Stock Selection in Mexico

DANA ACHOUR, CAMPBELL R. HARVEY, GREG HOPKINS, AND CLIVE LANG

DANA ACHOUR
is managing director of the Portfolio Management Group at Merrill Lynch Global Asset Management Ltd. in London.

CAMPBELL R. HARVEY
is the J. Paul Sticht professor of international business at Duke University in Durham, North Carolina, and a research associate with the National Bureau of Economic Research in Cambridge, Massachusetts.

GREG HOPKINS
is an emerging market analyst at Merrill Lynch Global Asset Management Ltd. in London.

CLIVE LANG
is managing director of asset management at Merrill Lynch Global Asset Management Ltd. in London.

This is the third article in a series of research that conducts market-by-market analysis and evaluates the ability to select stocks in both bull and bear markets in emerging economies. A quantitative framework for executing bottom-up strategies in emerging markets is detailed in Achour, Harvey, Hopkins, and Lang [1998].

Mexico is a particularly challenging market for stock selection. In December 1994, Mexico suffered an exchange rate devaluation. The equity market value, measured in U.S. dollars, plummeted 44% in the next two months. Mexico then appeared to be relatively immune to the Asian crisis that began in July 1997, although concern about devaluations in Latin American countries (realized in Brazil on January 15, 1999; see Harvey, Lundblad, and Valderrama [1999]) substantially increased volatility in this market. (See Exhibit 1.)

We follow the framework detailed in Achour et al. [1998]. We combine historical data from the International Finance Corporation (IFC), Morgan Stanley Capital International (MSCI), Worldscope, and IBES. We examine a number of standard attributes like book value-to-price, cash flow-to-price, earnings-to-price, dividends-to-price, earnings growth, revenue growth, debt/equity ratios, return on equity, and market capitalization. In addition to these essentially historical measures, we examine prospective earnings-to-price ratios measured over different horizons, IBES revisions, and prospective earnings growth as well as a number of momentum measures.

Our results suggest that our stock selection mechanisms can add significant value. The out-of-sample results show that our buy list significantly outperforms the standard benchmarks. The margin is large enough to outweigh the transaction costs in these markets.

We focus here on the detailed factor-by-factor results. For the sake of completeness, we repeat many of the factor definitions and methodological details. We provide out-of-sample evidence of the success of our methodology by running our final stock screens through April 1999.[1]

ASSET SELECTION PROCESS

Screening Methodology

At the start of each holding period, firms are sorted on specific observable characteristics and assigned in equal numbers to a predefined number of portfolios (fractiles) on the basis of rank. For example, if all available stocks for a given characteristic are ranked in order of expected return, the top one-third become the top "fractile," and the bottom (lowest-scoring) third become the bottom "fractile." If there is a tie around the portfolio

EXHIBIT 1
Mexican Benchmark Return and Exchange Rate
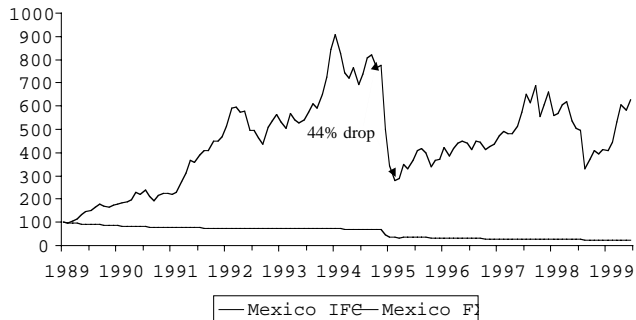
breakpoints, stocks are assigned to lower portfolios.

The number of fractiles that we choose depends on the number of securities available. With fewer securities, we focus on three fractiles. In countries with more securities, we use five fractiles.

We calculate both equal- and value-weighted returns for each portfolio. In the case of Mexico, we focus most of our attention on the top and bottom portfolio performance. Stocks for which no ranking information exists are assigned to an "NA" category or not ranked portfolio and analyzed separately.

We focus on what we term "univariate" sorts, i.e., portfolio formation based on a single attribute. While for many attributes we do examine "bivariate" sorts based simultaneously on two criteria, we do not report these results.

The method involves performance screening in an in-sample period that ends in December 1995. We then assign weights to each characteristic and develop a final selected portfolio. We call this the "scoring screen." This scoring screen is then tested in the hold-out period (out-of-sample period) from 1996 through May 1998. In a further period the model is run on a purely out-of-sample basis through April 1999.[2]

The exhibits show performance statistics through May 1998, i.e., for both in-sample and holdout sample. The periods are combined only for the purposes of presentation. Year-by-year performance can be seen in both in-sample and out-of-sample periods. Top-bottom spread returns are reported as well as calculated premiums over a selected investment benchmark.

Returns are calculated after adjusting for splits, dividends, and rights offerings, and are denominated in U.S. dollars using exchange rates supplied in the IFC's Emerging Market Database (EMDB). Value-weighted portfolio returns are constructed using relevant IFC adjustment factors to replicate the index level returns on a bottom-up calculation. These adjustment factors are made for corporate actions and for government and cross-ownership (from November 1996).

Firms with more than one share class, which IFC includes to achieve the desired index level weighting structure, are aggregated to form a single basket of outstanding shares in our screens. Where different classes of shares are priced differently, the fundamental data used in the analysis are linked to the most liquid class of shares available to international investors. Market capitalization is adjusted to include all classes of shares.

Diagnostics

A battery of diagnostic criteria are applied to assist in the evaluation of each screening factor. Diagnostics are defined in Exhibit 2.

Quantitative measures such as the longest strings of negative and positive absolute and relative returns, performances in up and down markets, and the historical probabilities of losing money add further dimension to traditional statistical risk and expected return measures. These measures are further complemented by the simple relative performance scoring algorithm diagnostic, which assigns a weight to the portfolio in each year of the observation period depending on its cumulative annual return performance rank relative to its peers. Average scores across the observed periods will deliver information regarding performance consistency.

One notable absence from Exhibit 2 is the analysis of transaction costs. In measuring the performance of portfolios, we adopt rudimentary assumptions for turnover costs because of the well-documented difficulties of capturing costs associated with different instruments traded, bid–ask spreads, market impact, and opportunity costs on execution time durations. To address the issue of the effects of implementing a trading strategy, our models are run with longer holding periods to check for robustness and to identify factors with return premiums that persist over longer holding periods.

Factor Selection

There are many elements that enter the algorithm for factor selection. Given the number of factor screening candidates, we need to greatly reduce the

EXHIBIT 2
Performance Diagnostics

Performance Measure/ Summary Statistic	Definition[a]
1. Annualized Average Return	*Stock Level* — Annualized geometric average of postrank portfolio U.S. dollar total returns over all observation periods. Total return is calculated by adding the last twelve months gross cash dividend at ex-dividend date, adjusted for the length of the return period, to the closing monthly USD market price. Returns are value-weighted by the market capitalization as at observation date. *Index Level* — Similar for the market portfolio, although the index return levels will be as sourced from data base providers using the value-weighted index returns.[b]
2. Cumulative Return (indexed at 100 — start)	Value of $100 if invested at the first observation date and compounded over intervening periods.
3. Standard Deviation of Returns	Annualized standard deviation of postrank portfolio returns over all observation periods.
4. Average Annual Excess Return — R_m	Annualized geometric average of postrank portfolio excess returns above the market portfolio over all observation periods.
5. Average Annual Excess Return — R_f	Annualized geometric average of postrank portfolio excess returns above annualized U.S. ninety-day T-bill rate over all observation periods.
6. Standard Deviation of Excess Returns — R_m	Annualized standard deviation of postrank portfolio excess returns above market portfolio over all observation periods.
7. Standard Deviation of Excess Returns — R_f	Annualized standard deviation of postrank portfolio excess returns above annualized U.S. ninety-day T-bill rate (as at observation date) over all observation periods.
8. T-Stat	Test of whether average excess return is significantly different from zero.
9. Systematic Risk (beta)	Slope of regression line estimated by regressing average postrank portfolio returns on the relevant market portfolio return over all observation periods. No lags are incorporated in the market portfolio return to allow for non-synchronous trading.
10. Alpha	Annualized intercept of the regression line estimation per systematic risk (beta) above.
11. Coefficient of Determination	Coefficient of determination (R-square) of average postrank portfolio returns versus the market portfolio return over all observation periods.
12. Average Market Cap	Sum of all constituent market capitalizations in local currency divided by the total number of portfolio constituents over all observation periods.
13. % Periods > Market Portfolio	Percentage of total observations that average postrank portfolio return is greater than the market portfolio return over the holding period.
14. % Periods > Bench Up Market	Percentage of total observations that average postrank portfolio return is greater than the market portfolio return when the market portfolio return is greater than zero.
15. % Periods > Benchmark Down Market	Percentage of total observations that average postrank portfolio return is greater than the market portfolio return when the market portfolio return is less than zero.
16. Maximum Number of Consecutive Benchmark Outperformance	Longest string of consecutive observations where average postrank portfolio return is greater than the market portfolio return.
17. Maximum Positive Excess Return	Highest single postrank portfolio excess positive return above market portfolio over all observation periods.
18. Maximum Negative Excess Return	Lowest single postrank portfolio excess negative return above market portfolio over all observation periods.

	Performance Measure/ Summary Statistic	Definition[a]
19.	% Periods Positive Returns to Negative	Ratio of portfolio postrank average returns greater than zero to postrank returns less than zero over all observation periods.
20.	% Periods Negative Returns	Percentage of observations that portfolio postrank returns are less than zero over all observation periods, indicative of the historical probability of losing money.
21.	Maximum Number of Consecutive Negative Periods	Longest string of consecutive observations where average postrank portfolio return is less than zero.
22.	Maximum Number of Consecutive Positive Periods	Longest string of consecutive observations where average postrank portfolio return is greater than zero.
23.	Cumulative Annual Returns	Value of $100 if invested on January 1 of each year of the observation period and compounded over intervening observation to December 31. Cumulative returns for 1998 would represent a year to last-observation date return.
24.	Relative Performance	Average relative performance of portfolio generated on simple scoring algorithm that assigns a weight to the portfolio in each year of the observation period based on its cumulative annual return performance rank relative to its peers. Therefore, the minimum score a portfolio could obtain would be 1; the maximum r; and the average $[n + (n + 1) + (n + 2) + ... + (n + r)]/r$, where n is the number of years in the observation period, and r is the number of portfolios.
25.	Cumulative Annual Returns — Last Two and Five Years	Value of $100 if invested two or five years preceding the most recent observation and compounded over intervening periods.
26.	Factor Average	Arithmetic average of constituent ranking factors over all observation periods.
27.	Factor Median	Median value of constituent ranking factor over all observation periods.
28.	Factor Standard Deviation	Standard deviation of constituent ranking factors over all observation periods.

[a]Definition applicable to equal- and value-weighted fractiles and benchmark of performance measures.

[b]Although value-weighted index returns will obviously impart a known size bias (which will vary from market to market depending on the distribution of size) to comparative benchmark returns), this is unavoidable because an equal-weighted benchmark is not available in many markets.

dimensionality (isolate a small number of factors) for our final portfolio selection, which we will call the final scoring screen. The factor report cards detailed in Exhibit 2 yield twenty-eight different diagnostic pieces of information, some interrelated. Correlation analysis is required to eliminate potentially redundant screening factors.

We calculate correlations between the portfolio returns derived from each factor screen. We do this separately for the top fractile and the bottom fractile portfolio. For this analysis, we use value-weighted portfolios. As we assign weights to both top and bottom factor portfolios for firms in the universe, we present matrix correlation coefficients for both.

Factor returns that are highly correlated in the top portfolio may exhibit weak or negative correlations in the bottom. Some of the variation may be attributed to the collection of heterogeneous groups of stocks in certain bottom portfolios due to the nature of the sort — lumping high earnings multiple and loss-making firms together in an earnings yield sort, for example. This is illustrated by the high correlation coefficients obtained in top portfolios between earnings yield and book-to-price ratios in Mexico and the

lower observed values in the bottom portfolio.

We find high correlations among value strategies, in part because price appears in the denominator of these ratios. Unlike value screens, correlations and factor performances among growth proxies differ visibly. Estimate revision screens (change in consensus FY1 estimates and consensus forecast earnings estimate revision ratios) are more closely related to growth proxies, as these types of screens generally behave better in growth-oriented environments where premiums are paid for additional amounts of nominal earnings.[3]

Final Portfolio Selection and Diagnostics

The final portfolio selection is based on a combination of:

1. Assessment of the factor based on the twenty-seven diagnostics presented in Exhibit 2.
2. Bivariate screens that combine information in two factors (not reported).
3. Correlation analysis.
4. Success ratios.
5. Quadratic optimization (not reported).
6. Quantitative adjustments for high transaction costs inducing factors (not reported).
7. A final "knock-out" list.

Steps 1 through 6 are what we characterize as the "scoring screen." This screen uses information in both the top- and bottom-performing fractiles. That is, our buy list is not a simple combination of the top fractiles. While it might not be possible to short stocks in the bottom fractiles, membership in this fractile is useful in down-ranking a particular security or removing it from a buy list through time.

The seventh step, the "knock-out" criterion, eliminates firms that are too small for meaningful portfolio investment. It also isolates firms that have unreasonable leverage. It should be emphasized that the inputs for the scoring screen include information such as bivariate sorting and some additional univariate screens that is not included in this presentation.

The success ratio analysis is another diagnostic measure that gives insight into performance differentials. The success rate measures the percentage of stocks in the top portfolio that outperform the benchmark market portfolio at a particular observation and the percentage that underperform in the bottom portfolio.

The average of these rates through time will reveal the depth of portfolio performance and the proportion of firms driving performance. We examine this measure for each of the screening factors.

The definitions for this analysis are given in Exhibit 3.

The success ratio analysis is a particularly useful tool in helping us assess the probabilities of Type I error (incorrectly classifying a winner in the bottom fractile) and Type II error (incorrectly assigning a loser to the top fractile). Indeed, no matter how favorable a screen might look, there is still a chance that losers will be assigned to a buy list. If one is able to do independent fundamental research on the individual firms, however, it may be possible to more accurately identify winners in the top fractile. Of course, our final portfolio is evaluated using a number of criteria, only one of which is the success ratio.

DATA

Primary Sources

The data are drawn from a number of sources, all in the FACTSET data base system. We use constituent data from the International Finance Corporation (IFC), Worldscope, and the Institutional Brokers Estimate System (IBES). In some of our analysis, we also use data from Morgan Stanley Capital International (MSCI). Our analysis uses returns and data on twenty-one firm characteristics.

The universe of stocks and the benchmark returns come from the IFC global indexes. The IFC is widely regarded as having the most complete emerging market data set and has been widely used in academic studies; see Harvey [1995] and Rouwenhorst [1999], for example. The IFC's Emerging Market Database (EMBD) generally has the longest histories and highest-quality data sets for emerging markets. The selection of IFC facilitates the backtesting of the chosen factors. It also has the advantage of being a "snapshot" data base that eliminates most survivorship biases. That is, for our sample, no data have been backfilled.

As our principal focus is on the predictive power of local factors through time, and not on the impact of investment restrictions, we have used the broader global indexes that do not include adjustments made for investability. Hence, we focus on the IFC global index-

EXHIBIT 3
Success Rate Definitions

Performance Factor	Definition
Success Rate	Calculated individually for both top and bottom portfolios as the percentage of stocks in the top portfolio at a particular observation that *outperform* the market portfolio, and the percentage of stocks that *underperform* in the bottom portfolio. For example, if ten stocks are sorted into a top factor portfolio, and eight of those stocks have returns *greater* than the market, the success rate is 80%. In the same strategy at the same observation date, if six of the ten stocks collected in the bottom portfolio have returns *less* than the market, the success rate for that bottom portfolio would be 60%.
Average Success Rate	Arithmetic average of the observed success rates over all observations.
Standard Deviation of Average Success Rate	Standard deviation of the observed success rates from the average success rate over all observations.
Average Success Rate Consistency Ratio	Percentage of observations that the success rate is greater than 50%.
Success Rate — Most Successful	Highest observed single success rate over all observations.
Success Rate — Least Successful	Lowest observed single success rate over all observations.
Universe	Those constituents of the selected index (market portfolio) for which relevant ranking information exists at a particular observation date.

es rather than the IFC investible indexes. The investible stocks are those that are available to foreign institutional investors and that pass screens for minimum size and liquidity.

Screening Factors

We classify our screening factors into three groups: historical accounting characteristics (fundamental factors); expectations (expectation factors); and past returns (technical factors) and size (size factors). Fundamental, technical, and size factors are from IFC where available or from Worldscope, while the expectation factors are from IBES. The screening factors are detailed in Exhibit 4.

RESULTS

Mexican Market Settings

At the beginning of 1988, the Mexican IFC universe had a market capitalization of U.S. $4.5 billion or 4% of GDP, and listed only twenty-seven stocks. The economy was rebounding from a period of adjustment with inflation falling from 114% in 1987 to 20%. In 1988, real GDP growth was a minimal 1.3%. Between 1988 and 1991, the economy accelerated to average growth of 4.5% per year on high expectations surrounding the creation of NAFTA.

Huge capital inflows to Mexico (primarily from the U.S.) contributed to the increased share prices, with market capitalization peaking at U.S. $154 billion or about 30% GDP in 1994.[4] The unprecedented inflow of U.S. dollars led to an increasingly overvalued peso and enabled the authorities to paper over serious deterioration on external and fiscal accounts.

By end-1994, the country was in the midst of a short-term payments crisis and was forced to devalue the peso. Capital flight ensued, with the peso weakening by over 50%, and the stock index falling over 70% to a market capitalization of only U.S. $58 billion in April 1995. The IMF provided a massive financial package to Mexico in return for tight monetary and fiscal policies, structural reform, and market liberalization measures. The economy fell into deep recession.

Ultimately, a dramatic turnaround on the external accounts and falling inflation enabled the authorities to relax monetary conditions fairly quickly, and by 1996-1997 there were clear signs of economic recovery. Share prices rallied, bolstered by the increased transparency of the market and corporate restructuring.

The accelerated privatization program also encouraged investment, as it led to increased liquidity

EXHIBIT 4
Screening Factors

Factor, Hypothesis, and Ranking Strategy	Data Source	Formula and Definitions[a]	Interpretation
1. Market Capitalization Small-Cap Effect Persists Through Time Top Portfolio: Small-Capitalization Stocks Bottom Portfolio: Large-Capitalization Stocks Code:[c] CAP	IFC	Number of Shares Outstanding for Index Purposes × Closing Monthly Market Price Note 1: Number of shares outstanding as of the balance sheet date, adjusted for corporate actions and reduced by government and cross-ownership (from November 1996) per capital adjustment factor. For firms with more than one share class, we use whenever possible the aggregate Worldscope weights for that firm. When the Worldscope weights are missing, we use the constituent IFC weights. Therefore, the weighting in the benchmark that we use, the IFC index, could differ from the weighting that we use in the value-weighted portfolios. Note 2: Market price as of date of observation in local currency (consistent across all factors).	• Diagnostic screen to investigate performance differential between large- and small-capitalization stocks. (Certain screens in the study were not considered for incorporation into the selection model but were constructed to give insight into the behavior of specific market segments through time.) • Size is widely regarded as a proxy for trading liquidity. • Small-capitalization stocks tend to have higher transaction costs. (There are well-documented difficulties of capturing costs associated with different instruments traded, bid-ask spreads, market impact, and opportunity costs on execution time durations.) • Risk, as defined by volatility of historical returns, tends to increase as size decreases.[b] • If there is no risk premium associated with investing in smaller-capitalization stocks, then investors are expected to migrate toward larger-capitalization stocks, which have lower perceived risks. • IFC selects constituents for its indexes based on liquidity, track record, institutional interest, and industry representation; that is, the selection is not random. The track record may preclude the selection of small-capitalization emerging growth stocks, so small-capitalization stocks may show significant value characteristics. (Emerging growth stocks probably enter the universe as more mature midcaps.) • Smaller stocks tend to be regarded as lower-quality stocks. (Smaller stocks due to the inherent variability in earnings and exposures to the local economy are generally regarded as being of lower quality.) • Small-stock effects may dominate the results of other factors. To this end, we examine the impact of size on all the factors. We construct bivariate screens to test whether a candidate factor discriminates between high and low expected return stocks across all size categories.

EXHIBIT 4
Screening Factors (continued)

Factor, Hypothesis, and Ranking Strategy	Data Source	Formula and Definitions[a]	Interpretation
2. Change in Return on Equity Stocks with Improving Returns on Equity and Thus Quality Should Outperform Through Time Top Portfolio: High Change Bottom Portfolio: Low Change Code: CH_ROE	IFC	Return on equity (current year) – Return on equity (previous year)	• To capture changes in the levels of a company's return on common equity, as compared with a more traditional quality rank. • The objective is to identify companies that investors believe are higher quality before subsequent shifts in valuation multiples occur. For example, a company that improves its return on equity from 10% to 15% might be very attractive, although this stock might not necessarily be ranked in the top portfolio of a simple return on equity sort. • This screening factor might be improved by combining it with IBES expectation data and a bivariate sort.
3. Debt-to-Common Equity Ratio Highly Leveraged Stocks Expected to Outperform to Compensate for the Higher Implied Risks Top Portfolio: High Debt-to-Equity Bottom Portfolio: Low Debt-to-Equity Code: DE	Worldscope	(Total Debt/Common Equity)100 (Long–Term Debt + Short–Term Debt + Current Portion of Long–Term Debt)/Common Equity × 100	• Diagnostic screen constructed to give insight into performance differential between leveraged and unleveraged stocks. (Not considered for incorporation into the selection model.) • Debt/equity ratios can be used as a proxy for quality and perceived risk and screens on good and bad companies. [d] Formed portfolio returns are expected to have a high correlation with certain value return screens (see earnings yield below, for example). • Data assimilated from the most recent fiscal year-end. • Lag incorporated on assimilation of data to ensure data item is available for out-of-sample portfolio formations. • Rank comparisons across some constituent sectors are difficult. This is the case in the banking sector, for example, since taking deposits is analogous to borrowing, and we exclude this sector from the screen for this reason.
4. Dividend Yield Higher-Yielding Stocks Should Exhibit Superior Performance Through Time	IFC	(Last Twelve Months of Cash Dividends/Closing Monthly Market Price)100 Note: On a per share basis at the ex-dividend date, using gross cash	• High correlation with other value factors, as these tend to be shorter-duration strategies. (Duration refers to interest rate sensitivity and is defined by the relative change in an instrument's return to a defined change in the level of interest rates.) • Smaller-capitalization stocks tend to have higher yields. • All dividends expressed in local currency terms.

EXHIBIT 4
Screening Factors (continued)

Factor, Hypothesis, and Ranking Strategy	Data Source	Formula and Definitions[a]	Interpretation
Top Portfolio: High–Dividend Yield Bottom Portfolio: Low–Dividend Yield Code: DY		dividends. Adjustment made by data-base provider to ensure all shares issued and outstanding for index purposes receive the same dividend.	
5. One-Year Historical Earnings Growth/Momentum High Earnings Momentum Stocks Should Outperform Through Time Top Portfolio: High Earnings Momentum Bottom Portfolio: Low Earnings Momentum Code: HEGR_1Y	IFC	(Last Twelve Months' Trailing Earnings per Share – Previous Last Twelve Months' Trailing Earnings per Share)/(Absolute Previous Last Twelve Months' Trailing Earnings per Share)100 Note 1: In hyperinflationary economies, the IFC uses adjusted earnings and book values, inflating trailing earnings and historical book values by the intervening period's inflation. Consistent across all factors with earnings and book value per share in formulas. Reported as opposed to operating earnings are used throughout due partly to the availability and quality of the reported data, but also to capture the effect of any asset write-offs that may occur during periods of falling inflation. Note 2: The use of absolute numbers in the rate of change calculation permits the capture of any turnaround effect in earnings, although stocks reducing losses will be perceived as being short-term (expected) momentum companies. The relative performance of this group, though, may be investigated by repeating the analysis and excluding this group.	• Earnings momentum indicator frequently used as the best growth proxy due to information deficiencies in certain emerging markets. • Assumes that analyzing the past has value for subsequent forecasts. • Useful indicator to identify stocks with rising expectations among investors before they have established a track record. • We conduct the analysis excluding negative historical previous earnings for comparison purposes. • Can be screened with estimate revision ratios (see consensus forecast earnings estimate revision ratio below for definitions) to identify future earnings surprises and recovery situations. This directly introduces market expectations of earnings growth rather than relying on changes in historical earnings.

Factor, Hypothesis, and Ranking Strategy	Data Source	Formula and Definitions[a]	Interpretation
6. Three-Year Historical Earnings Growth Rate Stocks Exhibiting the Best Long–Term Track Record Should Continue to Provide Superior Growth Rates and Return Premiums Top Portfolio: High Earnings Growth Bottom Portfolio: Low Earnings Growth Code: HEGR_3Y	IFC	The rate of change in the reported last twelve-month earnings per share over the three–year time interval terminating on the date of the last interim period for which earnings were announced. Note: Annual growth rate is computed by fitting a least squares growth line to the logarithms of the reported or prospective (where applicable) earnings data over the specified period. Rules holding for factor rank are: Rates will be generated only if first and last time periods are greater than zero; non–available or negative data in the interim period are discarded.	• A traditional growth proxy highlighting a stock's historical track record and stability. • Stocks that pass factor criteria have a visible track record, a perceived rarity in the volatile emerging markets, and should therefore trade at high premiums even though it is generally accepted that naive extrapolations in these volatile markets are futile. • Does not incorporate the element of expectation but rather known growth, which is effective for identification of a quality universe of stocks. • In order to include more stocks in the analysis, when less than three years of data are available, we include stocks that have a full two-year data history.
7. Earnings Yield High–Yield "Value" Companies Should Provide Superior Future Returns Through Time Top Portfolio: High Earnings Yield Bottom Portfolio: Low Earnings Yield Code: EY	IFC	(Last Twelve Months' Trailing Earnings per Share/Closing Market Price)100 Per share data — aggregate reported earnings divided by the total number of shares outstanding (all classes) as of the balance sheet date, adjusted for corporate actions and reduced by government and cross-ownership (from November 1996) per capital adjustment factor. This is consistent across all factors constructed using IFC per share data.	• Traditional value/growth proxy. • Value stocks generally are riskier as they are usually firms under distress, have high financial leverage, and face substantial uncertainty in future earnings. • Much has been written about the shortcomings of the incorporation of traditional measures such as earnings yield. One can argue that these measures may be influenced by accounting practices, may not incorporate risk or the time value of money, and may be seen as a function of value and not a determinant of value. • On the other hand, for many common stocks, the average relation between price and reported earnings may reflect the views of investors as to the quality and growth of the issue. It may give information about, inter alia, the quality of management, the firm's individual prospects, its competitive position, the stability and growth of past earnings, and the firm's financial strengths. • Although there are benefits in using yield and value ratios,

EXHIBIT 4
Details of Screening Factors (continued)

Factor, Hypothesis, and Ranking Strategy	Data Source	Formula and Definitions[a]	Interpretation
			data quality and history often preclude their effective implementation.
			• The use of earnings yield as a factor can result in sorting on incorrectly identified value companies. Anticipatory stock price movements could induce a migration into value territory before the next round of reported financial information alters the multiple. Combining the historical factor (earnings yield) with an expectational factor (such as a revision ratio sort, for example) in a bivariate sorting model could partially alleviate this problem (this also applies to other value screens).
			• Inverting the traditional price-to-earnings ratio will result in the collection of loss-making stocks in the bottom-ranked portfolio. The relative performance of this group may be investigated by exclusion through time.
			• Without some form of relative attribution adjustment, sector or influences could appear in ranks through time.
8. (a) Change in Consensus FY1 Estimate — Last Three Months (b) Change in Consensus FY1 Estimate — Last Six Months Stocks with Rising Earnings Expectations Should Outperform Through Time Top Portfolio: High Change in Estimate Bottom Portfolio: Low Change in Estimate	IBES Estimates	(a) [(Consensus Forecast Earnings per Share Fiscal Year 1 (FY1) at Date of Observation/Consensus Forecast Earnings per Share FY1 Three Months Preceding Date of Observation) − 1]100 (b) [(Consensus Forecast Earnings per Share Fiscal Year 1 (FY1) at Date of Observation/Consensus Forecast Earnings per Share FY1 Six Months Preceding Date of Observation) − 1]100 Note: Average EPS estimate known as consensus forecast is calculated by adding the current EPS estimate data for the specified periods from all the contributing IBES firms and dividing	• Factor indicates the magnitude of change in fiscal year 1 consensus forecast earnings estimates over the preceding three- and six-month period from the observation date. • Good indicator to isolate companies with changing earnings expectations and those that have provided interim earnings surprises. (The screen's design will discriminate between stocks with both rising and falling earnings expectations.) • Should have high correlation with growth proxies, as revision screens generally behave better in growth-oriented environments. • Generates insight into behavioral aspects of estimate revisions as estimation precision increases with approaching fiscal year-end. • The frequency of estimate revisions and the magnitude of variation from mean estimates will increase in volatile macro environments. • Similar to the consensus forecast earnings estimate revision ratio below, but captures the magnitude of change in the revisions over the preceding period. • In some instances, IBES estimates refer to a different class of

EXHIBIT 4
Screening Factors (continued)

Factor, Hypothesis, and Ranking Strategy	Data Source	Formula and Definitions[a]	Interpretation
Code: CH_FY1_3M		by the number of EPS estimates that enter into the calculation. A composite forecast of earnings per share that distills current EPS estimate data for the specified fiscal time period into a single expectation. Gains from combining security analyst forecasts arise from using more information in the aggregate than is used by any individual, and from the reduction of individual analyst forecast error through diversification.	share from the IFC constituent. In these cases, we have the IBES data.
9. Consensus FY2 to FY1 Estimate Change Stocks with High Changing Medium–Term Expectations Should Outperform Through Time Top Portfolio: High Change in Estimate Bottom Portfolio: Low Change in Estimate Code: CH_FY2_FY1	IBES Estimates	[Consensus Forecast Earnings per Share Fiscal Year 2 (FY2)]/[Consensus Forecast Earnings per Share Fiscal Year 1 (FY1) – 1]100 Consensus forecasts at date of observation.	• Change in estimate captures the rate of change in earnings per share that is expected for the company into fiscal year 2. • Identifies stocks with changing medium–term earnings expectations.
10. Consensus Forecast Earnings Estimate Revision Ratio Stocks Exhibiting High Earnings Revisions and Rising Expectations Should Outperform Through Time	IBES Estimates	[(Sum of Trailing Three–Month Upward FY1 Estimate Revisions) – (Sum of Trailing Three–Month Downward FY1 Estimate Revisions)]/(Total of Trailing Three–Month FY1 Estimates)	• Good proxy for isolating pre–earnings momentum stocks and stocks with changing earnings expectations. • Similar to change in consensus FY1 estimate three– and six–month factors above, but may also measure the degree of sentiment. • The ratio is also effective in isolating changing expectations of companies that suffer relative neglect by the investment research

EXHIBIT 4
Screening Factors (continued)

Factor, Hypothesis, and Ranking Strategy	Data Source	Formula and Definitions[a]	Interpretation
Top Portfolio: High Revision Ratio Bottom Portfolio: Low Revision Ratio Code: IREV_3M		The ratio of the number of net upward or downward current EPS estimates for FY1 over the preceding three months to the total number of estimates made over the same period.	community. • The ranked universe can be split using a portfolio midpoint to isolate homogeneous groups of upward, downward, and zero revisions.
11. Book-to-Price Ratio High Book-to-Price Ratio Stocks Should Outperform Through Time Top Portfolio: High Book-to-Price Ratio Bottom Portfolio: Low Book-to-Price Ratio Code: BPR	IFC	(Historical Book Value per Share/Closing Monthly Market Price)100 Note: Historical book value per share — the most recent annual book value as reported on the balance sheet at the latest fiscal year-end (with interim figures used if available). This will be adjusted between balance sheet report dates by the amount of capital raised by rights issues, and, in the case of hyperinflationary economies, by intervening inflation adjustments.	• Traditional value/growth proxy. • Conventional wisdom suggests that the book-to-price ratio is one of the most straightforward and effective investment factors in the emerging markets. • Developed market studies show a high correlation between size and book value, although small-capitalization stocks tend to be small-cap "value" stocks with relatively high levels of distress. • Technically insolvent companies are included in the bottom portfolios with high-premium stocks, although the relative performance of this group may be investigated by exclusion through time. • Without some form of relative attribution adjustment, sectoral influences could appear in ranks through time.
12. Cash Earnings to Price Yield High Cash Earnings-to-Price Yield Stocks Should Outperform Through Time Top Portfolio: High Cash Earnings-to-Price Yield Bottom Portfolio: Low Cash Earnings-to-Price Yield Code: CEY	IFC	(Cash Earnings per Share/Closing Market Price)100 Note: Cash earnings per share: the last twelve months' trailing earnings per share plus depreciation as reported in the cash flow statement, divided by the total number of shares outstanding.	• Traditional "value" proxy that facilitates cross-sectional comparisons by removing the effect of depreciation policies on earnings. • Not a true cash flow per share factor, although it should provide some information regarding a company's ability to leverage itself, to pay dividends, and to enjoy financial flexibility. • Obvious shortcomings in availability and "quality" of data and noise inherent in reduced samples of firms (companies that do not report depreciation figures are excluded from the factor sort). There is potential information in investigating stocks collected in the bottom portfolio and premiums paid for higher-quality cash earnings. • Inverting the traditional price-to-cash earnings ratio will

EXHIBIT 4
Screening Factors (continued)

Factor, Hypothesis, and Ranking Strategy	Data Source	Formula and Definitions[a]	Interpretation
			result in the collection of deficit cash flow stocks in the bottom-ranked portfolio, although the relative performance of this group may be investigated by exclusion through time.
13. One-Month Price Momentum One-Year Price Momentum A Firm's Past Return Helps to Predict Future Returns, and Past Momentum Stocks Should Continue to Outperform Top Portfolio: High Momentum Bottom Portfolio: Low Momentum Code: PM_12M, PM_1M	IFC	One-month USD price change Last fifty-two-week USD price change	• Momentum or relative strength portfolios are formed by ranking stocks on the past one- and twelve-month returns. • As shown in other research for developed markets, momentum returns accrue gradually over a period of up to one year after ranking. • The strategy has higher implied portfolio turnover. • Previous research has introduced a one-month lag in portfolio formation after observation date to compensate for the bid-ask bounce. We check the sensitivity of our results by excluding the first lagged month in the one-year momentum screen. • Collection of extreme rankings in outlier portfolios of one-month momentum strategies may preempt a degree of reversal. • Momentum effects are more evident with longer-horizon (fifty-two-week) price changes.
14. Twelve-Month Prospective Earnings Growth Rate Stocks with the Highest Expected Short- to Medium-Term Growth Rates Should Outperform Through Time Top Portfolio: High Prospective Growth Bottom Portfolio: Low Prospective Growth Code: PEGR_1Y	IBES Estimates	[(Rolling Twelve-Month Consensus Forecast Earnings per Share – Historical Trailing Earnings per Share)/Absolute[c] (Historical Trailing Earnings per Share)]100 The rate of change in earnings per share expected for the stock over the specified period, expressed as a percentage. Note 1: Rolling twelve-month forward IBES estimates calculated as [(M1 × F1) + (12 − M1)F2]/12 where: M1 = the number of month-ends to the end of the current fiscal	• Traditional short- to medium-term growth proxy that discriminates on differential earnings expectations. • Trends over the short-term period may be dominated by the business cycle, or in some cases the industry cycle. • The use of rolling twelve-month forward estimates reduces the inherent redundancy that accrues as the fiscal year-end approaches. • Stocks with the highest expected earnings could have the greatest propensity to disappoint or torpedo, as surprises are more likely on the downside. • When the IBES database had missing financial ratios, we use the IFC data to fill in.

EXHIBIT 4
Screening Factors (continued)

Factor, Hypothesis, and Ranking Strategy	Data Source	Formula and Definitions[a]	Interpretation
		year (note that the current fiscal year will be FY1 if the date is before the FY1 year-end, and FY2 if the date is after year-end); F1 = the consensus EPS forecast for the current fiscal year; F2 = the consensus EPS forecast for the next fiscal year. Rolling twenty-four-month data are constructed on the same principle as above, but will access FY3 estimates to preserve the two-year forward window. Note 2: See factor 5 for explanation of the use of absolute numbers.	
15. Three-Year Prospective Earnings Growth Rate Stocks with the Highest Expected Medium- to Longer-Term Growth Rates Should Outperform Through Time Top Portfolio: High Prospective Growth Bottom Portfolio: Low Prospective Growth Code: PEGR_3Y	IBES Estimates	The expected rate of change in consensus forecast earnings per share over a three-year time horizon. A composite forecast of the anticipated annual growth rate in earnings per share over the longer term. Note 1: See factor 6 for definitions of rate function. Note 2: Because certain markets have infrequent FY3 estimates, the best expectation of longer-term growth in those markets is constructed using FY2 data.	• The growth rate provides a more robust view of a stock's longer-term earnings expectations. • Longer forecasts are often used to justify the high multipliers of earnings sometimes commanded by growth stocks. • Provides insight into the extrapolation of past growth trends. • Higher premiums paid for "growth" stocks built on the rationale that a dollar of retained earnings in a firm with greater opportunities to invest at higher rates has a higher perceived investment value. • Three years forward is the maximum available time window, as longer forecasts incrementally lose value in volatile markets.
16. Twelve-Month Prospective Earnings Yield	IBES Estimates	(Rolling Twelve-Month Consensus Forecast Earnings per Share/ Closing Market Price)100	• Traditional "value" proxy incorporating earnings expectations. • Stocks might have perceived "value" due to the lag on estimate revisions after anticipatory price movements.

Factor, Hypothesis, and Ranking Strategy	Data Source	Formula and Definitions[a]	Interpretation
Twenty-Four-Month Prospective Earnings Yield Stocks with the Greatest Perceived Expected "Value" Should Outperform Through Time Top Portfolio: High Prospective Yield Bottom Portfolio: Low Prospective Yield Code: PEY_12M, PEY_24M		(Rolling Twenty-Four-Month Consensus Forecast Earnings per Share/Closing Market Price)100	This should, however, be a temporary phenomenon, as analysts revise forecasts in response to price changes, which are further abated by the inclusion of estimate revision factors. • Can provide powerful results if implemented with other "growth" and "quality" factors in bivariate screening models. • Inverting the price-to-prospective earnings ratio will result in the collection of prospective loss-making stocks in the bottom portfolio, although the relative performance of this group may be investigated by exclusion through time.
17. Revenue Growth Stocks with Real Perceived Growth Rates Should Out-perform Through Time Top Portfolio: High Growth Bottom Portfolio: Low Growth Code: RGR	Worldscope	[(Current Year's Net Sales or Revenues/Previous Year's Net Sales or Revenues) − 1]100 For industrial companies, revenue represents gross sales and other operating revenues less discounts, returns, and other allowances; banks, insurance, and other financial companies' revenues represent the total operating revenue of the company.	• Revenue growth is often used as a proxy for "quality" and real short-term "growth." • Does not provide any insight into profit margin performance, although a screen can be constructed with earnings factors in a bivariate sort to discriminate on "quality" of growth. • Reduced universe of companies with available data and vagaries in definition and recognition of revenue will impart some noise in the results through time. • The lag incorporated on assimilation of data to ensure data item is available at the time of portfolio formation.
18. Rate of Reinvestment Growth and Emerging Growth Stocks with High Internal Growth Rates Should Outperform Through Time	IFC	(Last Twelve Months' Trailing Earnings per Share Minus Last Twelve Months' Dividend per Share)/(Last Year's Book Value per Share)100 Note: See earnings yield, dividend	• The rate of reinvestment used to discriminate "growth" companies that provide higher rates of return on invested capital but reinvest earnings to generate internal growth rather than returning the capital to shareholders. • It is generally considered sound corporate policy, usually in the interest of shareholders, to retain an appreciable amount of of an average year's earnings to, inter alia, strengthen liquidity,

EXHIBIT 4
Screening Factors (continued)

Factor, Hypothesis, and Ranking Strategy	Data Source	Formula and Definitions[a]	Interpretation
Top Portfolio: High Rate of Reinvestment Bottom Portfolio: Low Rate of Reinvestment Code: RIR		yield, and book-to-price ratio factors above for definitions of ratio constituents.	invest in infrastructure and product expansion, prepare for "rainy days," and maintain the dividend rate in low-earning years. ● If the firm has good prospects, we expect a high reinvestment rate. ● Usually has a high correlation with other growth and "quality" proxies.
19. Return on Equity High–"Quality" Stocks Should Outperform Poorer "Quality" Through Time Top Portfolio: High Return on Equity Bottom Portfolio: Low Return on Equity Code: ROE	IFC	(Last Twelve Months' Trailing Earnings per Share/Last Year's Book Value per Share)100 Note: See earnings yield and book-to-price ratio factors above for definitions of ratio constituents.	● Return on equity is fundamental in screening companies providing returns on invested capital. ● Good traditional "quality" and risk proxy to investigate the performance differential between perceived "good" and "bad" stocks through time. ● While nominal ROE does not provide significant insight into a stock's ability to create intrinsic value, it is thought to be a good and simple proxy for management quality and the ability of management to leverage the rate of return on equity by incurring debt. ● Return on equity will, to a degree, demonstrate the efficiency of the company's management of assets, its ability to meet competitive challenges and implement pricing strategy, its ability to weather credit market conditions and to instill an overall financial policy, and its ability to take advantage of fiscal incentives. ● Although there are perceived benefits in the use of advanced return and value ratios, data quality and history often preclude their effective implementation. ● High–ROE stocks are visible "quality" stocks, and sometimes trade on high multiples.

[a]For all screening factors, stocks for which relevant ranking information does not exist are classified into a not-ranked fractile and monitored separately.
[b]See Bernstein [1995] for a general discussion on the behavior of market capitalization and size effects.
[c]Code is short-form screen code for selected tables and text.
[d]Screen can be used to corroborate use of factor as part of a set of knock-out criteria to control final model risk.

and added depth to the market. Confidence was enhanced by the most democratic elections in Mexican history and clear signs that the PRI, the party in power in Mexico for well over sixty years, was losing its stranglehold. Then, in mid-1997, the Asian financial crisis reminded investors of emerging market risk, and international commodity prices started to weaken. After a brief period of relative outperformance, the Mexican market began to falter.

The market was particularly volatile in 1998 with the expectation of devaluations in a number of Latin American countries. In August 1998, when the credit crunch hit the U.S., and the U.S. equity market suffered, the Mexican market dropped by 33%. Consistent with Mexico's considerable volatility, the market rose more than 20% over the next two months.

The country was relatively unaffected by the actual devaluation in Brazil in January 1999, although there was a small decline in the value of the market that month. The equity market is up sharply through June 1999 (a 54% increase in U.S. dollar terms).

Screening Results for Mexico

Summary. During our sample period, the Mexican index return averaged 18.54% per year. Much of this performance was generated in the years of 1989 and 1991 when $100 invested at the beginning of the year would have been worth $173.35 and $206.76, respectively, at year-end. Over the entire sample (114 observations) since December 1988, the market increased in seventy-two months (63% of the time) and decreased in forty-two months (37% of the time). During the out-of-sample period (30 observations), the market increased in eighteen months and decreased in twelve months.

The top fractile portfolio was able to achieve 33.75% performance. The bottom fractile achieved a 9.92% performance. Hence, the spread between top and bottom exceeded 2,300 basis points per year. Importantly, the top fractile performs well in the hold-out period.

Factor Screens. Exhibits 5A-V presents the detailed factor-by-factor results for the value-weighted portfolio returns. Exhibit 6 summarizes these results. The average returns of the highest and lowest fractile portfolios are presented in Exhibit 7. The percent of periods that the top and bottom fractile outperformed the benchmark is presented in Exhibit 8.

Some general observations are:

- The best top portfolio average annualized excess returns are earned from one-year price momentum and change in return on equity strategies, with excess returns over the benchmark of 12.04% and 10.29%, respectively.
- These two strategies also deliver the highest top-minus-bottom spread differential with 19.00% (one-year price momentum) and 18.33% (change in return on common equity). We do record large negative top-bottom portfolio spread discrimination in market capitalization and dividend yield strategies of −15.09% and −13.17%, respectively.
- The best bottom portfolio average annualized underperformance against the benchmark is obtained from rate of reinvestment and change in return on equity strategies with −8.63% and −8.05%, respectively.
- In terms of benchmark outperformance through time, the change in consensus FY1 estimate over the last six months and one-year price momentum factors are the most successful top portfolio strategies observed, beating the benchmark in 63.64% and 62.28% of the total market observations.
- In an up market, top portfolio one-year price momentum and debt-to-common equity factors produce the most consistent outperformance, beating the benchmark in 70.83% (one-year price momentum) and 69.44% (debt-to-common equity) of all up market observations. The debt-to-equity factor was created as a diagnostic screen, constructed to give insight into the performance differential between levered and unlevered stocks, and is not considered for incorporation in the selection model. The next-highest up market outperformance ratio is obtained from large-capitalization stocks in the bottom portfolio capitalization screen, with an observed outperformance ratio of 68.06%.
- The best performers in a down market are bottom portfolio three-year historical earnings growth and top portfolio dividend yield screens, with outperformance in 76.19% and 70.00% of all down market observations.
- Bottom portfolio dividend yield and top portfolio one-year historical earnings growth screens exhibit the best last-two-year performance where the value of $100.00 increases to $145.76 for companies exhibiting low dividend yield, and to $142.46 for

EXHIBIT 5A

Mexico Market Capitalization
Sample Period: 12/88-5/98
Number of Observations: 114 Monthly

Performance Measure/ Summary Statistic		Note*	Portfolios - value weighted -1-	-2-	-3-	Market portfolio
Annualized average return (USD)		1	7.22	19.33	22.31	18.54
Cumulative return (indexed at 100 to start)		2	193.92	536.15	677.67	503.29
STD Deviation of returns		3	35.15	33.36	34.99	33.10
Average annual excess return	Rm	4	-11.32	0.79	3.77	
	Rf	5	1.86	13.42	16.27	
STD Deviation of excess rtns	Rm	6	23.97	11.41	5.83	
	Rf	7	35.10	33.35	34.94	
		8				
Systematic risk (Beta)		9	0.80	0.95	1.04	
Alpha		10	-6.74	1.56	2.44	
Co-efficient of determination		11				
Average market cap		12				6935.57
% periods > Benchmark		13	40.35	52.63	61.40	
% periods > Bench up Mkt		14	25.00	47.22	68.06	
% periods > Bench Dn Mkt		15	66.67	61.90	50.00	
Max # of consecutive bmark outperformance		16	5	8	6	
Maximum positive excess return		17	40.05	10.88	7.76	
Maximum negative excess return		18	-19.17	-10.13	-4.83	
% periods positive returns to negative		19	128.00	192.31	159.09	
% periods of negative returns		20	43.86	34.21	38.60	36.84
Max # of consecutive negative periods		21	6	5	4	4
Max # of consecutive positive periods		22	13	9	7	9
Cumulative annual returns - (index=100 each year)		23				
In sample 1989			243.85	156.89	186.76	173.35
1990			119.76	125.20	145.01	129.69
1991			115.91	174.11	232.12	206.76
1992			108.85	116.69	123.70	121.18
1993			150.06	176.91	148.38	149.90
1994			60.97	74.76	56.67	59.36
1995			66.15	67.39	72.81	74.02
(Hold out) of sample 1996			94.34	132.59	117.89	117.83
1997			137.93	156.54	152.19	150.45
Through May 1998			66.83	72.63	79.34	76.52
Relative Performance -		24				
1989			3	1	2	
1990			1	2	3	
1991			1	2	3	
1992			1	2	3	
1993			2	3	1	
1994			2	3	1	
1995			1	2	3	
1996			1	3	2	
1997			1	3	2	
1998			1	2	3	
Average Relative Performance -			1.40	2.30	2.30	
Cumulative annual returns -		25				
Last two years			76.32	112.65	120.38	114.02
Last five years			55.48	124.97	92.91	93.09
Factor average		26				
Factor median		27				2099.96
Factor standard deviation		28				1872.58

*See Exhibit 2 for all definitions

EXHIBIT 5B

Mexico — Change in Return on Equity
Sample Period: 12/88-5/98
Number of Observations: 114 Monthly

Performance Measure/ Summary Statistic		Note*	Portfolios - value weighted -1-	-2-	-3-	Market portfolio
Annualized average return (USD)		1	28.83	19.03	10.50	18.54
Cumulative return (indexed at 100 to start)		2	1109.49	523.47	258.13	503.29
STD Deviation of returns		3	37.79	31.00	35.30	33.10
Average annual excess return	Rm	4	10.29	0.49	-8.05	
	Rf	5	22.49	13.14	4.99	
STD Deviation of excess rtns	Rm	6	11.13	12.08	12.74	
	Rf	7	37.74	30.98	35.29	
		8				
Systematic risk (Beta)		9	1.10	0.87	0.99	
Alpha		10	6.84	2.62	-7.02	
Co-efficient of determination		11				
Average market cap		12				8009.23
% periods > Benchmark		13	59.65	50.88	50.00	
% periods > Bench up Mkt		14	61.11	41.67	51.39	
% periods > Bench Dn Mkt		15	57.14	66.67	47.62	
Max # of consecutive bmark outperformance		16	7	6	7	
Maximum positive excess return		17	14.11	9.08	9.96	
Maximum negative excess return		18	-6.77	-12.41	-11.94	
% periods positive returns to negative		19	171.43	159.09	142.55	
% periods of negative returns		20	36.84	38.60	41.23	36.84
Max # of consecutive negative periods		21	6	5	4	4
Max # of consecutive positive periods		22	8	7	7	9
Cumulative annual returns - (index=100 each year)		23				
In sample 1989			224.79	166.54	148.38	173.35
1990			153.83	135.58	107.89	129.69
1991			283.85	137.94	148.01	206.76
1992			122.07	115.47	130.95	121.18
1993			166.07	184.04	133.04	149.90
1994			53.35	75.84	61.78	59.36
1995			69.89	77.31	79.33	74.02
(Hold out) of sample 1996			119.20	122.38	111.41	117.83
1997			159.71	144.79	149.66	150.45
Through May 1998			78.57	76.12	76.52	76.52
Relative Performance -		24				
1989			3	2	1	
1990			3	2	1	
1991			3	1	2	
1992			2	1	3	
1993			2	3	1	
1994			1	3	2	
1995			1	2	3	
1996			2	3	1	
1997			3	1	2	
1998			3	1	2	
Average Relative Performance -			2.30	1.90	1.80	
Cumulative annual returns -		25				
Last two years			122.23	114.70	109.40	114.02
Last five years			93.72	136.99	94.39	93.09
Factor average		26				-6.59
Factor median		27				-2.32
Factor standard deviation		28				55.10

*See Exhibit 2 for all definitions

EXHIBIT 5C
Mexico Debt to Common Equity
Sample Period: 12/88-5/98
Number of Observations: 114 Monthly

Performance Measure/ Summary Statistic		Note*	Portfolios - value weighted -1-	-2-	-3-	Market portfolio
Annualized average return (USD)		1	26.45	23.05	17.07	18.54
Cumulative return (indexed at 100 to start)		2	929.44	717.35	446.97	503.29
STD Deviation of returns		3	41.22	39.58	31.20	33.10
Average annual excess return	Rm	4	7.91	4.51	-1.47	
	Rf	5	20.21	16.97	11.26	
STD Deviation of excess rtns	Rm	6	14.60	14.80	13.16	
	Rf	7	41.18	39.55	31.17	
		8				
Systematic risk (Beta)		9	1.18	1.11	0.87	
Alpha		10	3.52	1.82	1.04	
Co-efficient of determination		11				
Average market cap		12				8899.14
% periods > Benchmark		13	57.89	51.75	50.00	
% periods > Bench up Mkt		14	69.44	54.17	40.28	
% periods > Bench Dn Mkt		15	38.10	47.62	66.67	
Max # of consecutive bmark outperformance		16	8	7	7	
Maximum positive excess return		17	15.83	20.92	11.22	
Maximum negative excess return		18	-8.23	-8.99	-14.75	
% periods positive returns to negative		19	178.05	159.09	165.12	
% periods of negative returns		20	35.96	38.60	37.72	36.84
Max # of consecutive negative periods		21	4	3	6	4
Max # of consecutive positive periods		22	7	8	7	9
Cumulative annual returns - (index=100 each year)		23				
In sample 1989			233.83	187.29	170.47	173.35
1990			139.97	112.29	152.88	129.69
1991			215.86	303.20	133.42	206.76
1992			118.40	119.88	118.92	121.18
1993			180.32	170.42	144.83	149.90
1994			64.77	63.34	63.33	59.36
1995			70.28	73.84	74.83	74.02
(Hold out) of sample 1996			113.75	119.26	121.83	117.83
1997			147.87	138.94	162.26	150.45
Through May 1998			80.49	71.06	79.67	76.52
Relative Performance -		24				
1989			3	2	1	
1990			2	1	3	
1991			2	3	1	
1992			1	3	2	
1993			3	2	1	
1994			3	2	1	
1995			1	2	3	
1996			1	2	3	
1997			2	1	3	
1998			3	1	2	
Average Relative Performance -			2.10	1.90	2.00	
Cumulative annual returns -		25				
Last two years			115.94	100.67	129.63	114.02
Last five years			105.25	101.20	113.57	93.09
Factor average		26				74.45
Factor median		27				48.39
Factor standard deviation		28				105.66

*See Exhibit 2 for all definitions

EXHIBIT 5D
Mexico Dividend Yield
Sample Period: 12/88-5/98
Number of Observations: 109 Monthly

Performance Measure/ Summary Statistic		Note*	Portfolios - value weighted -1-	-2-	-3-	Market portfolio
Annualized average return (USD)		1	13.99	8.64	27.17	15.98
Cumulative return (indexed at 100 to start)		2	328.56	212.20	887.24	384.58
STD Deviation of returns		3	36.79	32.11	40.61	33.33
Average annual excess return	Rm	4	-1.99	-7.35	11.18	
	Rf	5	8.47	3.35	21.06	
STD Deviation of excess rtns	Rm	6	19.91	13.21	15.54	
	Rf	7	36.76	32.12	40.57	
		8				
Systematic risk (Beta)		9	0.93	0.89	1.13	
Alpha		10	-0.72	-4.90	7.36	
Co-efficient of determination		11				
Average market cap		12				10146.22
% periods > Benchmark		13	51.38	46.79	56.88	
% periods > Bench up Mkt		14	40.58	44.93	63.77	
% periods > Bench Dn Mkt		15	70.00	50.00	45.00	
Max # of consecutive bmark outperformance		16	5	5	5	
Maximum positive excess return		17	16.46	8.26	23.16	
Maximum negative excess return		18	-33.90	-13.22	-7.94	
% periods positive returns to negative		19	179.49	142.22	159.52	
% periods of negative returns		20	35.78	41.28	38.53	36.70
Max # of consecutive negative periods		21	3	6	4	4
Max # of consecutive positive periods		22	9	5	6	9
Cumulative annual returns - (index=100 each year)		23				
In sample 1989			124.31	106.89	157.54	132.46
1990			180.82	111.33	170.30	129.69
1991			152.01	144.08	274.45	206.76
1992			88.24	123.42	107.33	121.18
1993			133.18	155.87	181.13	149.90
1994			82.44	55.64	52.87	59.36
1995			78.39	86.61	66.40	74.02
(Hold out) of sample 1996			119.65	128.46	139.49	117.83
1997			158.48	136.28	152.11	150.45
Through May 1998			66.78	76.27	83.23	76.52
Relative Performance -		24				
1989			2	1	3	
1990			3	1	2	
1991			2	1	3	
1992			1	3	2	
1993			1	2	3	
1994			3	2	1	
1995			2	3	1	
1996			1	2	3	
1997			3	1	2	
1998			1	2	3	
Average Relative Performance -			1.90	1.80	2.30	
Cumulative annual returns -		25				
Last two years			104.96	107.20	145.76	114.02
Last five years			106.25	99.96	111.17	93.09
Factor average		26				4.49
Factor median		27				1.93
Factor standard deviation		28				7.10

*See Exhibit 2 for all definitions

EXHIBIT 5E

Mexico — One-Year Historical Earnings Momentum
Sample Period: 12/88-5/98
Number of Observations: 114 Monthly

Performance Measure/ Summary Statistic		Note*	Portfolios - value weighted -1-	-2-	-3-	Market portfolio
Annualized average return (USD)		1	26.30	16.28	10.50	18.54
Cumulative return (indexed at 100 to start)		2	919.04	419.19	258.17	503.29
STD Deviation of returns		3	36.24	34.90	32.19	33.10
Average annual excess return	Rm	4	7.76	-2.26	-8.04	
	Rf	5	20.07	10.51	4.99	
STD Deviation of excess rtns	Rm	6	9.49	11.86	12.93	
	Rf	7	36.21	34.85	32.16	
		8				
Systematic risk (Beta)		9	1.06	0.99	0.90	
Alpha		10	5.45	-1.80	-5.33	
Co-efficient of determination		11				
Average market cap		12				7547.70
% periods > Benchmark		13	58.77	50.88	43.86	
% periods > Bench up Mkt		14	61.11	51.39	38.89	
% periods > Bench Dn Mkt		15	54.76	50.00	52.38	
Max # of consecutive bmark outperformance		16	8	5	12	
Maximum positive excess return		17	12.29	11.90	15.06	
Maximum negative excess return		18	-6.26	-13.13	-10.80	
% periods positive returns to negative		19	185.00	159.09	142.55	
% periods of negative returns		20	35.09	38.60	41.23	36.84
Max # of consecutive negative periods		21	4	7	4	4
Max # of consecutive positive periods		22	8	7	6	9
Cumulative annual returns - (index=100 each year)		23				
In sample 1989			180.65	195.03	150.43	173.35
1990			134.77	151.73	116.60	129.69
1991			271.68	141.97	136.87	206.76
1992			133.27	120.55	117.93	121.18
1993			176.25	142.55	131.21	149.90
1994			54.42	62.25	67.99	59.36
1995			62.52	78.81	78.93	74.02
(Hold out) of sample 1996			127.81	121.82	104.76	117.83
1997			159.84	140.73	158.00	150.45
Through May 1998			85.10	69.04	78.24	76.52
Relative Performance -		24				
1989			2	3	1	
1990			2	3	1	
1991			3	2	1	
1992			3	2	1	
1993			3	2	1	
1994			1	2	3	
1995			1	2	3	
1996			3	2	1	
1997			3	1	2	
1998			3	1	2	
Average Relative Performance -			2.40	2.00	1.60	
Cumulative annual returns -		25				
Last two years			142.46	99.25	112.18	114.02
Last five years			100.02	90.27	94.66	93.09
Factor average		26				221.17
Factor median		27				11.49
Factor standard deviation		28				655.32

*See Exhibit 2 for all definitions

EXHIBIT 5F

Mexico — Three-Year Historical Earnings Growth Rate
Sample Period: 12/88-5/98
Number of Observations: 114 Monthly

Performance Measure/ Summary Statistic		Note*	Portfolios - value weighted -1-	-2-	-3-	Market portfolio
Annualized average return (USD)		1	18.15	17.06	20.57	18.54
Cumulative return (indexed at 100 to start)		2	487.56	446.42	591.43	503.29
STD Deviation of returns		3	36.01	36.18	30.98	33.10
Average annual excess return	Rm	4	-0.40	-1.49	2.03	
	Rf	5	12.29	11.25	14.61	
STD Deviation of excess rtns	Rm	6	12.28	13.82	14.98	
	Rf	7	35.97	36.15	30.96	
		8				
Systematic risk (Beta)		9	1.02	1.01	0.84	
Alpha		10	-0.73	-1.45	4.54	
Co-efficient of determination		11				
Average market cap		12				9232.91
% periods > Benchmark		13	47.37	52.63	57.89	
% periods > Bench up Mkt		14	54.17	52.78	47.22	
% periods > Bench Dn Mkt		15	35.71	52.38	76.19	
Max # of consecutive bmark outperformance		16	4	7	6	
Maximum positive excess return		17	12.27	9.24	10.63	
Maximum negative excess return		18	-8.72	-19.29	-13.06	
% periods positive returns to negative		19	159.09	142.55	185.00	
% periods of negative returns		20	38.60	41.23	35.09	36.84
Max # of consecutive negative periods		21	4	5	5	4
Max # of consecutive positive periods		22	7	6	9	9
Cumulative annual returns - (index=100 each year)		23				
In sample 1989			152.35	192.62	182.83	173.35
1990			148.51	129.60	115.45	129.69
1991			238.90	174.76	194.51	206.76
1992			125.76	108.67	113.66	121.18
1993			139.61	189.17	154.61	149.90
1994			53.79	61.29	75.55	59.36
1995			79.10	62.48	81.99	74.02
(Hold out) of sample 1996			117.26	123.02	113.75	117.83
1997			138.30	131.03	159.38	150.45
Through May 1998			74.46	80.64	73.01	76.52
Relative Performance -		24				
1989			1	3	2	
1990			3	2	1	
1991			3	1	2	
1992			3	1	2	
1993			1	3	2	
1994			1	2	3	
1995			2	1	3	
1996			2	3	1	
1997			2	1	3	
1998			2	3	1	
Average Relative Performance -			2.00	2.00	2.00	
Cumulative annual returns -		25				
Last two years			100.12	108.06	115.42	114.02
Last five years			80.65	85.69	124.28	93.09
Factor average		26				44.19
Factor median		27				27.16
Factor standard deviation		28				57.40

*See Exhibit 2 for all definitions

EXHIBIT 5G

Mexico Earnings Yield
Sample Period: 12/88-5/98
Number of Observations: 114 Monthly

Performance Measure/ Summary Statistic		Note*	Portfolios - value weighted -1-	-2-	-3-	Market portfolio
Annualized average return (USD)		1	23.16	26.37	11.70	18.54
Cumulative return (indexed at 100 to start)		2	723.76	923.62	286.03	503.29
STD Deviation of returns		3	35.97	36.35	32.71	33.10
Average annual excess return	Rm	4	4.62	7.82	-6.85	
	Rf	5	17.08	20.14	6.13	
STD Deviation of excess rtns	Rm	6	11.97	11.53	13.89	
	Rf	7	35.93	36.31	32.70	
		8				
Systematic risk (Beta)		9	1.02	1.04	0.90	
Alpha		10	3.46	5.77	-4.31	
Co-efficient of determination		11				
Average market cap		12				7128.23
% periods > Benchmark		13	52.63	59.65	41.23	
% periods > Bench up Mkt		14	52.78	61.11	34.72	
% periods > Bench Dn Mkt		15	52.38	57.14	52.38	
Max # of consecutive bmark outperformance		16	9	11	6	
Maximum positive excess return		17	10.58	14.77	12.20	
Maximum negative excess return		18	-10.88	-7.61	-11.88	
% periods positive returns to negative		19	178.05	178.05	137.50	
% periods of negative returns		20	35.96	35.96	42.11	36.84
Max # of consecutive negative periods		21	5	7	4	4
Max # of consecutive positive periods		22	9	7	5	9
Cumulative annual returns - (index=100 each year)		23				
In sample 1989			245.92	165.00	150.71	173.35
1990			126.15	157.70	122.71	129.69
1991			172.48	265.60	137.50	206.76
1992			165.69	96.93	147.34	121.18
1993			159.28	161.03	155.81	149.90
1994			56.22	66.64	59.35	59.36
1995			68.04	74.03	78.52	74.02
(Hold out) of sample 1996			115.23	133.34	96.59	117.83
1997			155.14	159.18	142.82	150.45
Through May 1998			74.95	81.78	76.22	76.52
Relative Performance -		24				
1989			3	2	1	
1990			2	3	1	
1991			2	3	1	
1992			3	1	2	
1993			2	3	1	
1994			1	3	2	
1995			1	2	3	
1996			2	3	1	
1997			2	3	1	
1998			1	3	2	
Average Relative Performance -			1.90	2.60	1.50	
Cumulative annual returns -		25				
Last two years			115.85	136.26	94.42	114.02
Last five years			77.21	157.69	75.48	93.09
Factor average		26				-17.18
Factor median		27				6.23
Factor standard deviation		28				111.56

*See Exhibit 2 for all definitions

EXHIBIT 5H

Mexico — Change in Consensus FY1 Estimate — Last Three Months
Sample Period: 9/92-5/98
Number of Observations: 69 Monthly

Performance Measure/ Summary Statistic		Note*	Portfolios - value weighted -1-	-2-	-3-	Market portfolio
Annualized average return (USD)		1	7.08	3.27	-0.03	2.51
Cumulative return (indexed at 100 to start)		2	148.22	120.29	99.83	115.35
STD Deviation of returns		3	36.48	39.54	37.75	36.10
Average annual excess return	Rm	4	4.57	0.75	-2.54	
	Rf	5	2.46	-1.21	-4.37	
STD Deviation of excess rtns	Rm	6	8.29	8.16	9.54	
	Rf	7	36.54	39.59	37.79	
		8				
Systematic risk (Beta)		9	0.98	1.07	1.01	
Alpha		10	4.42	0.55	-2.55	
Co-efficient of determination		11				
Average market cap		12				10902.29
% periods > Benchmark		13	50.72	52.17	47.83	
% periods > Bench up Mkt		14	53.66	60.98	43.90	
% periods > Bench Dn Mkt		15	46.43	39.29	53.57	
Max # of consecutive bmark outperformance		16	6	5	4	
Maximum positive excess return		17	6.52	10.24	5.32	
Maximum negative excess return		18	-4.98	-4.00	-7.39	
% periods positive returns to negative		19	165.38	146.43	130.00	
% periods of negative returns		20	37.68	40.58	43.48	40.58
Max # of consecutive negative periods		21	3	3	5	3
Max # of consecutive positive periods		22	4	4	4	4
Cumulative annual returns - (index=100 each year)		23				
In sample 1992			124.93	142.30	130.06	129.09
1993			181.44	155.89	126.29	149.90
1994			64.24	52.88	69.31	59.36
1995			61.09	84.99	59.46	74.02
Out of sample 1996			131.27	118.80	124.36	117.83
1997			155.32	137.75	154.57	150.45
1998			81.73	73.74	76.72	76.52
(Hold out) of sample 1996		24				
1992			1	3	2	
Through May 1998			3	2	1	
1994			2	1	3	
1995			2	3	1	
1996			3	1	2	
1997			3	1	2	
1998			3	1	2	
Average Relative Performance -			2.43	1.71	1.86	
Cumulative annual returns -		25				
Last two years			132.06	103.40	112.79	114.02
Last five years			113.99	86.59	86.89	93.09
Factor average		26				-14.27
Factor median		27				-2.34
Factor standard deviation		28				136.92

*See Exhibit 2 for all definitions

Exhibit 5I

**Mexico — Change in Consensus FY1 Estimate —
Last Six Months
Sample Period: 12/92-5/98
Number of Observations: 66 Monthly**

Performance Measure/ Summary Statistic		Note*	Portfolios - value weighted -1-	-2-	-3-	Market portfolio
Annualized average return (USD)		1	5.48	-8.11	-2.59	-2.03
Cumulative return (indexed at 100 to start)		2	134.07	62.81	86.56	89.35
STD Deviation of returns		3	35.53	41.77	37.11	36.20
Average annual excess return	Rm	4	7.50	-6.08	-0.56	
	Rf	5	0.85	-12.18	-6.89	
STD Deviation of excess rtns	Rm	6	7.34	9.08	10.50	
	Rf	7	35.57	41.80	37.14	
		8				
Systematic risk (Beta)		9	0.96	1.13	0.98	
Alpha		10	7.31	-6.11	-0.61	
Co-efficient of determination		11				
Average market cap		12				11053.77
% periods > Benchmark		13	63.64	46.97	40.91	
% periods > Bench up Mkt		14	63.16	55.26	34.21	
% periods > Bench Dn Mkt		15	64.29	35.71	50.00	
Max # of consecutive bmark outperformance		16	5	4	4	
Maximum positive excess return		17	5.44	9.02	9.32	
Maximum negative excess return		18	-5.12	-7.39	-8.66	
% periods positive returns to negative		19	135.71	127.59	120.00	
% periods of negative returns		20	42.42	43.94	45.45	42.42
Max # of consecutive negative periods		21	5	4	4	3
Max # of consecutive positive periods		22	4	4	4	4
Cumulative annual returns - (index=100 each year)		23				
In sample 1993			175.35	140.84	139.25	149.90
1994			62.21	53.48	68.65	59.36
1995			74.06	65.41	66.29	74.02
Out of sample 1996			138.07	117.40	125.04	117.83
1997			160.28	149.24	134.56	150.45
1998			74.99	72.77	81.18	76.52
Relative Performance -		24				
(Hold out) of sample 1996			3	2	1	
1994			2	1	3	
Through May 1998			3	1	2	
1996			3	1	2	
1997			3	2	1	
1998			2	1	3	
Average Relative Performance -			2.67	1.33	2.00	
Cumulative annual returns -		25				
Last two years			126.14	108.62	102.39	114.02
Last five years			131.23	70.27	87.45	93.09
Factor average		26				-49.03
Factor median		27				-4.77
Factor standard deviation		28				310.43

Exhibit 5J

**Mexico — Consensus FY2 to FY1 Estimate Change
Sample Period: 12/88-5/98
Number of Observations: 72 Monthly**

Performance Measure/ Summary Statistic		Note*	Portfolios - value weighted -1-	-2-	-3-	Market portfolio
Annualized average return (USD)		1	2.90	-2.77	-0.39	0.22
Cumulative return (indexed at 100 to start)		2	118.74	84.47	97.70	101.33
STD Deviation of returns		3	37.26	40.51	38.74	35.56
Average annual excess return	Rm	4	2.68	-3.00	-0.61	
	Rf	5	-1.51	-6.96	-4.67	
STD Deviation of excess rtns	Rm	6	9.57	10.51	12.58	
	Rf	7	37.30	40.55	38.78	
		8				
Systematic risk (Beta)		9	1.01	1.11	1.03	
Alpha		10	2.64	-3.05	-0.61	
Co-efficient of determination		11				
Average market cap		12				11506.71
% periods > Benchmark		13	55.56	55.56	44.44	
% periods > Bench up Mkt		14	56.10	58.54	43.90	
% periods > Bench Dn Mkt		15	54.84	51.61	45.16	
Max # of consecutive bmark outperformance		16	7	7	7	
Maximum positive excess return		17	6.18	6.56	15.51	
Maximum negative excess return		18	-7.06	-9.15	-10.63	
% periods positive returns to negative		19	157.14	132.26	148.28	
% periods of negative returns		20	38.89	43.06	40.28	43.06
Max # of consecutive negative periods		21	3	3	5	3
Max # of consecutive positive periods		22	7	4	6	4
Cumulative annual returns - (index=100 each year)		23				
In sample 1992			121.78	131.29	103.09	113.41
1993			173.35	139.97	157.75	149.90
1994			54.09	54.53	62.75	59.36
1995			76.25	53.19	77.97	74.02
Out of sample 1996			116.68	131.17	109.26	117.83
1997			155.08	153.01	147.20	150.45
1998			75.37	78.95	76.36	76.52
(Hold out) of sample 1996		24				
1992			2	3	1	
Through May 1998			3	1	2	
1994			1	2	3	
1995			2	1	3	
1996			2	3	1	
1997			3	2	1	
1998			1	3	2	
Average Relative Performance -			2.00	2.14	1.86	
Cumulative annual returns -		25				
Last two years			112.73	126.77	99.68	114.02
Last five years			99.62	68.18	97.38	93.09
Factor average		26				35.95
Factor median		27				21.70
Factor standard deviation		28				201.95

EXHIBIT 5K

Mexico Consensus Forecast Earnings Estimate Revision Ratio
Sample Period: 12/88-5/98
Number of Observations: 72 Monthly

Performance Measure/ Summary Statistic		Note*	Portfolios - value weighted -1-	-2-	-3-	Market portfolio
Annualized average return (USD)		1	5.78	-0.05	-1.20	0.22
Cumulative return (indexed at 100 to start)		2	140.08	99.69	93.02	101.33
STD Deviation of returns		3	36.14	38.85	38.49	35.56
Average annual excess return	Rm	4	5.56	-0.27	-1.42	
	Rf	5	1.25	-4.35	-5.45	
STD Deviation of excess rtns	Rm	6	8.41	9.58	9.97	
	Rf	7	36.19	38.89	38.52	
		8				
Systematic risk (Beta)		9	0.99	1.06	1.05	
Alpha		10	5.41	-0.29	-1.44	
Co-efficient of determination		11				
Average market cap		12				9921.93
% periods > Benchmark		13	58.33	52.78	43.06	
% periods > Bench up Mkt		14	51.22	58.54	51.22	
% periods > Bench Dn Mkt		15	67.74	45.16	32.26	
Max # of consecutive bmark outperformance		16	6	5	4	
Maximum positive excess return		17	8.86	9.53	7.47	
Maximum negative excess return		18	-7.54	-10.31	-6.98	
% periods positive returns to negative		19	148.28	118.18	94.59	
% periods of negative returns		20	40.28	45.83	51.39	43.06
Max # of consecutive negative periods		21	4	3	6	3
Max # of consecutive positive periods		22	4	4	4	4
Cumulative annual returns - (index=100 each year)		23				
In sample 1992			121.19	120.34	111.50	113.41
1993			168.55	160.76	143.53	149.90
1994			66.01	54.92	57.87	59.36
1995			73.56	72.45	62.81	74.02
Out of sample 1996			125.61	117.39	119.83	117.83
1997			139.37	150.63	168.51	150.45
1998			80.67	73.24	79.18	76.52
(Hold out) of sample 1996		24				
1992			3	2	1	
Through May 1998			3	2	1	
1994			3	1	2	
1995			3	2	1	
1996			3	1	2	
1997			1	2	3	
1998			3	1	2	
Average Relative Performance -			2.71	1.57	1.71	
Cumulative annual returns -		25				
Last two years			114.83	105.33	130.67	114.02
Last five years			118.65	79.33	91.22	93.09
Factor average		26				-0.02
Factor median		27				-0.01
Factor standard deviation		28				0.00

*See Exhibit 2 for all definitions

EXHIBIT 5L

Mexico Book-to-Price Yield
Sample Period: 12/88-5/98
Number of Observations: 114 Monthly

Performance Measure/ Summary Statistic		Note*	Portfolios - value weighted -1-	-2-	-3-	Market portfolio
Annualized average return (USD)		1	11.36	19.41	22.76	18.54
Cumulative return (indexed at 100 to start)		2	278.03	539.58	701.33	503.29
STD Deviation of returns		3	36.95	34.73	35.21	33.10
Average annual excess return	Rm	4	-7.18	0.87	4.21	
	Rf	5	5.82	13.50	16.69	
STD Deviation of excess rtns	Rm	6	17.20	10.02	9.20	
	Rf	7	36.91	34.69	35.18	
		8				
Systematic risk (Beta)		9	0.99	1.00	1.03	
Alpha		10	-6.11	0.67	3.08	
Co-efficient of determination		11				
Average market cap		12				7064.66
% periods > Benchmark		13	44.74	56.14	55.26	
% periods > Bench up Mkt		14	38.89	51.39	56.94	
% periods > Bench Dn Mkt		15	54.76	64.29	52.38	
Max # of consecutive bmark outperformance		16	4	6	7	
Maximum positive excess return		17	24.17	7.74	14.01	
Maximum negative excess return		18	-13.63	-9.81	-7.89	
% periods positive returns to negative		19	132.65	171.43	165.12	
% periods of negative returns		20	42.98	36.84	37.72	36.84
Max # of consecutive negative periods		21	5	7	3	4
Max # of consecutive positive periods		22	8	11	7	9
Cumulative annual returns - (index=100 each year)		23				
In sample 1989			237.12	180.62	163.56	173.35
1990			115.83	129.25	161.74	129.69
1991			138.46	209.64	239.52	206.76
1992			114.65	93.86	128.39	121.18
1993			137.10	168.82	151.60	149.90
1994			66.36	64.59	56.02	59.36
1995			65.50	77.03	66.31	74.02
(Hold out) of sample 1996			103.53	116.68	126.20	117.83
1997			151.59	152.91	152.94	150.45
Through May 1998			68.18	78.38	79.30	76.52
Relative Performance -		24				
1989			3	2	1	
1990			1	2	3	
1991			1	2	3	
1992			2	1	3	
1993			1	3	2	
1994			3	2	1	
1995			1	3	2	
1996			1	2	3	
1997			1	2	3	
1998			1	2	3	
Average Relative Performance -			1.50	2.10	2.40	
Cumulative annual returns -		25				
Last two years			89.35	122.82	119.33	114.02
Last five years			64.84	109.86	92.34	93.09
Factor average		26				86.50
Factor median		27				72.46
Factor standard deviation		28				131.58

*See Exhibit 2 for all definitions

EXHIBIT 5M
Mexico Cash Earnings-to-Price Yield
Sample Period: 12/88-5/98
Number of Observations: 65 Monthly

Performance Measure/ Summary Statistic		Note*	Portfolios - value weighted -1-	-2-	-3-	Market portfolio
Annualized average return (USD)		1	0.71	4.97	0.27	-1.02
Cumulative return (indexed at 100 to start)		2	103.90	130.03	101.49	94.60
STD Deviation of returns		3	36.33	37.20	37.68	36.38
Average annual excess return	Rm	4	1.73	5.99	1.29	
	Rf	5	-3.74	0.34	-4.16	
STD Deviation of excess rtns	Rm	6	7.33	8.28	12.73	
	Rf	7	36.37	37.24	37.71	
		8				
Systematic risk (Beta)		9	0.98	1.00	0.98	
Alpha		10	1.71	5.88	1.27	
Co-efficient of determination		11				
Average market cap		12				10156.78
% periods > Benchmark		13	56.92	64.62	49.23	
% periods > Bench up Mkt		14	57.89	63.16	47.37	
% periods > Bench Dn Mkt		15	55.56	66.67	51.85	
Max # of consecutive bmark outperformance		16	7	6	5	
Maximum positive excess return		17	4.76	6.23	15.04	
Maximum negative excess return		18	-4.51	-5.60	-9.12	
% periods positive returns to negative		19	140.74	170.83	109.68	
% periods of negative returns		20	41.54	36.92	47.69	41.54
Max # of consecutive negative periods		21	3	3	4	3
Max # of consecutive positive periods		22	4	6	5	4
Cumulative annual returns - (index=100 each year)		23				
In sample 1993			157.23	164.11	171.20	158.71
1994			64.65	67.48	57.55	59.36
1995			72.42	79.01	79.90	74.02
Out of sample 1996			113.66	135.38	105.59	117.83
1997			156.74	144.05	155.82	150.45
1998			79.22	76.20	78.35	76.52
Relative Performance -		24				
(Hold out) of sample 1996			1	2	3	
1994			2	3	1	
Through May 1998			1	2	3	
1996			2	3	1	
1997			3	1	2	
1998			3	1	2	
Average Relative Performance -			2.00	2.00	2.00	
Cumulative annual returns -		25				
Last two years			124.25	110.00	120.64	114.02
Last five years			99.05	136.51	97.45	93.09
Factor average		26				-29.03
Factor median		27				7.41
Factor standard deviation		28				176.82

EXHIBIT 5N
Mexico One-Month Price Momentum
Sample Period: 12/88-5/98
Number of Observations: 114 Monthly

Performance Measure/ Summary Statistic		Note*	Portfolios - value weighted -1-	-2-	-3-	Market portfolio
Annualized average return (USD)		1	18.55	18.25	18.85	18.54
Cumulative return (indexed at 100 to start)		2	503.61	491.61	515.96	503.29
STD Deviation of returns		3	34.36	35.00	35.09	33.10
Average annual excess return	Rm	4	0.01	-0.29	0.31	
	Rf	5	12.67	12.39	12.96	
STD Deviation of excess rtns	Rm	6	12.65	10.10	12.76	
	Rf	7	34.32	34.99	35.06	
		8				
Systematic risk (Beta)		9	0.97	1.01	0.99	
Alpha		10	0.60	-0.46	0.48	
Co-efficient of determination		11				
Average market cap		12				7103.83
% periods > Benchmark		13	48.25	54.39	54.39	
% periods > Bench up Mkt		14	44.44	56.94	52.78	
% periods > Bench Dn Mkt		15	54.76	50.00	57.14	
Max # of consecutive bmark outperformance		16	5	6	7	
Maximum positive excess return		17	11.87	6.57	8.73	
Maximum negative excess return		18	-11.46	-9.81	-9.72	
% periods positive returns to negative		19	147.83	159.09	153.33	
% periods of negative returns		20	40.35	38.60	39.47	36.84
Max # of consecutive negative periods		21	4	5	5	4
Max # of consecutive positive periods		22	10	7	7	9
Cumulative annual returns - (index=100 each year)		23				
In sample 1989			162.21	184.53	201.41	173.35
1990			160.28	106.74	133.58	129.69
1991			237.74	164.48	172.52	206.76
1992			121.75	146.26	106.51	121.18
1993			162.62	139.87	168.78	149.90
1994			55.39	58.86	73.14	59.36
1995			65.49	73.28	64.55	74.02
(Hold out) of sample 1996			97.43	140.38	118.54	117.83
1997			160.00	144.37	152.00	150.45
Through May 1998			72.77	84.85	72.69	76.52
Relative Performance -		24				
1989			1	2	3	
1990			3	1	2	
1991			3	1	2	
1992			2	3	1	
1993			2	1	3	
1994			1	2	3	
1995			2	3	1	
1996			1	3	2	
1997			3	1	2	
1998			2	3	1	
Average Relative Performance -			2.00	2.00	2.00	
Cumulative annual returns -		25				
Last two years			98.68	128.82	113.13	114.02
Last five years			69.08	114.75	91.63	93.09
Factor average		26				1.26
Factor median		27				0.08
Factor standard deviation		28				11.67

EXHIBIT 5O
Mexico One-Year Price Momentum
Sample Period: 12/88-5/98
Number of Observations: 114 Monthly

Performance Measure/ Summary Statistic		Note*	Portfolios - value weighted -1-	-2-	-3-	Market portfolio
Annualized average return (USD)		1	30.58	14.68	11.58	18.54
Cumulative return (indexed at 100 to start)		2	1261.53	367.33	283.28	503.29
STD Deviation of returns		3	35.57	35.56	38.23	33.10
Average annual excess return	Rm	4	12.04	-3.87	-6.96	
	Rf	5	24.16	8.98	6.03	
STD Deviation of excess rtns	Rm	6	10.62	13.23	19.48	
	Rf	7	35.52	35.53	38.20	
		8				
Systematic risk (Beta)		9	1.03	1.00	0.99	
Alpha		10	9.41	-3.31	-6.01	
Co-efficient of determination		11				
Average market cap		12				7506.26
% periods > Benchmark		13	62.28	47.37	52.63	
% periods > Bench up Mkt		14	70.83	43.06	45.83	
% periods > Bench Dn Mkt		15	47.62	54.76	64.29	
Max # of consecutive bmark outperformance		16	6	7	6	
Maximum positive excess return		17	11.40	11.45	25.51	
Maximum negative excess return		18	-6.55	-17.02	-17.35	
% periods positive returns to negative		19	159.00	137.50	159.09	
% periods of negative returns		20	38.60	42.11	38.60	36.84
Max # of consecutive negative periods		21	5	7	6	4
Max # of consecutive positive periods		22	6	7	12	9
Cumulative annual returns - (index=100 each year)		23				
In sample 1989			210.44	170.10	197.01	173.35
1990			163.22	105.75	124.46	129.69
1991			242.93	215.32	128.01	206.76
1992			119.66	101.46	133.08	121.18
1993			181.50	143.09	131.46	149.90
1994			66.25	65.42	58.76	59.36
1995			81.93	68.37	67.72	74.02
(Hold out) of sample 1996			120.15	121.16	103.04	117.83
1997			144.86	149.01	165.21	150.45
Through May 1998			73.69	80.90	76.16	76.52
Relative Performance -		24				
1989			3	1	2	
1990			3	1	2	
1991			3	2	1	
1992			2	1	3	
1993			3	2	1	
1994			3	2	1	
1995			3	2	1	
1996			2	3	1	
1997			1	2	3	
1998			1	3	2	
Average Relative Performance -			2.40	1.90	1.70	
Cumulative annual returns -		25				
Last two years			109.94	115.44	113.92	114.02
Last five years			123.80	103.29	67.47	93.09
Factor average		26				22.62
Factor median		27				16.84
Factor standard deviation		28				52.39

*See Exhibit 2 for all definitions

EXHIBIT 5P
Mexico — Twelve-Month Prospective Earnings Growth Rate
Sample Period: 12/88-5/98
Number of Observations: 72 Monthly

Performance Measure/ Summary Statistic		Note*	Portfolios - value weighted -1-	-2-	-3-	Market portfolio
Annualized average return (USD)		1	2.20	2.89	-0.04	0.22
Cumulative return (indexed at 100 to start)		2	113.93	118.61	99.75	101.33
STD Deviation of returns		3	38.56	36.71	37.37	35.56
Average annual excess return	Rm	4	1.98	2.66	-0.26	
	Rf	5	-2.19	-1.52	-4.34	
STD Deviation of excess rtns	Rm	6	10.15	8.35	9.34	
	Rf	7	38.60	36.75	37.41	
		8				
Systematic risk (Beta)		9	1.05	1.01	1.02	
Alpha		10	1.94	2.63	-0.27	
Co-efficient of determination		11				
Average market cap		12				10070.91
% periods > Benchmark		13	59.72	52.78	55.56	
% periods > Bench up Mkt		14	60.98	46.34	58.54	
% periods > Bench Dn Mkt		15	58.06	61.29	51.61	
Max # of consecutive bmark outperformance		16	6	5	8	
Maximum positive excess return		17	8.36	7.83	7.67	
Maximum negative excess return		18	-10.07	-5.55	-6.17	
% periods positive returns to negative		19	125.00	140.00	140.00	
% periods of negative returns		20	44.44	41.67	41.67	43.06
Max # of consecutive negative periods		21	4	3	5	3
Max # of consecutive positive periods		22	8	4	9	4
Cumulative annual returns - (index=100 each year)		23				
In sample 1992			124.46	118.92	108.76	113.41
1993			163.74	141.37	178.69	149.90
1994			57.43	63.79	55.94	59.36
1995			70.97	71.25	66.56	74.02
Out of sample 1996			117.66	130.05	114.95	117.83
1997			142.03	146.09	163.59	150.45
1998			82.09	81.70	73.31	76.52
(Hold out) of sample 1996		24				
1992			3	2	1	
Through May 1998			2	1	3	
1994			2	3	1	
1995			2	3	1	
1996			2	3	1	
1997			1	2	3	
1998			3	2	1	
Average Relative Performance -			2.14	2.29	1.57	
Cumulative annual returns -		25				
Last two years			111.06	125.80	115.22	114.02
Last five years			89.35	113.11	83.95	93.09
Factor average		26				345.44
Factor median		27				32.40
Factor standard deviation		28				393.63

*See Exhibit 2 for all definitions

EXHIBIT 5Q

Mexico — Three-Year Prospective Earnings Growth Rate
Sample Period: 12/88-5/98
Number of Observations: 72 Monthly

Performance Measure/ Summary Statistic		Note*	Portfolios - value weighted -1-	-2-	-3-	Market portfolio
Annualized average return (USD)		1	3.97	-1.27	3.91	0.22
Cumulative return (indexed at 100 to start)		2	126.33	92.60	125.85	101.33
STD Deviation of returns		3	41.82	37.05	36.21	35.56
Average annual excess return	Rm	4	3.75	-1.49	3.68	
	Rf	5	-0.48	-5.52	-0.54	
STD Deviation of excess rtns	Rm	6	13.21	9.21	10.37	
	Rf	7	41.85	37.09	36.25	
		8				
Systematic risk (Beta)		9	1.12	1.01	0.98	
Alpha		10	3.65	-1.50	3.62	
Co-efficient of determination		11				
Average market cap		12				12214.12
% periods > Benchmark		13	52.78	45.83	55.56	
% periods > Bench up Mkt		14	58.54	43.90	56.10	
% periods > Bench Dn Mkt		15	45.16	48.39	54.84	
Max # of consecutive bmark outperformance		16	5	3	7	
Maximum positive excess return		17	15.58	8.88	8.66	
Maximum negative excess return		18	-9.17	-6.47	-7.22	
% periods positive returns to negative		19	125.00	118.18	140.00	
% periods of negative returns		20	44.44	45.83	41.67	43.06
Max # of consecutive negative periods		21	5	6	3	3
Max # of consecutive positive periods		22	8	4	4	4
Cumulative annual returns - (index=100 each year)		23				
In sample 1992			127.67	120.82	108.03	113.41
1993			166.49	144.33	162.09	149.90
1994			52.88	50.37	70.79	59.36
1995			76.10	78.61	63.44	74.02
Out of sample 1996			134.74	115.53	127.67	117.83
1997			148.90	142.81	163.33	150.45
1998			73.62	81.29	76.75	76.52
(Hold out) of sample 1996		24				
1992			3	2	1	
Through May 1998			3	1	2	
1994			2	1	3	
1995			2	3	1	
1996			3	1	2	
1997			2	1	3	
1998			1	3	2	
Average Relative Performance -			2.29	1.71	2.00	
Cumulative annual returns -		25				
Last two years			113.65	117.34	122.33	114.02
Last five years			99.98	83.75	112.85	93.09
Factor average		26				41.91
Factor median		27				16.98
Factor standard deviation		28				125.35

*See Exhibit 2 for all definitions

EXHIBIT 5R

Mexico — Twelve-Month Prospective Earnings Yield
Sample Period: 12/88-5/98
Number of Observations: 72 Monthly

Performance Measure/ Summary Statistic		Note*	Portfolios - value weighted -1-	-2-	-3-	Market portfolio
Annualized average return (USD)		1	-2.60	2.39	5.97	0.22
Cumulative return (indexed at 100 to start)		2	85.37	115.21	141.60	101.33
STD Deviation of returns		3	38.46	37.63	35.21	35.56
Average annual excess return	Rm	4	-2.82	2.17	5.75	
	Rf	5	-6.80	-2.00	1.44	
STD Deviation of excess rtns	Rm	6	8.60	7.47	10.14	
	Rf	7	38.50	37.67	35.26	
		8				
Systematic risk (Beta)		9	1.06	1.04	0.95	
Alpha		10	-2.87	2.13	5.60	
Co-efficient of determination		11				
Average market cap		12				10005.47
% periods > Benchmark		13	48.61	54.17	55.56	
% periods > Bench up Mkt		14	48.78	53.66	48.78	
% periods > Bench Dn Mkt		15	48.39	54.84	64.52	
Max # of consecutive bmark outperformance		16	5	9	5	
Maximum positive excess return		17	8.06	4.64	7.20	
Maximum negative excess return		18	-9.44	-4.62	-5.54	
% periods positive returns to negative		19	140.00	140.00	132.26	
% periods of negative returns		20	41.67	41.67	43.06	43.06
Max # of consecutive negative periods		21	5	5	4	3
Max # of consecutive positive periods		22	4	4	4	4
Cumulative annual returns - (index=100 each year)		23				
In sample 1992			119.75	105.83	138.61	113.41
1993			136.88	166.76	170.47	149.90
1994			57.65	64.23	60.05	59.36
1995			70.33	72.81	68.05	74.02
Out of sample 1996			123.95	122.10	112.27	117.83
1997			158.02	142.74	160.93	150.45
1998			65.59	80.10	81.16	76.52
(Hold out) of sample 1996		24				
1992			2	1	3	
Through May 1998			1	2	3	
1994			1	3	2	
1995			2	3	1	
1996			3	2	1	
1997			2	1	3	
1998			1	2	3	
Average Relative Performance -			1.71	2.00	2.29	
Cumulative annual returns -		25				
Last two years			100.37	118.01	126.80	114.02
Last five years			78.13	114.39	100.43	93.09
Factor average		26				2.41
Factor median		27				7.95
Factor standard deviation		28				37.27

*See Exhibit 2 for all definitions

EXHIBIT 5S

Mexico — Twenty-Four-Month Prospective Earnings Yield
Sample Period: 12/88-5/98
Number of Observations: 72 Monthly

Performance Measure/ Summary Statistic		Note*	Portfolios - value weighted -1-	-2-	-3-	Market portfolio
Annualized average return (USD)		1	-0.03	0.69	6.59	0.22
Cumulative return (indexed at 100 to start)		2	99.84	104.19	146.64	101.33
STD Deviation of returns		3	38.70	37.66	35.24	35.56
Average annual excess return	Rm	4	-0.25	0.47	6.37	
	Rf	5	-4.32	-3.64	2.03	
STD Deviation of excess rtns	Rm	6	9.12	8.40	9.95	
	Rf	7	38.74	37.70	35.29	
		8				
Systematic risk (Beta)		9	1.06	1.03	0.95	
Alpha		10	-0.26	0.46	6.19	
Co-efficient of determination		11				
Average market cap		12				10003.78
% periods > Benchmark		13	45.83	48.61	58.33	
% periods > Bench up Mkt		14	46.34	51.22	56.10	
% periods > Bench Dn Mkt		15	45.16	45.16	61.29	
Max # of consecutive bmark outperformance		16	4	6	7	
Maximum positive excess return		17	8.06	7.41	7.20	
Maximum negative excess return		18	-6.64	-6.85	-6.25	
% periods positive returns to negative		19	132.26	148.28	140.00	
% periods of negative returns		20	43.06	40.28	41.67	43.06
Max # of consecutive negative periods		21	6	5	4	3
Max # of consecutive positive periods		22	4	9	4	4
Cumulative annual returns - (index=100 each year)		23				
In sample 1992			124.54	100.52	139.68	113.41
1993			150.89	165.43	162.34	149.90
1994			56.49	66.68	59.53	59.36
1995			70.32	77.21	65.25	74.02
Out of sample 1996			126.02	114.32	124.44	117.83
1997			164.38	138.06	162.46	150.45
1998			64.56	77.11	82.34	76.52
(Hold out) of sample 1996		24				
1992			2	1	3	
Through May 1998			1	3	2	
1994			1	3	2	
1995			2	3	1	
1996			3	1	2	
1997			3	1	2	
1998			1	2	3	
Average Relative Performance -			1.86	2.00	2.14	
Cumulative annual returns -		25				
Last two years			104.92	105.49	131.44	114.02
Last five years			80.83	107.85	107.48	93.09
Factor average		26				4.56
Factor median		27				9.14
Factor standard deviation		28				35.13

*See Exhibit 2 for all definitions

EXHIBIT 5T

Mexico Revenue Growth
Sample Period: 12/88-5/98
Number of Observations: 114 Monthly

Performance Measure/ Summary Statistic		Note*	Portfolios - value weighted -1-	-2-	-3-	Market portfolio
Annualized average return (USD)		1	25.47	18.78	16.63	18.54
Cumulative return (indexed at 100 to start)		2	863.23	512.93	431.30	503.29
STD Deviation of returns		3	40.40	33.48	34.23	33.10
Average annual excess return	Rm	4	6.93	0.24	-1.91	
	Rf	5	19.28	12.89	10.84	
STD Deviation of excess rtns	Rm	6	14.47	12.23	13.70	
	Rf	7	40.34	33.43	34.23	
		8				
Systematic risk (Beta)		9	1.15	0.94	0.95	
Alpha		10	3.22	1.17	-0.77	
Co-efficient of determination		11				
Average market cap		12				9425.12
% periods > Benchmark		13	53.51	54.39	51.75	
% periods > Bench up Mkt		14	61.11	51.39	51.39	
% periods > Bench Dn Mkt		15	40.48	59.52	52.38	
Max # of consecutive bmark outperformance		16	9	5	8	
Maximum positive excess return		17	21.75	8.55	11.62	
Maximum negative excess return		18	-6.84	-13.40	-12.25	
% periods positive returns to negative		19	165.12	159.09	159.09	
% periods of negative returns		20	37.72	38.60	38.60	36.84
Max # of consecutive negative periods		21	3	6	4	4
Max # of consecutive positive periods		22	8	7	6	9
Cumulative annual returns - (index=100 each year)		23				
In sample 1989			247.35	187.68	171.04	173.35
1990			150.26	143.12	107.50	129.69
1991			297.36	177.38	148.03	206.76
1992			129.44	98.72	103.34	121.18
1993			162.62	147.71	165.59	149.90
1994			57.47	60.79	79.04	59.36
1995			59.70	74.85	86.25	74.02
(Hold out) of sample 1996			107.41	130.20	119.67	117.83
1997			138.98	147.23	170.55	150.45
Through May 1998			72.45	84.66	66.56	76.52
Relative Performance -		24				
1989			3	2	1	
1990			3	2	1	
1991			3	2	1	
1992			3	1	2	
1993			2	1	3	
1994			1	2	3	
1995			1	2	3	
1996			1	3	2	
1997			1	2	3	
1998			2	3	1	
Average Relative Performance -			2.00	2.00	2.00	
Cumulative annual returns -		25				
Last two years			95.88	136.59	108.60	114.02
Last five years			65.79	104.45	147.95	93.09
Factor average		26				118.12
Factor median		27				29.29
Factor standard deviation		28				317.73

*See Exhibit 2 for all definitions

Exhibit 5U

Mexico Rate of Reinvestment
Sample Period: 12/88-5/98
Number of Observations: 114 Monthly

Performance Measure/ Summary Statistic		Note*	Portfolios - value weighted -1-	-2-	-3-	Market portfolio
Annualized average return (USD)		1	23.76	22.24	9.91	18.54
Cumulative return (indexed at 100 to start)		2	757.76	673.96	245.48	503.29
STD Deviation of returns		3	37.28	34.35	30.96	33.10
Average annual excess return	Rm	4	5.22	3.70	-8.63	
	Rf	5	17.65	16.20	4.43	
STD Deviation of excess rtns	Rm	6	9.69	10.68	14.09	
	Rf	7	37.23	34.32	30.93	
		8				
Systematic risk (Beta)		9	1.09	0.99	0.85	
Alpha		10	2.82	3.35	-5.02	
Co-efficient of determination		11				
Average market cap		12				7375.71
% periods > Benchmark		13	54.39	60.53	39.47	
% periods > Bench up Mkt		14	59.72	56.94	30.56	
% periods > Bench Dn Mkt		15	45.24	66.67	54.76	
Max # of consecutive bmark outperformance		16	7	5	7	
Maximum positive excess return		17	11.73	9.13	10.29	
Maximum negative excess return		18	-6.39	-9.27	-12.30	
% periods positive returns to negative		19	171.43	153.33	132.65	
% periods of negative returns		20	36.84	39.47	42.98	36.84
Max # of consecutive negative periods		21	3	7	4	4
Max # of consecutive positive periods		22	8	7	6	9
Cumulative annual returns - (index=100 each year)		23				
In sample 1989			218.37	194.71	149.82	173.35
1990			136.96	139.83	122.20	129.69
1991			269.44	170.51	129.98	206.76
1992			125.64	121.27	122.05	121.18
1993			152.34	160.20	126.58	149.90
1994			55.90	59.45	79.86	59.36
1995			69.08	71.50	81.26	74.02
(Hold out) of sample 1996			116.42	130.91	96.25	117.83
1997			142.45	160.98	147.25	150.45
Through May 1998			76.72	83.42	70.31	76.52
Relative Performance -		24				
1989			3	2	1	
1990			2	3	1	
1991			3	2	1	
1992			3	1	2	
1993			2	3	1	
1994			1	2	3	
1995			1	2	3	
1996			2	3	1	
1997			1	3	2	
1998			2	3	1	
Average Relative Performance -			2.00	2.40	1.60	
Cumulative annual returns -		25				
Last two years			108.23	140.37	87.75	114.02
Last five years			80.35	119.40	86.56	93.09
Factor average		26				2.37
Factor median		27				8.59
Factor standard deviation		28				46.01

*See Exhibit 2 for all definitions

Exhibit 5V

Mexico Return on Equity
**Sample Period: 12/88-5/98**
Number of Observations: 114 Monthly

Performance Measure/ Summary Statistic		Note*	Portfolios - value weighted -1-	-2-	-3-	Market portfolio
Annualized average return (USD)		1	23.57	17.34	12.43	18.54
Cumulative return (indexed at 100 to start)		2	746.75	456.98	304.44	503.29
STD Deviation of returns		3	36.15	34.53	31.42	33.10
Average annual excess return	Rm	4	5.03	-1.20	-6.11	
	Rf	5	17.47	11.52	6.84	
STD Deviation of excess rtns	Rm	6	8.75	12.83	15.56	
	Rf	7	36.11	34.49	31.40	
		8				
Systematic risk (Beta)		9	1.06	0.97	0.84	
Alpha		10	3.17	-0.50	-2.61	
Co-efficient of determination		11				
Average market cap		12				7518.39
% periods > Benchmark		13	54.39	56.14	43.86	
% periods > Bench up Mkt		14	55.56	50.00	36.11	
% periods > Bench Dn Mkt		15	52.38	66.67	57.14	
Max # of consecutive bmark outperformance		16	7	8	6	
Maximum positive excess return		17	9.69	13.53	11.95	
Maximum negative excess return		18	-6.75	-11.29	-11.56	
% periods positive returns to negative		19	185.00	147.83	119.23	
% periods of negative returns		20	35.09	40.35	45.61	36.84
Max # of consecutive negative periods		21	3	7	4	4
Max # of consecutive positive periods		22	8	6	7	9
Cumulative annual returns - (index=100 each year)		23				
In sample 1989			205.15	187.67	155.48	173.35
1990			129.26	143.66	122.24	129.69
1991			269.80	146.83	142.35	206.76
1992			125.90	110.21	129.79	121.18
1993			148.94	168.98	121.54	149.90
1994			58.38	53.91	89.04	59.36
1995			71.50	70.40	75.27	74.02
(Hold out) of sample 1996			122.66	128.36	95.81	117.83
1997			139.21	162.78	145.94	150.45
Through May 1998			78.09	78.18	76.12	76.52
Relative Performance -		24				
1989			3	2	1	
1990			2	3	1	
1991			3	2	1	
1992			2	1	3	
1993			2	3	1	
1994			2	1	3	
1995			2	1	3	
1996			2	3	1	
1997			1	3	2	
1998			2	3	1	
Average Relative Performance -			2.10	2.20	1.70	
Cumulative annual returns -		25				
Last two years			111.13	127.00	98.67	114.02
Last five years			89.17	100.12	94.55	93.09
Factor average		26				6.81
Factor median		27				11.78
Factor standard deviation		28				46.24

*See Exhibit 2 for all definitions

EXHIBIT 6
Factor Performance Summary for Mexico

	Sample Period	Number of Observations	Average Annualized Return		Return Spread Top/ Bottom	Annualized Excess Returns		Std. Dev. of Annualized Returns		Std. Dev. of Top/Bottom Spread Returns	% Periods Benchmark Outperformance	
			Top	Bottom		Top	Bottom	Top	Bottom		Top	Bottom
Market Capitalization	12/88–5/98	114	7.22	22.31	−15.09	−11.32	3.77	35.15	34.99	27.47	40.35	61.40
Change in Return on Equity	12/88–5/98	114	28.83	10.50	18.33	10.29	−8.05	37.79	35.30	20.36	59.65	50.00
Debt to Common Equity	12/88–5/98	114	26.45	17.07	9.38	7.91	−1.47	41.22	31.20	23.51	57.89	50.00
Dividend Yield	5/89–5/98	109	13.99	27.17	−13.17	−1.99	11.18	36.79	40.61	29.86	51.38	56.88
One-Year Historical Earnings Momentum	12/88–5/98	114	26.30	10.50	15.80	7.76	−8.04	36.24	32.19	19.13	58.77	43.86
Three-Year Historical Earnings Growth Rate	12/88–5/98	114	18.15	20.57	−2.43	−0.40	2.03	36.01	30.98	21.39	47.37	57.89
Earnings Yield	12/88–5/98	114	23.16	11.70	11.47	4.62	−6.85	35.97	32.71	19.37	52.63	41.23
Change in Consensus FY1 Estimate — Last Three Months	9/92–5/98	69	7.08	−0.03	7.11	4.57	−2.54	36.48	37.75	12.97	50.72	47.83
Change in Consensus FY1 Estimate — Last Six Months	12/92–5/98	66	5.48	−2.59	8.07	7.50	−0.56	35.53	37.11	13.01	63.64	40.91
Consensus FY2 to FY1 Estimate Change	6/92–5/98	72	2.90	−0.39	3.29	2.68	−0.61	37.26	38.74	18.09	55.56	44.44
Consensus Forecast Earnings Estimate Revision Ratio	6/92–5/98	72	5.78	−1.20	6.98	5.56	−1.42	36.14	38.49	14.93	58.33	43.06
Book-to-Price Yield	12/88–5/98	114	11.36	22.76	−11.39	−7.18	4.21	36.95	35.21	22.06	44.74	55.26
Cash Earnings to Price Yield	1/93–5/98	65	0.71	0.27	0.44	1.73	1.29	36.33	37.68	16.17	56.92	49.23
One-Month Price Momentum	12/88–5/98	114	18.55	18.85	−0.30	0.01	0.31	34.36	35.09	22.02	48.25	54.39
One-Year Price Momentum	12/88–5/98	114	30.58	11.58	19.00	12.04	−6.96	35.57	38.23	25.41	59.72	52.63
Twelve-Month Prospective Earnings Growth Rate	6/92–5/98	72	2.20	−0.04	2.24	1.98	−0.26	38.56	37.37	16.29	52.78	55.56
Three-Year Prospective Earnings Growth Rate	6/92–5/98	72	3.97	3.91	0.07	3.75	3.68	41.82	36.21	17.86	48.61	55.56
Twelve-Month Prospective Earnings Yield	6/92–5/98	72	−2.60	5.97	−8.57	−2.82	5.75	38.46	35.21	14.03	45.83	58.33
Twenty-Four-Month Prospective Earnings Yield	6/92–5/98	72	−0.03	6.59	−6.61	−0.25	6.37	38.70	35.24	14.06	53.51	51.75
Revenue Growth	12/88–5/98	114	25.47	16.63	8.84	6.93	−1.91	40.40	34.23	21.79	54.39	39.47
Rate of Reinvestment	12/88–5/98	114	23.76	9.91	13.85	5.22	−8.63	37.28	30.96	20.09	54.39	43.86
Return on Equity	12/88–5/98	114	23.57	12.43	11.14	5.03	−6.11	36.15	31.42	20.65		

EXHIBIT 7
Average Factor Returns — Top and Bottom Fractiles
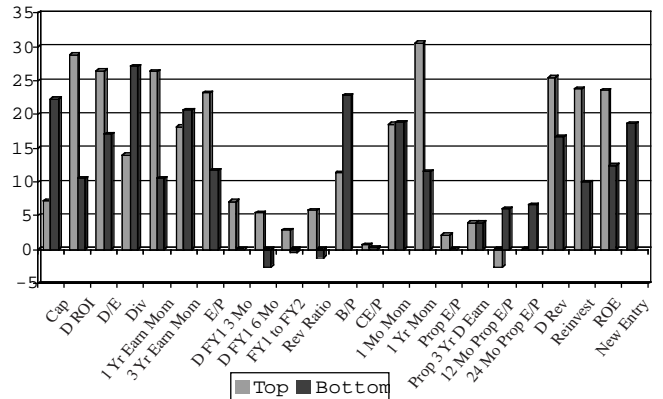
top portfolio one-year historical growth. During this period, a passive investment in the benchmark rose in value to $114.02.

Fundamental Factors. One remarkable feature about the Mexican results is what doesn't work. In particular, the performance of the fundamental factors (such as earnings yield, book-to-price ratio, and earnings growth screens) is surprising. The top-bottom portfolio spread for the book-to-price ratio screen is a massive −11.39%, although much of this is probably attributable to a large-capitalization size effect.

We find that the low average-market capitalization stocks collected in the top portfolio through time

EXHIBIT 8
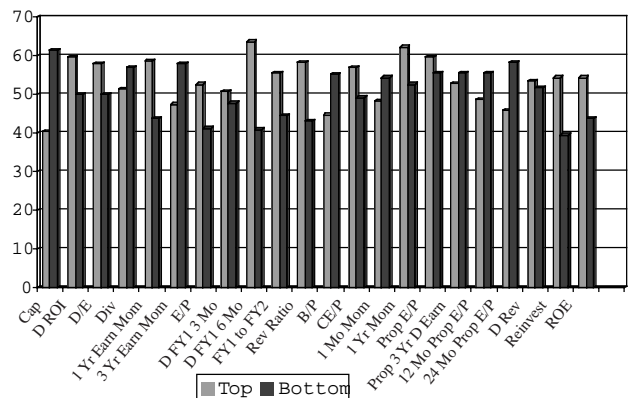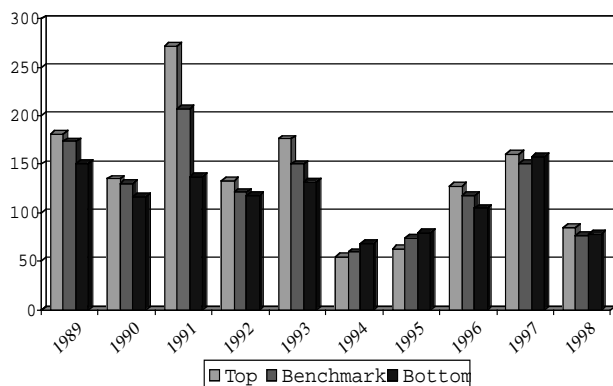### Percent of Periods Benchmark Outperformance

EXHIBIT 9
One-Year Earnings Momentum Screen:
Index = 100 Each Year

(MP 2,582.67m, compared with an average universe market capitalization of MP 7,064.66m and bottom portfolio of MP 19,671.02). The large-capitalization-small-capitalization average return spread differential equals 15.09% a year. This may also impact the earnings yield factor screen, although there is some effect originating from the collection of historical loss-making firms in this portfolio.

Excluding the loss-making stocks allows the bottom portfolio to return an average 15.48% a year (compared with an average annualized 11.70% earned including these firms — resulting in an inclusion-exclusion spread of 3.78%) and a top-minus-bottom portfolio spread differential of 8.42%. This is more pronounced on an equal-weighted basis where the bottom portfolio inclusion-exclusion spread is an average annualized 8.25%. The average market capitalization of the excluded loss-making firms is MP 2,896m.

Exhibit 9 details the performance of the one-year earnings momentum screen. In all but two years, the highest fractile outperforms the lowest fractile. In all but the same two years, the highest fractile outperforms the benchmark. The two years of underperformance are important years, however: 1994 and 1995.

Expectation Factors. As observed in the other emerging markets we have studied, revision screens deliver consistent performance through time, with consensus forecast earnings revision ratios and change in consensus FY1 earnings over the last six months earning the highest top portfolio relative performance

scores across all factors: 2.71 and 2.67, respectively.

Technical Indicators. Longer-term (one-year) price momentum generates a large return premium of 12.04% a year, although the high top portfolio relative performance score earned in the in-sample period (of almost 3) is somewhat less in the out-of-sample period (marginally above 1). This is evidenced further in the last-two-year cumulative performance, where $100.00 invested would have increased to $109.94 compared with a passive investment in the benchmark, which earned $114.02.

This strategy still delivers the highest top portfolio-minus-bottom portfolio spread of an annualized 19% a year. The momentum effect does not seem to persist in shorter-duration strategies.

Longer-term price momentum strategies appear to show high correlation coefficients with other momentum strategies such as one-year historical earnings growth and change in consensus FY1 factors.

Size. There appear to be large size effects in Mexico.[5] Top portfolio market capitalization underperformed the market by an average −11.32% a year, evidenced further by a massive annualized −15.09% small-capitalization (top portfolio)-large-capitalization (bottom portfolio) spread. Much of the small-capitalization performance was generated in 1989, and this strategy has underperformed the market portfolio in seven out of the ten sample years (although 1998 cannot be regarded as a full year).

Indeed, small-capitalization stocks have underperformed the market portfolio every year since the end of 1994, and $100.00 invested five years before the end of the sample would have fallen to $55.48. A passive investment in the benchmark over the same time period would be worth $93.09.

Unreported correlation coefficients between market capitalization and the top and bottom portfolios of the fundamental factors show relatively high values for book-to-price ratio and dividend yield. This is also reflected in the correspondingly high correlation coefficients measured between bottom portfolios.

Negative correlation coefficients between market capitalization and return on equity along with the average size of firms in the top portfolio (MP 11,672m) compared with the average size of bottom portfolio firms (MP 2,992m) reinforces the ex ante hypothesis that smaller-capitalization firms are generally of poorer perceived quality as proxied by the return on equity factor.

EXHIBIT 10A

Mexico Scoring Model
Sample Period: 12/88-5/98
Number of Observations: 114 Monthly

Performance Measure/ Summary Statistic		Note*	Portfolios - equal weighted			Portfolios - value weighted			Market portfolio
			-1-	-2-	-3-	-1-	-2-	-3-	
Annualized average return (USD)		1	30.08	9.45	5.02	33.75	10.44	9.92	18.54
Cumulative return (indexed at 100 - start)		2	1216.09	235.83	159.22	1584.39	256.75	245.68	503.29
STD Deviation of returns		3	34.99	31.90	34.05	36.54	33.69	35.39	33.10
Average annual excess return	Rm	4	11.54	-9.09	-13.53	15.21	-8.11	-8.62	
	Rf	5	23.68	3.99	-0.24	27.19	4.93	4.44	
STD Deviation of excess rtns	Rm	6	15.50	11.89	16.06	10.43	10.76	13.53	
	Rf	7	34.93	31.89	34.03	36.51	33.65	35.37	
T-stat: Average XS return Rm = 0		8	1.99	-2.20	-2.29	3.92	-1.99	-1.55	
Systematic risk (Beta)		9	0.95	0.90	0.91	1.06	0.97	0.99	
Alpha		10	10.33	-6.35	-10.71	11.28	-6.57	-7.43	
Co-efficient of determination		11	0.81	0.87	0.78				
Average market cap		12	8942.21	7427.25	5647.08				7338.84
% periods > Benchmark		13	53.51	39.47	34.21	63.16	50.00	42.11	
% periods > Bench up Mkt		14	45.83	33.33	30.56	63.89	48.61	41.67	
% periods > Bench Dn Mkt		15	66.67	50.00	40.48	61.90	52.38	42.86	
Max # of consecutive bmark outperformance		16	10	4	2	6	7	6	
Maximum positive excess return		17	33.17	8.28	18.26	13.58	7.85	12.57	
Maximum negative excess return		18	-7.78	-10.61	-12.26	-5.44	-10.55	-11.84	
% periods positive returns to negative		19	192.31	147.83	115.09	208.11	147.83	119.23	
% periods of negative returns		20	34.21	40.35	46.49	32.46	40.35	45.61	36.84
Max # of consecutive negative periods		21	5	5	6	3	4	5	4
Max # of consecutive positive periods		22	17	7	7	9	7	5	9
Cumulative annual returns - (index=100 each year)		23							
In sample 1989			271.59	163.85	154.75	200.39	190.02	161.50	173.35
1990			154.90	110.14	121.39	148.57	122.40	129.24	129.69
1991			185.16	139.18	131.12	260.78	159.06	121.16	206.76
1992			114.11	118.82	114.36	128.97	104.35	130.54	121.18
1993			166.65	178.35	142.92	176.87	148.17	146.03	149.90
1994			66.09	61.69	58.44	62.73	56.73	54.49	59.36
1995			76.51	67.95	57.35	87.32	62.36	65.62	74.02
Hold out of sample 1996			128.63	119.79	107.45	131.63	112.89	121.91	117.83
1997			161.21	130.70	139.57	150.43	150.79	166.69	150.45
Through May 1998			78.29	67.50	78.68	82.48	74.52	70.14	76.52
Relative Performance -		24							
1989			3	2	1	3	2	1	
1990			3	1	2	3	1	2	
1991			3	2	1	3	2	1	
1992			1	3	2	2	1	3	
1993			2	3	1	3	2	1	
1994			3	2	1	3	2	1	
1995			3	2	1	3	1	2	
1996			3	2	1	3	1	2	
1997			3	1	2	1	2	3	
1998			2	1	3	3	2	1	
Average Relative Performance -			2.60	1.90	1.50	2.70	1.60	1.70	
Cumulative annual returns -		25							
Last two years			123.86	89.56	96.07	128.25	116.50	108.67	114.02
Last five years			138.24	71.29	58.60	161.02	67.48	74.55	93.09
Factor average		26	3.23	0.81	-0.85				1.09
Factor median		27	3.00	1.00	-0.50				1.00
Factor standard deviation		28	1.70	0.59	1.00				1.77

*All definitions in Exhibit 1

EXHIBIT 10B

Mexico Scoring Model
Sample Period: 12/88-3/98
Number of Observations: 38 Quarterly

Performance Measure/ Summary Statistic		Note*	Portfolios - equal weighted -1-	-2-	-3-	Portfolios - value weighted -1-	-2-	-3-	Market portfolio
Annualized average return (USD)		1	28.79	7.46	2.81	32.85	11.79	10.44	18.54
Cumulative return (indexed at 100 - start)		2	1106.14	198.02	130.07	1486.02	288.35	256.86	503.29
STD Deviation of returns		3	40.38	37.25	35.25	41.76	38.07	38.03	37.75
Average annual excess return	Rm	4	10.24	-11.09	-15.74	14.31	-6.75	-8.10	
	Rf	5	22.61	2.07	-2.41	26.53	6.24	4.94	
STD Deviation of excess rtns	Rm	6	13.39	12.44	15.37	11.50	11.71	16.18	
	Rf	7	40.25	37.21	35.14	41.62	37.95	37.89	
T-stat: Average XS return Rm = 0		8	2.19	-2.49	-3.04	3.56	-1.54	-1.34	
Systematic risk (Beta)		9	1.01	0.93	0.85	1.07	0.96	0.92	
Alpha		10	8.58	-8.95	-12.05	10.93	-5.38	-5.85	
Co-efficient of determination		11	0.89	0.89	0.83				
Average market cap		12	8742.64	7670.41	5509.39				7307.48
% periods > Benchmark		13	60.53	34.21	28.95	68.42	39.47	34.21	
% periods > Bench up Mkt		14	62.50	33.33	16.67	66.67	33.33	37.50	
% periods > Bench Dn Mkt		15	57.14	35.71	50.00	71.43	50.00	28.57	
Max # of consecutive bmark outperformance		16	7	5	2	7	2	3	
Maximum positive excess return		17	19.59	10.83	14.31	18.04	14.34	15.51	
Maximum negative excess return		18	-9.03	-18.62	-23.05	-6.24	-19.37	-22.99	
% periods positive returns to negative		19	192.31	153.33	137.50	171.43	153.33	153.33	
% periods of negative returns		20	34.21	39.47	42.11	36.84	39.47	39.47	36.84
Max # of consecutive negative periods		21	3	3	3	4	3	3	3
Max # of consecutive positive periods		22	7	3	6	7	3	5	6
Cumulative annual returns - (index=100 each year)		23							
In sample 1989			210.69	158.70	170.48	218.73	170.74	177.44	173.35
1990			147.40	116.63	124.41	129.51	128.97	153.63	129.69
1991			181.70	146.28	116.68	264.49	161.61	120.39	206.76
1992			119.10	114.75	119.71	130.74	99.25	130.41	121.18
1993			168.08	179.73	132.81	173.06	150.88	139.03	149.90
1994			66.83	65.37	56.43	59.14	65.57	52.52	59.36
1995			85.21	59.11	55.37	90.11	62.40	61.93	74.02
Hold out of sample 1996			133.54	108.18	109.81	131.54	113.13	122.86	117.83
1997			168.58	127.24	135.41	149.96	156.79	152.01	150.45
Through May 1998			76.38	66.67	71.16	83.39	74.57	71.07	76.52
Relative Performance -		24							
1989			3	1	2	3	1	2	
1990			3	1	2	2	1	3	
1991			3	2	1	3	2	1	
1992			2	1	3	3	1	2	
1993			2	3	1	3	2	1	
1994			3	2	1	2	3	1	
1995			3	2	1	3	2	1	
1996			3	1	2	3	1	2	
1997			3	1	2	1	3	2	
1998			3	1	2	3	2	1	
Average Relative Performance -			2.80	1.50	1.70	2.60	1.80	1.60	
Cumulative annual returns -		25							
Last two years			133.91	77.20	85.62	130.88	117.94	100.26	114.02
Last five years			165.11	59.89	46.97	152.74	84.08	59.62	93.09
Factor average		26	3.27	0.82	-0.84				1.11
Factor median		27	3.00	1.00	-0.50				1.00
Factor standard deviation		28	1.69	0.60	1.01				1.74

*All definitions in Exhibit 1

EXHIBIT 10C

Mexico Scoring Model
Sample Period: 12/88-12/98
Number of Observations: 19 Semiannual

Performance Measure/ Summary Statistic	Note*	Portfolios - equal weighted -1-	-2-	-3-	Portfolios - value weighted -1-	-2-	-3-	Market portfolio
Annualized average return (USD)	1	25.72	9.63	1.38	26.60	15.78	10.06	18.54
Cumulative return (indexed at 100 - start)	2	879.52	239.56	113.86	939.79	402.19	248.49	503.29
STD Deviation of returns	3	36.23	35.20	36.33	41.33	36.99	39.55	36.13
Average annual excess return Rm	4	7.17	-8.91	-17.17	8.05	-2.77	-8.49	
Rf	5	19.87	4.17	-3.87	20.73	10.17	4.59	
STD Deviation of excess rtns Rm	6	14.67	15.19	18.78	14.43	14.33	16.82	
Rf	7	35.90	34.99	36.14	41.10	36.57	39.34	
T-stat: Average XS return Rm = 0	8	1.31	-1.70	-2.67	1.81	-0.47	-1.25	
Systematic risk (Beta)	9	0.92	0.89	0.87	1.07	0.95	0.99	
Alpha	10	7.91	-6.32	-14.08	5.95	-1.58	-7.77	
Co-efficient of determination	11	0.84	0.83	0.75				
Average market cap	12	9171.03	7080.80	5006.66				7086.16
% periods > Benchmark	13	73.68	42.11	31.58	68.42	47.37	42.11	
% periods > Bench up Mkt	14	69.23	38.46	30.77	69.23	38.46	46.15	
% periods > Bench Dn Mkt	15	83.33	50.00	33.33	66.67	66.67	33.33	
Max # of consecutive bmark outperformance	16	10	3	3	3	3	2	
Maximum positive excess return	17	34.08	11.41	16.90	21.88	24.24	19.24	
Maximum negative excess return	18	-23.74	-29.56	-41.26	-16.23	-26.54	-29.83	
% periods positive returns to negative	19	216.67	171.43	137.50	280.00	171.43	171.43	
% periods of negative returns	20	31.58	36.84	42.11	26.32	36.84	36.84	31.58
Max # of consecutive negative periods	21	3	4	4	3	4	4	3
Max # of consecutive positive periods	22	8	7	5	8	4	8	8
Cumulative annual returns - (index=100 each year)	23							
In sample 1989		188.31	165.81	171.40	180.30	190.42	165.08	173.35
1990		139.35	133.21	111.50	124.63	148.88	127.16	129.69
1991		196.88	134.22	116.69	259.29	154.56	139.83	206.76
1992		123.43	110.67	117.50	127.84	108.31	116.14	121.18
1993		160.32	170.62	143.76	161.09	159.21	161.70	149.90
1994		69.14	58.54	63.59	62.61	57.83	61.38	59.36
1995		81.10	64.77	50.00	77.63	74.71	57.14	74.02
Hold out of sample 1996		124.75	125.91	98.31	126.60	116.93	117.36	117.83
1997		160.79	137.79	133.11	151.49	152.18	154.59	150.45
Through May 1998		76.49	65.06	72.65	84.03	69.24	70.83	76.52
Relative Performance -	24							
1989		3	1	2	2	3	1	
1990		3	2	1	1	3	2	
1991		3	2	1	3	2	1	
1992		3	1	2	3	1	2	
1993		2	3	1	2	1	3	
1994		3	1	2	3	1	2	
1995		3	2	1	3	2	1	
1996		2	3	1	3	1	2	
1997		3	2	1	1	2	3	
1998		3	1	2	3	1	2	
Average Relative Performance -		2.80	1.80	1.40	2.40	1.70	1.90	
Cumulative annual returns -	25							
Last two years		122.35	86.57	82.30	132.53	106.20	101.57	114.02
Last five years		139.86	69.66	47.23	139.46	79.68	72.85	93.09
Factor average	26	3.35	0.87	-0.82				1.15
Factor median	27	3.00	1.00	-0.50				1.00
Factor standard deviation	28	1.78	0.63	1.07				1.81

*All definitions in Exhibit 1

It appears that change in consensus FY1 estimates over the last six months is particularly strong at discriminating on small- and midcapitalization stocks in the screen. For example, the average midcapitalization annualized spread across the top and bottom change in consensus FY1 forecast portfolio is a massive 27.43%, compared with a total annualized spread between top and bottom portfolios of 8.07%.

Scoring Screen Results Through May 1998. The scoring model screen with a monthly holding period earns an average excess return of 15.21% a year, with an excess return in the corresponding bottom portfolio of −8.62%, resulting in an average annualized return spread of 23.38%. The performance of the screens is presented in Exhibit 10. The scoring screens are summarized in Exhibit 11.

The strongest performance, after allowing for the effects of transaction costs, is delivered by the quarterly holding period screen, which returned a top portfolio average annualized excess return of 14.31% (and top-bottom return spread of 22.41%). This performance was achieved at marginally higher levels of portfolio risk (relative to monthly holding periods), measured by a standard deviation of 41.76% compared with a bottom portfolio of 38.03%, and systematic risk (beta of 1.07 compared to 0.92 in the bottom portfolio), although the top portfolio performed better in down markets. The maximum recorded negative quarterly excess return is −6.24%, compared to a similar return in the bottom portfolio of −22.99%.

EXHIBIT 11
Factor Performance Summary for Mexico

	Sample Period	Number of Obs.	Average Annualized Return		Return Spread Top/ Bottom	Annualized Excess Returns		Standard Deviation of Annualized Returns		Standard Deviation of Top/Bottom Spread Returns	% Periods Benchmark Outperformance	
			Top	Bottom		Top	Bottom	Top	Bottom		Top	Bottom
Scoring Model — Monthly Observations	12/88–5/98	114	33.75	9.92	23.83	15.21	−8.62	36.54	35.39	19.86	63.16	42.11
Scoring Model — Quarterly Observations	12/88–3/98	38	32.85	10.44	22.41	14.31	−8.10	41.76	38.03	24.62	68.42	34.21
Scoring Model — Semiannual Observations	12/88–12/97	19	26.60	10.06	16.54	8.05	−8.49	41.33	39.55	27.85	68.42	42.11

EXHIBIT 12
Scoring Screen for Various Holding Periods:
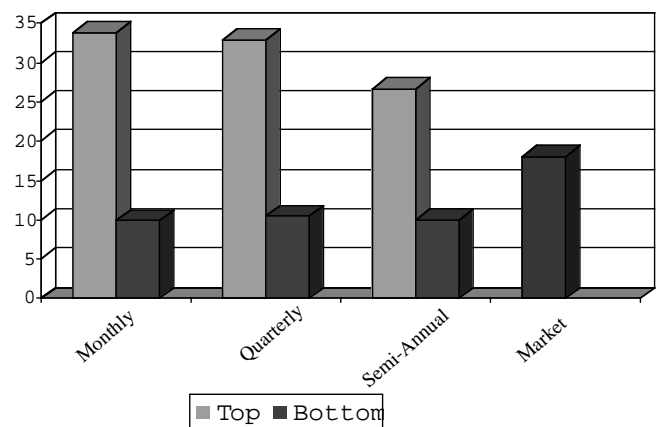
E X H I B I T 1 3
Scoring Screen — Percentage of Periods Benchmark Outperformance
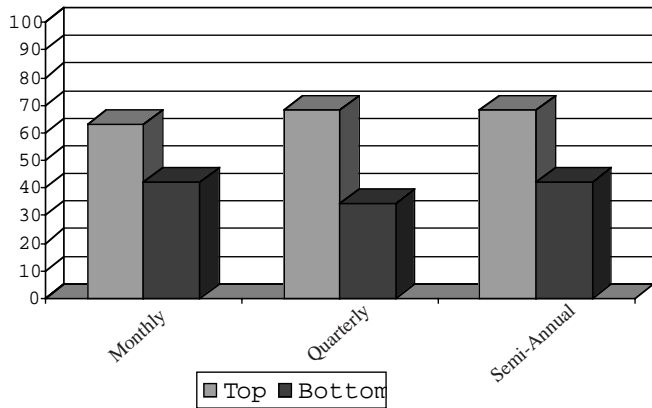

E X H I B I T 1 4
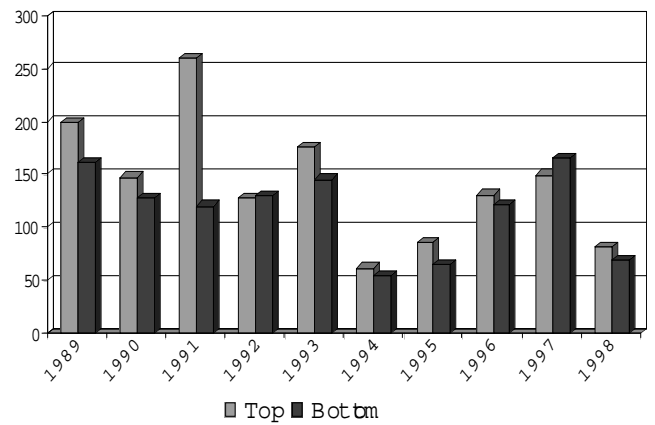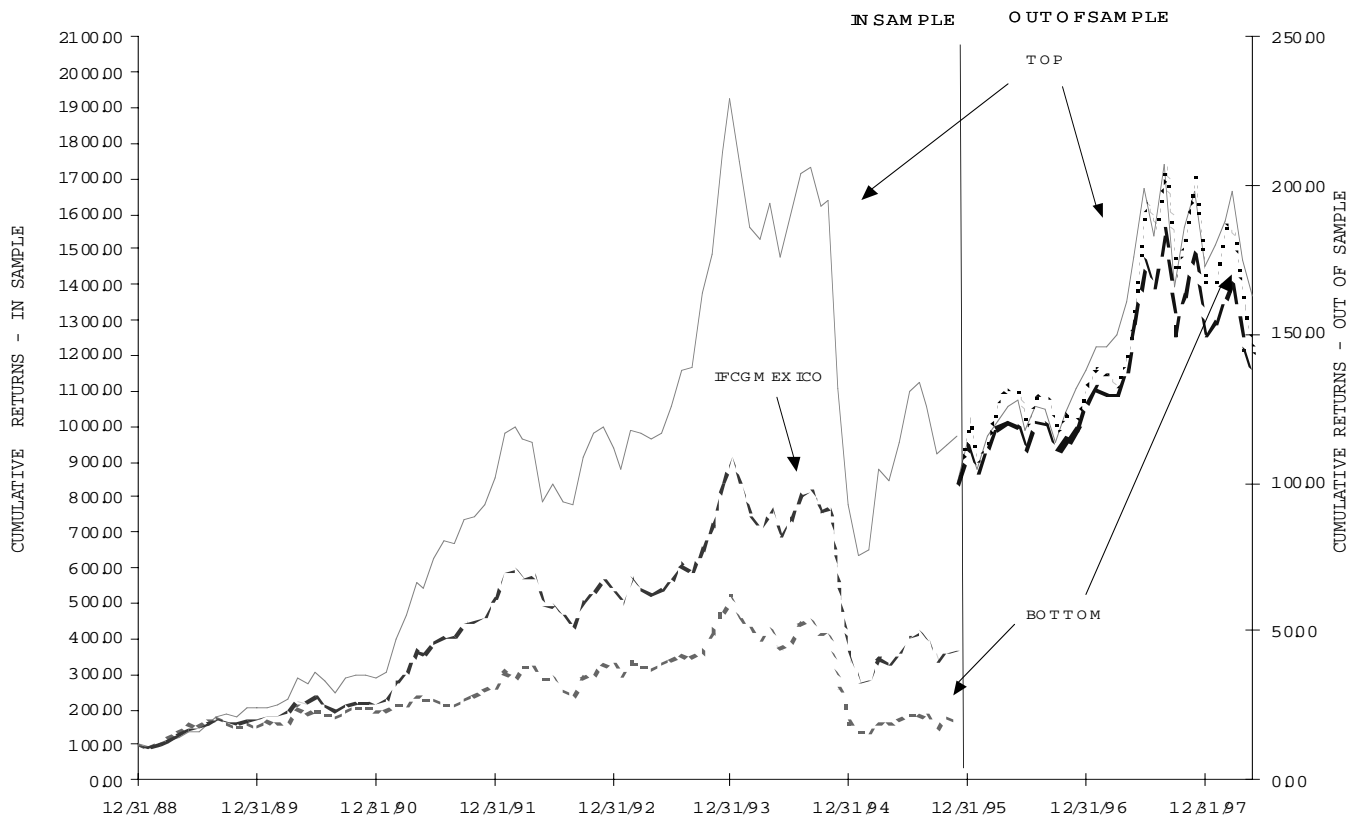**Scoring Screen: Index = 100 Each Year**

E X H I B I T 1 5
Scoring Screen In- and Out-of-Sample

The performance is similar under semiannual rebalancing. This is evident in Exhibits 12 and 13, which summarize the average returns for the top- and bottom-scoring fractile as well as the percentage of periods that the benchmark is exceeded.

Exhibit 14 presents the year-by-year results for the monthly rebalance screen. In every year except 1997, the top fractile return exceeds the bottom fractile return. While the outperformance is minimal in 1998, the first four months of 1999 suggest significant outperformance.

A reasonable question to ask is whether we are just picking up some sort of size effect. During the sample, large stocks outperformed small stocks.

Exhibit 15 displays a bivariate analysis of the scoring screen and market capitalization with data through April 1999. Across all size categories, the top fractile outperforms the bottom fractile. Not surprisingly, the best-performing portfolio is top-fractile large stocks, and the worst is bottom-fractile small stocks.

If one knew in advance that large stocks would outperform small stocks, the difference in the returns of these corner portfolios is on average 40% per year. The bivariate analysis of size provides evidence that the scoring screen is robust to the influence of size.

CONCLUSIONS

The past few years have been tumultuous for emerging markets. Mexico lost 37.5% of its market value in 1998. Even with the onset of the Brazilian crisis in January 1999, however, the market is up 54% through June 1999. The Mexican currency crisis in December 1994, the onset of the Asian crisis in July 1997, and the financial turmoil in Brazil earlier this year all emphasize the importance of a country selection mechanism.

For example, even though we show considerable ability to identify relative winners and losers in Mexico (top-portfolio performance is sharply better than bottom-portfolio), any investment in Mexico in the December 1994-February 1995 or the December 1997-December 1998 period is a bad one.

Even so, given the great volatility of emerging market equities, stock selection could be very important. Our analysis is useful in that we provide detailed information on the performance of various screening factors in both up and down markets.

Another useful part of our analysis is related to

the bottom portfolio. While it is virtually impossible to execute long-short (hedge) strategies in most emerging markets, the bottom portfolio yields important information about stocks to avoid. In light of recent events in many emerging markets, this type of risk control is increasingly important for active portfolio management.

ENDNOTES

[1]An early treatment of the cross-sectional determinants of emerging market returns is contained in Bekaert, Erb, Harvey, and Viskanta [1997] who detail the impact of a number of factors on country indices. Individual stock selection is the focus of Claessens, Dasgupta, and Glen [1998] and Rouwenhorst [1998].

[2]Many of the results are reported through May 1998, although we have updated the scoring screens to reflect data through May 1999.

[3]See, for instance, Bernstein [1995].

[4]See Bekaert, Harvey, and Lumsdaine [1999], Choe, Kho, and Stulz [1999], and Froot, O'Connell, and Seasholes [1999] for recent treatments of capital flows and returns.

[5]See Herrera and Lockwood [1994].

REFERENCES

Achour, Dana, Campbell R. Harvey, Greg Hopkins, and Clive Lang. "Stock Selection in Emerging Markets: Portfolio Strategies for Malaysia, Mexico, and South Africa." *Emerging Markets Quarterly*, 2 (1998), pp. 38-91.

——. "Stock Selection in Malaysia." *Emerging Markets Quarterly*, 3 (1999a), pp. 54-91.

——. "Stock Selection in South Africa." *Emerging Markets Quarterly*, forthcoming, 1999b.

Bekaert, Geert, Claude B. Erb, Campbell R. Harvey, and Tadas E. Viskanta. "What Matters for Emerging Market Investment?" *Emerging Markets Quarterly*, 1, 2 (1997), pp. 17-46.

Bekaert, Geert, Campbell R. Harvey, and Robin L. Lums-

daine. "Structural Breaks in Emerging Market Capital Flows." Working paper, Duke University, 1999.

Bernstein, Richard. *Style Investing: Unique Insight into Equity Management.* New York: John Wiley & Sons, 1995.

Choe, Hyuk, Bond-Chan Kho, and René M. Stulz. "Do Foreign Investors Destabilize Stock Markets? The Korean Experience in 1997." Working paper, The Ohio State University, 1999.

Claessens, Stijn, Susmita Dasgupta, and Jack Glen. "The Cross-Section of Stock Returns: Evidence from the Emerging Markets." *Emerging Markets Quarterly*, Winter 1998, pp. 4-13.

Froot, Kenneth A., Paul G.J. O'Connell, and Mark S. Seasholes. "The Portfolio Flows of International Investors, I." Working paper, Harvard University, 1999.

Graham, Benjamin, and D. Dodd. *Security Analysis.* New York: McGraw-Hill, 1934.

Harvey, Campbell R. "Predictable Risk and Returns in Emerging Markets." *Review of Financial Studies*, 1995, pp. 773-816.

Harvey, Campbell R., Christian Lundblad, and Diego Valderrama. "Brazil in Crisis." *Emerging Markets Quarterly*, 3 (1999), pp. 4-9.

Herrera, X.X., and X.X. Lockwood. 1994.

Rouwenhorst, Geert. "Local Return Factors and Turnover in Emerging Stock Markets. Working paper, Yale University, 1998.