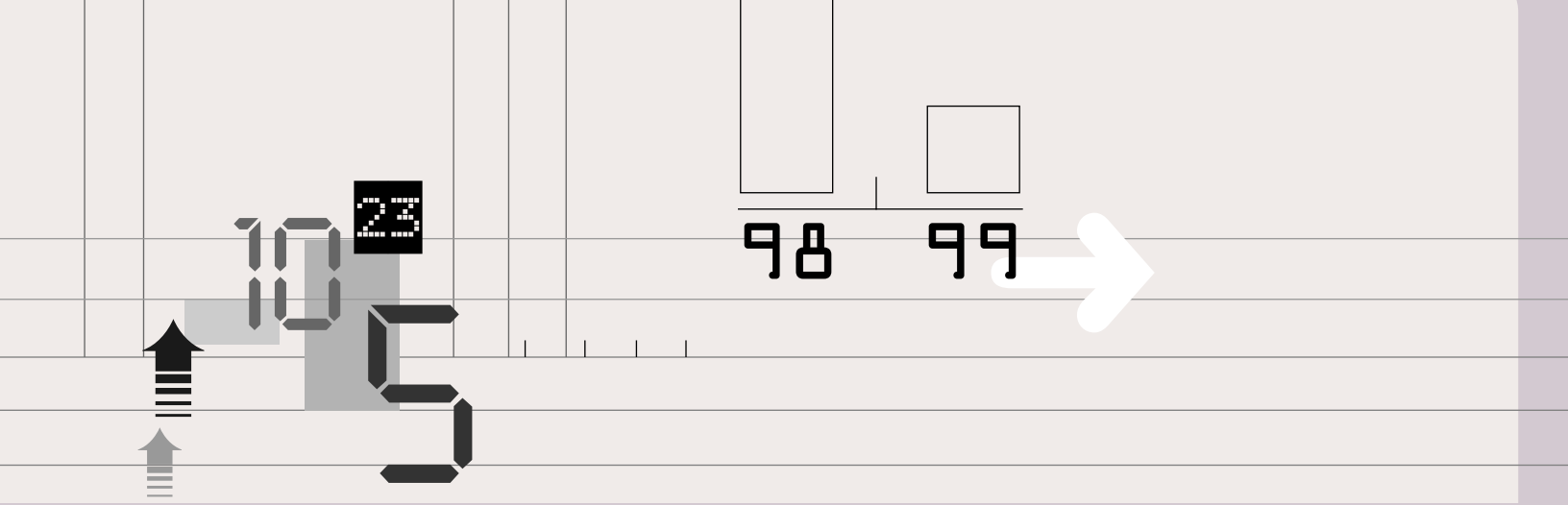

Country Allocation and Financial Analysts' Revisions

BY STÉPHANIE DESROSIERS, JEAN-FRANÇOIS L'HER AND YASSINE TNANI

Earnings forecasts produced by financial analysts have predictive capability with respect to future returns of global stock markets. What can portfolio managers learn from analysts' revisions of these forecasts?

Decisions regarding global asset allocation rely mainly on forecasted stock market returns. Therefore, estimating stock market returns is one of the biggest and most daunting challenges for portfolio managers.

A review of literature on the leading studies on stock market forecasts reveals that models based on historical, economic and financial time series data have extremely low predictive power. The best results are obtained for quarterly horizons and the determination coefficients are in the order of 20% in the best cases (see among others Schmitz (1996) for Canada and Pontiff and Schall (1998) for the U.S.).

Conversely, approaches based on prospective data, such as earnings forecasts produced by financial analysts, seem to have greater predictive capability with respect to the future returns of the stock markets (Emanuelli and Pearson, 1994).

In the same vein as that of Emanuelli and Pearson (EP, 1994), this study seeks to determine whether revisions of earnings per share (EPS) estimates made by financial analysts and provided by I/B/E/S (Institutional Brokers Estimate System) could be relevant in predicting the future trend of financial markets. More exactly, it examines if earnings forecast revision ratios (the number of upward revisions to the number of downward revisions and not the magnitude of financial analysts' forecast revisions) are useful in global asset allocation.

This study was conducted on almost the same number of countries as EP (21 versus 24), but from January 1988 to June 2000 instead of September 1987 to December 1991. These additional years afford a better perspective of the potential profitability of such an investment strategy.

While EP proposed different revision ratio measures based on one- or two-year earnings forecasts, we studied these same measures as well as those combining one-, two- and three-year forecasts. Revision ratios that combine all forecasts capture both the transitory

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and permanent effects of changes in financial analysts' forecasts and produce better results.

In addition to considering returns in local currency, we took into account the point of view of an American portfolio manager seeking to implement a strategy based on revisions of financial analysts' forecasts.

Two strategies were studied to test the usefulness of financial analysts' forecast revisions in global asset allocation. They only differ according to the frequency of the rebalancing period. The first is based on a quarterly rebalancing, while the second is based on a semi-annual rebalancing. More precisely, every quarter (half year), five market-indexed portfolios were built on the basis of the forecasted earnings revision ratios.

To avoid problems of serial correlation, we consider, like EP, independent sets of portfolio returns (three for quarterly and six for semi-annual). For the quarterly rebalancing strategy, the portfolio for which financial analysts were most optimistic generated an average annual return of 18.34% in local currency (18.98% in USD), while the portfolio for which they were most pessimistic yielded an average annual return of 11.23% in local currency (6.87% in USD). The results are comparable for the semi-annual rebalancing strategy.

If we use the return per risk unit or the Sharpe ratio as a measure of performance, the rank correlation between the expected order and the observed order is almost perfect whether we adopt a quarterly or a semi-annual rebalancing.

THE DATA

Raw data from the I/B/E/S database as well as variables constructed for the study are presented in the next two sections.

RAW DATA

This study is essentially based on almost the same countries examined by EP[1]. It spans the January 1988-June 2000[2] period, while EP covered the September 1987-December 1991 period. The data used are the total returns of the MSCI (Morgan Stanley Capital International) market indices as well as the revisions to financial analysts' earnings per share forecasts for each of these markets. More specifically, the I/B/E/S data used are the number of upward and downward revisions to the earnings forecasts for the different horizons considered. Earnings forecast estimates are collected by I/B/E/S till the third Wednesday of each month and we assume they are available at the end of the month.

VARIABLES

Frankel and Lee (1998), as well as Buttler and Saraoglu (1999), show that unless earnings forecasts are specifically adjusted for the optimism bias, revisions of these consensus estimates predict more accurately the direction rather than the magnitude of future market earnings. Moreover, O'Brien (1990) shows that because financial analysts' forecasts lack synchronism, the consensus measured by I/B/E/S uses recent forecasts as well as forecasts which have not been revised for a long time.

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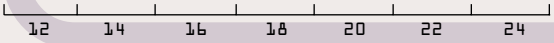

This problem can be avoided and future tendencies in market earnings can be predicted by using variables which measure the number rather than the magnitude of forecast revisions.

Since Emanuelli and Pearson (1994) have concluded that using the three-month current fiscal year (FY1) estimates revision ratio to select countries produced better results than using the one-month FY1 revision ratio, though both ratios selected countries that generated significant outperformance over the benchmarks, we constructed a variable based on the ratio of the number of upward revisions to the number of downward revisions over the last three months.

$$X123_{ijt} = \frac{\sum_{t=-2}^{0}\sum_{j=1}^{3} FY_{ijt}\ \text{ESTS UP}}{\sum_{t=-2}^{0}\sum_{j=1}^{3} FY_{ijt}\ \text{ESTS DOWN}}$$

However, rather than considering only one- or two-year earnings forecasts separately (FY1, FY2), we also examined them together, adding to them three-year forecasts when they were available. The variable X123[3] is therefore based on an average of the number of forecasts for the next one, two and three fiscal years:

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where FY*ijt* ESTS UP (FYijt ESTS DOWN) represents for each market index i (i= 1 to 21) the total number of upward (downward) revisions for the three months preceding the evaluation month (t = -2 to 0) for each forecast horizon j (j = 1 year to 3 years). The variable X123 has therefore been calculated each month for the period from March 1988 to March 2000.

METHODOLOGY AND ANALYSIS OF RESULTS

The methodology and principal results of the portfolio strategies built on the basis of financial analysts' revision ratios are presented in this section. We only examined some of the investment strategies analyzed by EP and did not deal with strategies that caused major serial correlation problems due to overlapping.

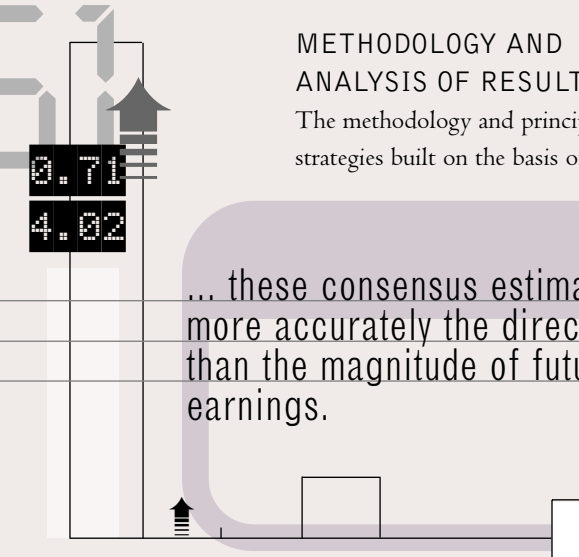
From a country allocation perspective, we analyzed the quarterly (semi-annual) returns of portfolios rebalanced quarterly (semi-annually) (the linked portfolio returns in EP).

Unlike EP, we did not examine strategies involving rebalancing monthly or every two months. Indeed, as EP underscored, for these strategies the transaction fees could significantly reduce the return.

The two strategies retained are referred to as Q (quarterly) and S (semi-annual)[4], respectively.

For each strategy, we classified countries from the most optimistic to the most pessimistic, based on the variable X123. On the basis of this breakdown, we assigned each country to five equally weighted portfolios. Portfolio 1 corresponds to four countries for which the forecast revisions were the most optimistic (highest X123); portfolio 5 corresponds to the four countries for which the forecast revisions were the most pessimistic (lowest X123).

For each one of these portfolios, depending on whether strategy Q or strategy S is considered, we calculated the return for the three or the six subsequent months. We then compared the average annualized returns and standard deviations of the different portfolios as well as the return per unit



... these consensus estimates predict more accurately the direction rather than the magnitude of future market earnings.

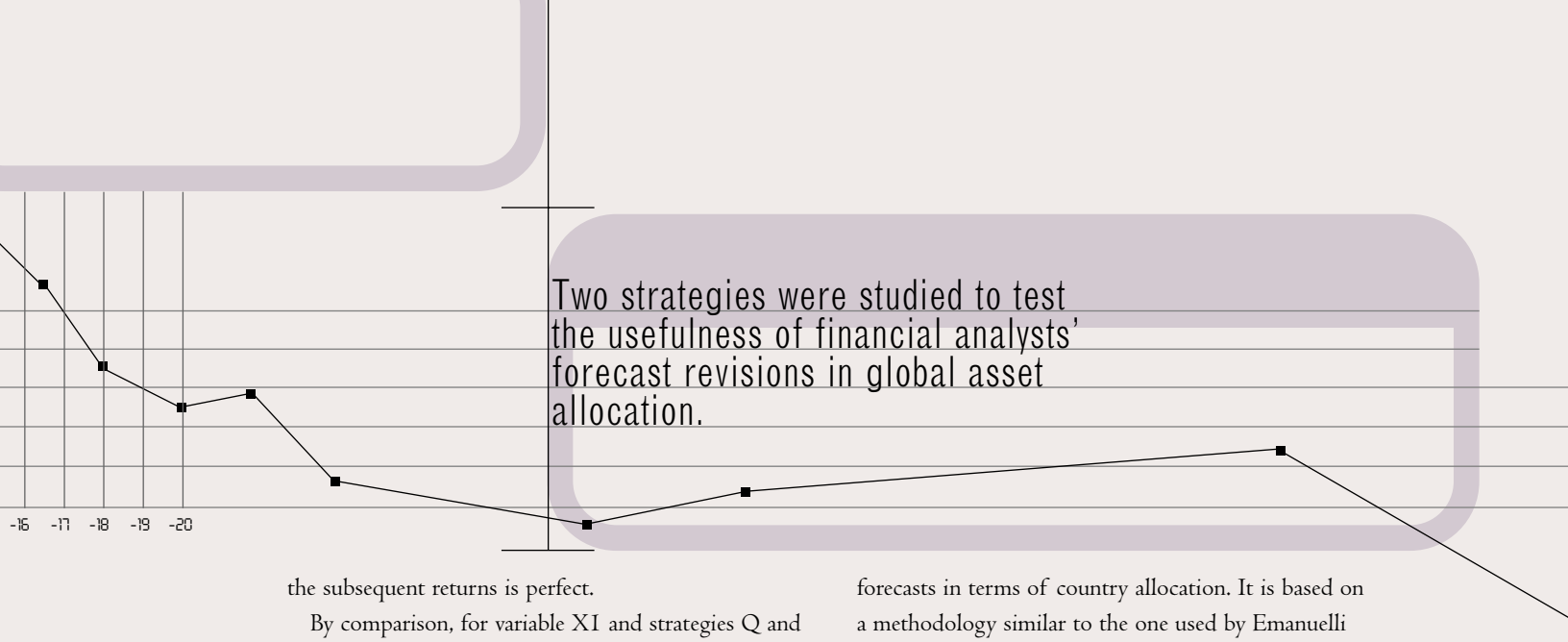
TABLE 1

Portfolio	Local Currency Return (%)	Local Currency Standard Deviation (%)	Local Currency Return/ Standard Deviation	USD Return (%)	USD Standard Deviation (%)	USD Return/ Standard Deviation	USD Sharpe ratio
Panel A: Average annualized cumulative return for quarterly rebalancing							
P1	18.34	18.45	0.99	18.98	17.11	1.11	0.78
P2	18.23	18.12	1.01	18.24	15.94	1.14	0.79
P3	14.82	15.86	0.93	11.87	14.16	0.84	0.44
P4	12.08	17.10	0.71	9.28	15.14	0.61	0.24
P5	11.23	15.43	0.73	6.87	15.39	0.45	0.08
EWGP*	15.22	15.11	1.01	13.26	13.30	1.00	0.58
MSCI WORLD	11.75	12.97	0.91	11.16	12.72	0.88	0.44
Panel B: Average annualized cumulative return for semi-annual rebalancing							
P1	18.32	19.05	0.96	18.63	16.89	1.10	0.77
P2	17.46	18.97	0.92	17.20	16.25	1.06	0.71
P3	15.07	16.44	0.92	12.59	12.76	0.99	0.55
P4	12.99	17.16	0.76	10.31	13.88	0.74	0.34
P5	11.36	16.62	0.68	8.30	14.58	0.57	0.19
EWGP	15.33	15.61	0.98	13.73	11.96	1.15	0.68
MSCI WORLD	11.91	12.81	0.93	11.59	11.09	1.05	0.54

*Equally weighted global portfolio

of risk. We also examined the Sharpe ratio of the five portfolios when returns are expressed in USD. Lastly, we analysed the rank correlation between the expected ranking of stock markets on the basis of the analysts' revision ratios and the ranking observed in terms of return and return per unit of risk, as well as in terms of Sharpe ratios.

The average annual return and standard deviation of the five portfolios built on the basis of the number of upward and downward revisions (variable X123) are presented in Table 1. In Panel A, we present the results from the Q strategy (quarterly), in local and USD returns. The average annual return in local returns for Portfolio 1 is 18.34% (18.98% in USD), while it is 11.23% (6.87% in USD) for portfolio 5. The average annual difference between the two portfolios is 7.11% (12.11% in USD) and the rank correlation (1 to 5) between the order of expected returns of the five portfolios and



Two strategies were studied to test the usefulness of financial analysts' forecast revisions in global asset allocation.

the subsequent returns is perfect.

By comparison, for variable X1 and strategies Q and S, EP respectively obtained an average annual difference return of 14.36% and 5.86% between portfolios P1 and P5. On a risk-adjusted basis, the rank correlation (1 to 5) is still very positive, 80% in local returns (90% in USD). Finally, on the basis of the Sharpe ratio that controls for the risk-free rate, the rank correlation is also 90%.

In Table 1, Panel B, that of the S strategy (half year), the average annual return for Portfolio 1 is 18.32% in local returns (18.63% in USD), while it is 11.36% (8.30% in USD) for Portfolio 5. The average annual difference between the two portfolios is 6.96% (10.33% in USD). Moreover, the rank correlation between the order of expected returns of the five portfolios and the subsequent returns is still perfect. On a risk-adjusted and a Sharpe ratio basis, the rank correlation is also perfect.

To analyse the robustness of results, we performed the same test by building as many portfolios as countries analysed, that is, 21. Even if the results are not presented in detail, it appears that the rank correlation between the order of expected returns of the 21 portfolios and the subsequent returns is very positive, although not quite as high as that calculated with five portfolios.

The correlation between the expected and realized ranks in terms of return per unit of risk for the strategies Q and S are 66% and 67% respectively for local currency returns (82% and 86% for USD returns). The difference in average annual return between the portfolios P1 and P21 for the strategies Q and S are 5.45% and 7.37% respectively in local currency (9.21% and 9.85% in USD).

CONCLUSION

This study examines the relevance of financial analysts' forecasts in terms of country allocation. It is based on a methodology similar to the one used by Emanuelli and Pearson (1994), which evaluates if a variable constructed on the basis of the ratio of the number of upward revisions to the number of downward revisions makes it possible to determine the future relative performance of stock market indices. It involves evaluating the return and risk of five equally weighted portfolios built on the basis of the variable measuring the degree of financial analysts' optimism regarding different markets.

Portfolio 1 consists of countries for which financial analysts are the most optimistic and portfolio 5 of countries for which analysts are the most pessimistic. We tested two types of strategies, which differ only with regard to the rebalancing frequency: on a quarterly basis (strategy Q) or on a semi-annual basis (strategy S). For strategy Q, the average annual difference between the two portfolios is 7.11% in local currency (12.11% in USD). The rank correlation between the returns observed for these five portfolios and the expected classification is perfect and higher than 80% if we consider the risk-adjusted returns. The results from strategy S are similar to those obtained from strategy Q.

This study highlights that a variable constructed on the basis of the number of revisions of financial analysts' forecasts has allowed a profitable country allocation strategy to be developed. Variables measuring the magnitude of the analysts' revisions were also tested.

However, even if Chopra (1998) underscores that their predictive capability has been better since 1993, they do not yield convincing results. Future studies could examine other parameters of the distribution of analysts' estimates, such as forecast dispersion or even combine them with other fundamental or technical variables.

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ENDNOTES

1. The countries analysed are : Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Hong Kong, Ireland, Italy, Japan, Netherlands, New Zealand, Norway, Singapore, Spain, Sweden, Switzerland, United Kingdom, United States.
2. We only have I/B/E/S data as of January 1988.
3. We have also considered the variables X1, X2 and X12 which are based on one- or two-year forecasts, and combinations of one- and two-year forecasts respectively. We should, however, note that these variables are highly correlated with the variable X123, which is why we only report the results related to this last variable.
4. For the Q (S) strategy, we calculated three (six) quarterly (semi-annual) return series beginning in April 1988, May 1988 and to June 1988 (April 1988, ..., and September 1988). All the results reported stand for an average of these three (six) sets of returns.
5. We calculated the total annual cumulative return they obtained on the September 1987-December 1991 period as follows: $(1.878)^{(52/12)} - 1 = 14.36\%$. Returns are expressed in local currency. ◆