm $i$;
- $A$ is a firm specific attribute (could be multiple);
- $\gamma$ are common regression coefficients

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Stock Selection in Emerging Markets:
2. Stock Selection Metrics

**Cross-sectional regression:**
- Used in developed market stock selection
- Problem with unstable coefficients
- Bigger problem given noisy emerging market returns
Stock Selection in Emerging Markets:
2. Stock Selection Metrics

Sorting:
• Used in developed market stock selection
• Potentially similar in stability problems
• Can be cast in regression framework
  – (a regression on ranks, or a multinomial probit regression)
• Rank regression may have advantages given the high variance (high noise) in emerging equity returns

Stock Selection in Emerging Markets:
2. Stock Selection Metrics

Sorting:
• Simple methodology that provides a good starting point to investigate stock selection
Stock Selection in Emerging Markets:
2. Stock Selection Metrics

**Hybrid:**
- Create portfolios based on stocks sorted by attributes
- Use regression or optimization to weight portfolios
- Produces a flexible, highly nonlinear way to select stocks

Stock Selection in Emerging Markets:
3. Our methodology

Focus on three emerging markets:
- Malaysia (representative of Asia)
- Mexico (indicative of Latin America)
- South Africa (unique situation)
Stock Selection in Emerging Markets:
3. Our methodology

Specify exhaustive list of firm specific factors
• Includes many traditional factors
• Extra emphasis on expectations factors

Specific a number of diagnostic variables
• Includes factors that reflect the type of firm we are selecting

Stock Selection in Emerging Markets:
3. Our methodology

Identify the best stocks and the worst stocks
• Do not impose the constraints of a tracking error methodology
Stock Selection in Emerging Markets:
3. Our methodology

Steps:

1. Specify list of factors
2. Univariate screens (in sample)
3. Bivariate diagnostic screens
4. Battery of additional diagnostics emphasizing performance through time
5. Bivariate selection screens

Stock Selection in Emerging Markets:
3. Our methodology

Steps:

6. Optimize to form “scoring screen” (in sample)
7. Run scoring screen on out-of-sample period
8. Diagnostics on scoring screen
9. Form “buy list” and “sell lists”
10. Purge “buy list” of stocks that are identified by predetermined set of “knock out criteria”
Stock Selection in Emerging Markets:
3. Our methodology

Steps:

11. Investigate turnover of portfolio
   - various holding periods analyzed

Stock Selection in Emerging Markets:
4. Past research

Very few papers:
- Rouwenhorst (unpublished) looks at IFC data
- Claessens, Dasgupta and Glen (forthcoming, EMQ) look at IFC data
- Fama and French (forthcoming JF) look at IFC data
Stock Selection in Emerging Markets:
4. Past research

What we offer:
• No one has merged IFC, MSCI, Worldscope, and IBES data
• First paper to look at comprehensive list of firm attributes
• First paper to look at expectational attributes

Stock Selection in Emerging Markets:
4. Factors

Fundamental factors
• Dividend yield
• Earnings yield
• Book to price ratio
• Cash earnings to price yield
• Change in return on equity
• Revenue growth
• Rate of re-investment
• Return on equity
Stock Selection in Emerging Markets:
4. Factors

Expectational
- Change in consensus FY1 estimate - last 3 or 6 months
- Consensus FY2 to FY1 estimate change
- Consensus forecast earnings estimate revision ratio
- 12 months prospective earnings growth rate
- 3 year prospective earnings growth rate
- 12 month prospective earnings yield

Momentum
- One month/ 1 year price momentum
- One year historical earnings growth/momentum
- Three year historical earnings growth rate
Stock Selection in Emerging Markets:
4. Factors

Diagnostic

- Market capitalization
- Debt to common equity ratio

Stock Selection in Emerging Markets:
5. Diagnostics

- Average return
- Average excess return
- Standard deviation
- T-stat (hypothesis that excess return=0)
- Beta (against benchmark index)
- Alpha
- $R^2$
Stock Selection in Emerging Markets:
5. Diagnostics

- Average capitalization
- % periods > market index (hit rate)
- % periods > market index in up markets
- % periods > market index in down markets
- Max number of consecutive benchmark outperformances

Stock Selection in Emerging Markets:
5. Diagnostics

- Max observed excess return
- Min observed excess return
- Max number of consecutive negative returns
- Max number of consecutive positive returns
- Year by year returns
Stock Selection in Emerging Markets:
5. Diagnostics

- Factor average for constructed portfolio
- Factor median
- Factor standard deviation

Stock Selection in Emerging Markets:
6. Summary Statistics: Malaysia Benchmark

Data through September 1998
Stock Selection in Emerging Markets:
6. Summary Statistics: Mexico Benchmark

Data through September 1998

Stock Selection in Emerging Markets:
6. Summary Statistics: South Africa Benchmark

Data through September 1998
Stock Selection in Emerging Markets:
6. Malaysia: Factor returns

Stock Selection in Emerging Markets:
6. Mexico: Factor returns
Stock Selection in Emerging Markets:

6. South Africa: Factor returns

Stock Selection in Emerging Markets:

6. Malaysia: % Periods Benchmark Outperformance
Stock Selection in Emerging Markets:
6. Mexico: % Periods Benchmark Outperformance

Stock Selection in Emerging Markets:
6. South Africa: % Periods Benchmark Outperformance
Stock Selection in Emerging Markets:
6. Malaysia: Dividend Yield Screen: Index=100 each year

Stock Selection in Emerging Markets:
6. Mexico: Historical Earnings Momentum Screen:
Index=100 each year
Stock Selection in Emerging Markets:

6. Book to Price: Low-High Spread

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Stock Selection in Emerging Markets:

6. South Africa: Change in Consensus FY1-3 mo. Screen:
Index=100 each year
Stock Selection in Emerging Markets:

6. IBES Revision Ratio: Low-High Spread

Stock Selection in Emerging Markets:

6. IBES 12-month Prospective Earnings Yield: L-H Spread
Stock Selection in Emerging Markets:

6. One-year Momentum: Low-High Spread

[Graph showing data]

Stock Selection in Emerging Markets:

6. Size Effect: Low-High Spread

[Graph showing data]
Stock Selection in Emerging Markets:
6. Malaysia: Scoring Screen Various Holding Periods

Stock Selection in Emerging Markets:
6. Mexico: Scoring Screen Various Holding Periods
Stock Selection in Emerging Markets:
6. South Africa: Scoring Screen Various Holding Periods

Stock Selection in Emerging Markets:
6. Malaysia: Scoring Screen
% Periods Benchmark Outperformance
Stock Selection in Emerging Markets:
6. Mexico: Scoring Screen
% Periods Benchmark Outperformance

Stock Selection in Emerging Markets:
6. South Africa: Scoring Screen
% Periods Benchmark Outperformance
Stock Selection in Emerging Markets:
6. Malaysia: Scoring Screen: Index=100 each year

Stock Selection in Emerging Markets:
6. Mexico: Scoring Screen: Index=100 each year
Stock Selection in Emerging Markets:
6. South Africa: Scoring Screen: Index=100 each year

Stock Selection in Emerging Markets:
6. Malaysia: Scoring Screen
Stock Selection in Emerging Markets:

6. Mexico: Scoring Screen

[Diagram showing cumulative returns for different periods with annotations for in-sample and out-of-sample periods.]

Stock Selection in Emerging Markets:

6. South Africa: Scoring Screen

[Diagram showing cumulative returns for different periods with annotations for in-sample and out-of-sample periods.]
Stock Selection in Emerging Markets:
7. Research Directions

1) Comparison of regression method and multivariate screening process
   – Panel multinomial probit models
   – How do we reduce the noise in emerging market equity returns?

Stock Selection in Emerging Markets:
7. Research Directions

2) What are the characteristics of countries that make some factors work and other not work?
   – Stage of market integration process
   – Industrial mix
   – Openness of economy
   – Microstructure factors
Stock Selection in Emerging Markets: 7. Research Directions

3) What causes the shifting importance of factors through time, e.g. value versus growth?
   – Can the cross-section of many stock returns help us identify when a factor is likely to work?

Stock Selection in Emerging Markets: 7. Research Directions

4) Can the country selection process be merged with the stock selection exercise?
   – Should “buy” portfolios be used in top-down optimizations?
   – Does country-specific tracking error really matter in global asset allocation?
Stock Selection in Emerging Markets:
7. Research Directions

5) Should we expand our view of risk in both the stock selection and country selection exercises?
   – Mean, variance, skewness?
   – What are the driving forces of changing variance?
   – What are the determinants of skewness?