Performance of StarMine SmartEstimate from Refinitiv and Predicted Surprise for Developed Asia Ex-Japan

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Abstract

StarMine's proprietary SmartEstimate earnings prediction service was designed to create a better earnings forecast than the consensus estimate by differentially weighting analyst estimates based on each analyst's historical track record and how long ago an estimate was issued. Recently[1], we published an investigation of the StarMine® SmartEstimates® from Refinitiv and Predicted Surprise success rates globally and by region for two different periods: from 1/1/1998 until 11/30/2008 and from 12/1/2008 until 11/30/2017. The current study drills down from those global numbers into the performance for the four countries in Developed Asia ex-Japan. As with the global results, we verify that the model performance remained essentially unchanged throughout the years. In all four countries, the SmartEstimate continues to demonstrate better accuracy than the analyst consensus, and the Predicted Surprise continues to accurately predict actual surprises. This enduring outperformance underlines how StarMine models are robustly formulated based on long-lasting behavioral anomalies, and how they continue to provide value to Developed Asia ex-Japan investors.

1. Introduction

Our recent study of StarMine SmartEstimate from Refinitiv and Predicted Surprise detailed that globally, by region, by market capitalization and by sector, these models show impressive and robust performance and remain important tools to help investors[2]. These results are all the more remarkable considering the models were formulated two decades ago[3]. We attribute their ongoing success to their basis in long-lasting, universal behavioral anomalies. Globally, we found that SmartEstimates correctly predict the sign of earnings surprises 66% of the time, and SmartEstimates combined with consensus revisions in the same direction have an even higher success rate of 74%.

The goal of this paper is to examine the performance of the StarMine SmartEstimate from Refinitiv and Predicted Surprise in the four countries in Developed Asia ex-Japan: Australia, Hong Kong, New Zealand and Singapore. This paper focuses solely on earnings. As with the global study, in this update, we employ a test comparison period in the range January 1998 – November 2008. We then compare that test period with the more recent, post-Financial Crisis period, December 2008 – November 2017. We use a universe of 1,000 securities in Developed Asia ex-Japan with the largest U.S. dollar market capitalization. Market capitalizations were resampled each year to avoid look-ahead and survivorship bias.

Due to the small sample size, we elected not to include results by market cap nor to include results by sector within each country. Those results for the Developed Asia ex-Japan region are available in reference 1.

Summary Table: FY1 EPS surprise prediction success rate by country. When the FY1 EPS SmartEstimate diverges from the consensus by 2% or more, the signal successfully predicts the direction of the surprise about two-thirds of the time. With a success rate of 75% in the region, the SmartEstimate is even more likely to correctly predict surprises when they are accompanied by corroborating revisions (revisions in the same direction as the Predicted Surprise).

JAN 1998 – NOV 2008

COUNTRY/REGION	FY1 EPS SURPRISE PREDICTION SUCCESS RATE (|PS| ≥ 2%)	FY1 EPS SURPRISE PREDICTION SUCCESS RATE (|PS| ≥ 2%) WITH CORROBORATING REVISIONS	AVERAGE NUMBER OF COMPANIES
Australia	62%	73%	374
Hong Kong	68%	77%	386
New Zealand	64%	70%	50
Singapore	65%	74%	190
Developed Asia ex-Japan	65%	75%	1,000

DEC 2008 – NOV 2017

COUNTRY/REGION	FY1 EPS SURPRISE PREDICTION SUCCESS RATE (|PS| ≥ 2%)	FY1 EPS SURPRISE PREDICTION SUCCESS RATE (|PS| ≥ 2%) WITH CORROBORATING REVISIONS	AVERAGE NUMBER OF COMPANIES
Australia	65%	75%	267
Hong Kong	68%	77%	542
New Zealand	62%	73%	39
Singapore	61%	70%	152
Developed Asia ex-Japan	66%	75%	1,000

The remainder of the paper is organized as follows: In section two, we compare the accuracy of the SmartEstimate to the consensus estimate for both periods of our study. We find that SmartEstimates are consistently more accurate than the consensus in all four countries. In section three, we examine an intuitive measure of the predictive power of this model, namely, whether SmartEstimates predict the direction of actual earnings surprises. We find that SmartEstimates correctly predict the sign of earnings surprises 66% of the time. In section four, we show that SmartEstimates combined with consensus revisions in the same direction have an even higher success rate of 75% regionally, as shown in the summary table above. These results are consistent across both time periods.

2. SmartEstimate accuracy

In Table 1, we display the median error of the SmartEstimate and the consensus estimate for FY1 EPS for the four countries in Developed Asia ex-Japan. The error metrics in Table 1 were obtained by comparing the reported EPS actual with the EPS estimate every month end throughout the entire fiscal period, in contrast with studies that consider only estimate data from one fixed time point, such as the day before the report. We measure error in two ways. To measure the typical magnitude of error, we calculate the median absolute error of the consensus and SmartEstimate relative to the actual reported value. To gauge whether the estimates are typically too high or too low and by how much, we use the median bias (signed error) on the consensus or SmartEstimate relative to the actual reported value.

Table 1. Comparison of median absolute error and median bias of the consensus estimate and the SmartEstimate for FY1 EPS in Developed Asia ex-Japan, Jan 1998 – Nov 2008 (top) and Dec 2008 – Nov 2017 (bottom). We also show the percent improvement in the median absolute error obtained with the SmartEstimate. The SmartEstimate has a smaller median absolute error than the consensus in every country for both periods considered.

JAN 1998 – NOV 2008

COUNTRY/REGION	MEDIAN ABSOLUTE CONSENSUS ERROR	MEDIAN CONSENSUS BIAS	MEDIAN ABSOLUTE SMARTESTIMATE ERROR	MEDIAN SMARTESTIMATE BIAS	IMPROVEMENT WITH SMARTESTIMATE
Australia	9.9%	0.6%	9.7%	0.5%	1.7%
Hong Kong	17.1%	3.7%	15.7%	2.8%	8.9%
New Zealand	11.9%	0.2%	11.4%	0.3%	5.0%
Singapore	20.1%	1.1%	18.8%	0.4%	6.8%
Developed Asia ex-Japan	13.7%	1.4%	13.0%	1.0%	5.1%

DEC 2008 – NOV 2017

COUNTRY/REGION	MEDIAN ABSOLUTE CONSENSUS ERROR	MEDIAN CONSENSUS BIAS	MEDIAN ABSOLUTE SMARTESTIMATE ERROR	MEDIAN SMARTESTIMATE BIAS	IMPROVEMENT WITH SMARTESTIMATE
Australia	7.4%	1.5%	7.2%	1.3%	3.5%
Hong Kong	13.1%	3.9%	12.1%	3.0%	8.1%
New Zealand	6.2%	0.2%	5.9%	0.2%	5.2%
Singapore	13.1%	4.1%	12.7%	3.3%	3.1%
Developed Asia ex-Japan	10.7%	2.7%	10.2%	2.1%	5.7%

3. Using Predicted Surprise to anticipate earnings surprises

The Predicted Surprise is defined as the percent difference between the SmartEstimate and the consensus. We adjust for small consensus numbers in the denominator by placing a lower bound, or minimum divisor, on the absolute value of the consensus.

$$Predicted\ Surprise = \frac{(SmartEstimate - Consensus)}{Max(min\ divisor, |Consensus|)}$$

We examine the Predicted Surprise at every month end throughout the entire fiscal year in our analysis. Table 2 shows the percent of cases in which the Predicted Surprise accurately reflects the direction of earnings surprises across countries as a function of the magnitude of the signal.

Table 2. The percent of cases in which the Predicted Surprise correctly anticipated the direction of FY1 earnings surprises, as a function of the magnitude of the signal, across countries.

JAN 1998 – NOV 2008

COUNTRY/REGION	2% TO 5%	5% TO 10%	10% TO 20%	>20%
Australia	60%	64%	66%	71%
Hong Kong	64%	69%	72%	78%
New Zealand	63%	61%	70%	74%
Singapore	61%	65%	67%	75%
Developed Asia ex-Japan	62%	66%	69%	75%

DEC 2008 – NOV 2017

COUNTRY/REGION	2% TO 5%	5% TO 10%	10% TO 20%	>20%
Australia	64%	68%	70%	63%
Hong Kong	64%	70%	74%	78%
New Zealand	62%	59%	70%	52%
Singapore	60%	62%	63%	59%
Developed Asia ex-Japan	63%	68%	72%	72%

These statistics show that the Predicted Surprise accurately anticipates earnings surprises across Developed Asia ex-Japan, and that larger signals are in general more accurate. For the region as a whole, the Predicted Surprise has a success rate of 62% to 75% for the period of Jan 1998 – Nov 2008 and 63% to 72% for the period of Dec 2008 – Nov 2017, depending on the magnitude of the signal.

4. Combining Predicted Surprise and consensus revision

When Predicted Surprises are accompanied by revisions to the consensus of the same sign, i.e., positive (negative) Predicted Surprises accompanied by an upwards (downwards) revision to the consensus estimate, the surprise prediction success rate is considerably higher than the case without revision, or contradictory revisions. For cases in which the direction (positive or negative) of the Predicted Surprise is corroborated by the direction of the 30-day change in the consensus, the earnings surprise prediction success rate is 75% regionally for both periods studied. In the absence of supporting revisions to the consensus, the regional success rate is 56% and 54% for the periods of Jan 1998 – Nov 2008 and Dec 2008 – Nov 2017, respectively.

Table 3. The earnings surprise prediction success rate for |Predicted Surprise| ≥ 2% conditional on corroborating revisions to the consensus, by country. Across countries, the success rate is higher for the cases with corroborating revisions over the last 30 days, as compared to cases without supporting revisions.

JAN 1998 – NOV 2008

COUNTRY/REGION	FY1 EPS SURPRISE PREDICTION SUCCESS RATE (|PS| ≥ 2%) WITH CORROBORATING REVISIONS	FY1 EPS SURPRISE PREDICTION SUCCESS RATE (|PS| ≥ 2%) WITH NO CORROBORATING REVISIONS
Australia	73%	51%
Hong Kong	77%	58%
New Zealand	70%	60%
Singapore	74%	56%
Developed Asia ex-Japan	75%	56%

DEC 2008 – NOV 2017

COUNTRY/REGION	FY1 EPS SURPRISE PREDICTION SUCCESS RATE (|PS| ≥ 2%) WITH CORROBORATING REVISIONS	FY1 EPS SURPRISE PREDICTION SUCCESS RATE (|PS| ≥ 2%) WITH NO CORROBORATING REVISIONS
Australia	75%	52%
Hong Kong	77%	56%
New Zealand	73%	52%
Singapore	70%	53%
Developed Asia ex-Japan	75%	54%

5. Conclusions

We studied the SmartEstimate performance across two periods, Jan 1998 to Nov 2008 and Dec 2008 to Nov 2017, for the four countries in Developed Asia ex-Japan. Since the SmartEstimate algorithm has remained unchanged since 1999, the results for the first period of the study are mostly out-of-sample, and are completely out-of-sample for the second period. Remarkably, almost 20 years later, its value at predicting actual surprises remains strong. SmartEstimates are more accurate than the consensus across countries in terms of their error from the reported actual. When the EPS SmartEstimate differs from the consensus estimate by more than 2%, it correctly predicts the direction of the actual reported earnings surprises 65% of the time for the earlier period and 66% for the more recent period. When combined with 30-day consensus revisions in the same direction, the SmartEstimates correctly predict the direction of the actual reported earnings surprises 75% of the time.

1 Vieira, M., Genin, H., and Birman, S., 2018, An update on the performance of the StarMine SmartEstimate from Refinitiv and Predicted Surprise.
2 Stauth, J. and Bonne, G., 2009, SmartEstimates and the Predicted Surprise: Construction and Accuracy.
3 Jha, V. and Mozes, H., 2001, Creating and Profiting From More Accurate Earnings Estimates with StarMine Professional.

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