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Applying LLMs to Corporate Analysis and Equity Investment Strategies

We examined an LLM's earnings-forecasting and stock selection capabilities using financial and market data. Input data were de-identified to limit look-ahead bias internal to the LLM. Although accuracy lagged consensus forecasts, backtests confirmed a stock selection effect attributable to the LLM.

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Key Takeaways

- We examined the scope for applying LLMs to corporate analysis and equity strategies using de-identified financial/market data and annual securities reports.
- Although consensus estimates were more accurate, LLM forecasts were broadly neutral on sales but tended to conservatively factor in profit-decline risk.
- Forecasts tended to assume a continuation of past revenue trends and mean reversion in profits, suggesting the LLM captured typical earnings patterns.
- Backtests showed limited stock selection effects for raw data, but relatively strong excess returns for high growth-forecast stocks using neutralized data.
- For sales growth rates, stock selection effects exceeded consensus forecasts, suggesting the model may capture longer-term earnings trends from past data.

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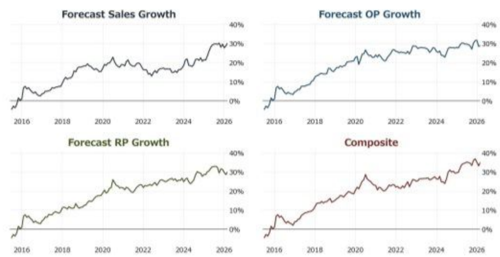
Exhibit 1 : Quintile Spread Returns Using Forecast Growth Rates (LLM-based, After Risk Neutralization)



Note: The period covered is from July 2016 to April 2026. TOPIX 500 universe. The constituents of the universe were divided into five groups based on risk-neutralized LLM forecast growth rates, and excess returns versus the benchmark were measured for each quintile. The analysis assumes a long position in the quintile with the highest forecast growth rates and a short position in the quintile with the lowest forecast growth rates. Estimates generated by an LLM were used as forecast values. "Composite" is defined as the average of standardized forecast growth rates for sales, operating profit, and ordinary profit. For details of the analysis, including neutralization procedures, please refer to "Supplementary Information" at the end of the report.
Source: Bloomberg, QUICK Workstation, EDINET Filing and Disclosure System (https://disclosure2.edinet-fsa.go.jp/), Morgan Stanley Research

Summary of analysis

In this report, we investigated the possibility of using a large language model (LLM) in corporate analysis and equity investment strategy. Since LLMs are trained using data up to the knowledge cut-off point, there is a possibility of look-ahead bias when backtesting using historical data. In our analysis, we seek to minimize this risk by expressing the timing of share price/financial and economic indicators as a point relative to the analysis date, de-identifying MD&A (management discussion and analysis) text in annual securities reports by removing data such as company names, reporting dates, and customer names, and stipulating in the prompt that only input data is to be used. The analysis universe is the TOPIX 1000 component names, and the investigation period is June 2016 through April 2026, with only actual data that are available as at end-June in each year being used. We then use GPT-5.5 to forecast next-FY revenue, OP, and RP. We exclude guidance and analyst forecasts from our input data and assess the LLM's capacity for predicting earnings from historical information.

To test predictive accuracy, we compiled a confusion matrix for forecasts and actual results for March year-end companies, and compared these with the consensus forecasts. Our analysis found that the consensus forecasts showed greater predictive accuracy than the LLM forecasts for all items: revenue, OP, and RP. For profit lines in particular, the LLM accurately predicted growth for a relatively low proportion of names that actually reported profit growth (low recall), indicating a tendency towards conservative profit growth forecasts. Meanwhile, although the LLM showed a high recall for profit decline forecasts, the precision rate was low, pointing to a tendency to generate broad profit decline signals.

Among LLM-generated estimates, revenue forecasts have a positive correlation with past revenue growth and RP growth rates, suggesting they reflect an assumption that past trends would continue. Meanwhile, OP and RP forecasts show a negative correlation with past RP growth rates, possibly indicating that the estimates assume mean reversion. That said, considering the low precision rate for profit decline forecasts, we would hesitate to conclude that the mean reversion perspective necessarily implies accurate estimates. Further, the process used in our report finalized earnings forecasts after only one round of inference, which leaves the possibility that insufficient consideration was given to the relationship between financial and other data. More effective use of macro indicators and other numerical data as well as the qualitative information included in MD&A text would require refinement of the inference process, for example through more granular analysis by data category, self-verification, reanalysis, and using multiple LLM agents to make integrated judgments.

To test suitability for investment strategy, we investigated the stock-selection effect using a quintile analysis based on LLM predicted growth rates. When using non-neutralized forecast growth rates, we confirmed a strongly negative stock-selection effect for the sales growth rate in particular. We believe this is because the relative ease of forecasting next-FY sales means a large volume of the related information is already priced in. At the same time, we confirmed the stock-selection efficacy of LLM-driven estimates using neutralized forecast growth rates (ie, excluding the impact of factors such as sector, scale, valuation, and momentum). When using a composite index that averages the three forecast metrics, quintile spread performance within the TOPIX 500 universe was around 3.3% annualized, indicating relatively strong excess returns for names with high risk-neutralized forecast growth rates. For revenue growth in particular, we observed a more pronounced stock selection effect than for the consensus estimate, indicating the possibility that the model is extracting predictive information related to longer-term earnings trends from past earnings and MD&A text. In summary, although the predictive accuracy of LLM-derived forecasts based on earnings data is below that of the consensus forecast, we believe it is possible to obtain complementary information that is separate from existing forecasts, if the data is neutralized and bias appropriately reduced.

Corporate evaluation using LLM

Overview of analysis method

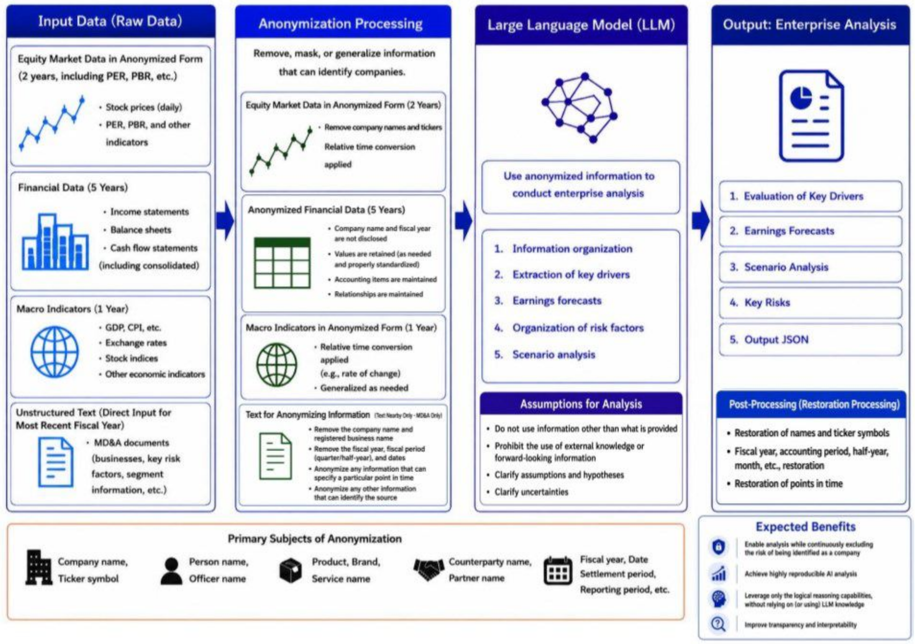
Large language models (LLMs) are trained using information up to a certain point (called the knowledge cut-off). For this reason, when using LLMs to carry out corporate analysis and assessing accuracy based on past data, there is a risk of look-ahead bias[1] . The chief means of addressing this risk is to restrict the analysis date or the forecast date to a day after the knowledge cut-off. However, doing this would make it difficult to use the latest LLMs to perform corporate analysis, or assess implications for investment strategy. For example, the knowledge cut-off for GPT-5.5 (the model we are using in the present analysis) is December 1, 2025. This would not leave enough subsequent data to provide a sample for backtesting.

In this report, we aim to restrict look-ahead bias by carrying out the analysis after several steps of pre-processing that make it harder for the LLM to use data captured during training (Exhibit 2). More specifically, we attempt to prevent the LLM from identifying the name of the company being analyzed and the date of the analysis by expressing the timing for share price, financial indicators, and economic indicators as a point relative to the analysis date, then eliminating proper nouns from the text of the annual securities reports.

Further, to assess the analytical capabilities unique to the LLM, we exclude guidance and analyst forecasts from the input earnings data, and instruct it to inference using only historical earnings data. Our analysis is carried out on TOPIX 1000 composite names, with an analysis period of June 2016 through April 2026. We update our prompt using data available as of the end of June every year and instruct the model to forecast earnings for the following fiscal year.

1. also termed data contamination or information leakage

Exhibit 2: Outline of Analysis Process



Note: Analysis period: June 2016 to April 2026. Analysis universe: TOPIX 1000 constituents. GPT-5.4 was used to anonymize annual securities report text, while GPT-5.5 was used for company evaluation, with reasoning effort set to low.
Source: Morgan Stanley Research

When we include management's description and analysis (MD&A) text from annual reports (management analysis of financial position, operating results, and cash flow) in our prompt, we remove any identifiable data such as reporting period, company name, and customer names, to prevent the LLM making inferences by tying prompt information to training data (Exhibit 3). However, we do not remove mentions of general product names such as FPD and OLED or segment names (shown below), which the LLM needs to evaluate relationships with macro indicators included in the prompt.

Exhibit 3: Mitigating Look-ahead Bias Attributable to LLMs (1): Specific Examples of Input Data Anonymization

Item	Text (Excerpt)
(1) Overview of Operating Results, etc. **① Status of Operating Results**	In the FPD manufacturing equipment market, conditions were on a recovery trend, reflecting factors such as the resumption of overseas investment in OLED (organic EL) production. Under these circumstances, the operating results of the **[COMPANY_A]** Group for the current consolidated fiscal year were as follows: net sales increased mainly due to higher overseas sales, reaching ¥124,406 million, up 33.4% year on year. In addition, the Company recorded a loss on valuation of investment securities of ¥2,173 million as an extraordinary loss in relation to **[INVESTEE_A]**, an investee of an overseas subsidiary. As a result, profit attributable to owners of parent amounted to ¥23,634 million, up 20.7% year on year.
(1) Overview of Operating Results, etc. **④Production, Orders Received and Sales Results**	Note: Sales results by major customer and the ratio of such sales to total sales Customer:**[CUSTOMER_A]** Previous consolidated fiscal year(from **[DATE_C]** to **[DATE_D]**) Sales: ¥21,848 million, Ratio: 23.4% Current consolidated fiscal year(from **[DATE_A]** to **[DATE_B]**)□ Sales: ¥24,018 million, Ratio: 19.3%

Note: The annual securities report of RORZE (6323) for the fiscal year ended February 2025 was used. GPT-5.4 was used for the anonymization process.
Source: EDINET Filing and Disclosure System (https://disclosure2.edinet-fsa.go.jp/), Morgan Stanley Research

Alongside the de-identification of the input data, we also prohibit the LLM from using information obtained during training, and include clear instruction in the prompt that the LLM carry out its analysis using only the input data we provide (Exhibit 4). These measures are intended to address the difficulty of completely de-identifying the data, and to respond to the possibility that the LLM will infer specific company names or timings from data regarding sector, financial ratios, scale, economic events, and particular segment information. By instructing the LLM to "use only input data and avoid inferring company name, fiscal year, and future events", we aim to restrict inference based on LLM memory data, at least at the output stage.

Exhibit 4: Mitigating Look-ahead Bias Attributable to LLMs (2): Example Prompt

A. Fundamental Principles That Must Be Strictly Observed

A1. Input-Data-Only Principle (closed information sources)

- The only information that may be used is the four types of input data provided in this prompt. Do not use any knowledge obtained from pretraining, external data, industry common knowledge, or known information associated with the company name, ticker, or industry name.
- Expressions that presume knowledge outside the input, such as "normally in this industry," "this company is generally," or "as has been known in the past," are prohibited.
- References to the macro environment must also be limited to the scope of the input section [Macroeconomic Indicators].
- When discussing valuation methods or appropriate multiples, do not use market views, industry practices, or future events outside the input as evidence.

A2. Blocking Future Information (leakage prevention)

- The analysis point is the final day of the input share-price time series.
- Do not use any information that becomes observable after that point, including subsequent earnings results, earnings revisions, share-price movements, news, M&A, regulatory changes, macro trends, industry trends, analyst forecasts, or changes in investor assessment, even if you know them from pretraining.
- Do not make assertions about facts not included in the input, even if they sound plausible.

A3. Separation of Facts and Estimates

- Clearly distinguish facts directly observable in the input from subsequent estimates and assumptions.
- When making estimates or assumptions, explicitly state the facts in the input on which they are based.
- If information is insufficient, specify what is missing, make an assumption, and always state the content of that assumption.

Note: Excerpt from the section of the prompt concerning the mitigation of LLM-induced look-ahead bias.
Source: Morgan Stanley Research

One example is the results of the LLM's analysis of F2/26 results for Rorze (6323). The model forecast a decline in sales and profit premised mainly on a fallback in the FPD-related equipment business (Exhibit 5). The actual results for F2/26 saw sales up 3.5% YoY to ¥128.79bn, but OP down 2.7% to ¥31.15bn and RP down 8.0% to ¥32.62bn. Although the FPD-related equipment business earnings fell on the dropout of large prior-year orders, the mainstay semiconductor business reported firm performance on AI demand and advanced semiconductor and package applications. In other words, although the model incorrectly predicted the direction of sales growth owing to a lack of clarity over semiconductor equipment and other business earnings, it was broadly correct in profit outlook.

Exhibit 5: Specific Example of Company Analysis (6323 Rorze)

1. Key Earnings Drivers

DRIVER	DIRECTION (TAILWIND / HEADWIND / NEUTRAL)	IMPACT ON EARNINGS	KEY RATIONALE
Sales Level of Semiconductor and FPD-Related Equipment	Neutral	High sales in the latest fiscal year support earnings, but growth is expected to slow in the next fiscal year.	According to the annual securities report, the Semiconductor and FPD-Related Equipment segment recorded net sales of 123,331 million yen, up 34.0% YoY, and segment income of 32,952 million yen, up 33.9% YoY.
Decline in Order Backlog	Headwind	This may limit sales growth in the next fiscal year and pressure profit margins if capacity utilization declines.	The annual securities report shows total order backlog of 58,863 million yen, equal to 92.0% YoY. The order backlog for semiconductor-related equipment was also 52,834 million yen, equal to 93.7% YoY.
Expansion of Overseas Sales	Tailwind	Contributes to maintaining sales scale; however, results are sensitive to foreign exchange and overseas demand fluctuations.	The financial table shows overseas sales increased from 82,340 million yen in the prior period to 112,488 million yen in the latest period.
Foreign Exchange Environment	Headwind	Because the overseas sales ratio is high, yen appreciation puts downward pressure on yen-translated sales and earnings.	Macro indicators show USD/JPY at 144.03, with a 12-month change of -10.47%, indicating yen appreciation.
Financial Strength and Cash Generation	Tailwind	Improves resilience for investment and working capital needs, and helps support the share price.	Cash and deposits were 62,990 million yen, and interest-bearing debt was 31,613 million yen. Operating cash flow was an inflow of 36,791 million yen according to the annual securities report.

2. Next Fiscal Year Earnings Forecast

ITEM	LATEST RESULTS	NEXT-YEAR FORECAST	YOY	RATIONALE
Net Sales	124,406 million yen	120,000 million yen	-3.5%	The latest fiscal year showed strong growth of 33.4% YoY, but order backlog declined to 92.0% YoY. Considering reversion toward the five-year average, a slight decline in net sales is assumed while maintaining a high level.
Operating Income	32,024 million yen	30,600 million yen	-4.4%	Reflects the decline in net sales. The operating margin is assumed at 25.5%, with no major improvement assumed from the latest 25.7% level or the high levels of the past several years.
Ordinary Income	35,454 million yen	33,600 million yen	-5.2%	Assumes an ordinary income margin of 28.0%. This is close to the latest 28.5%, but does not assume a peak level such as 32.1% in the fiscal year ended February 2023.
Net Income	23,634 million yen	22,800 million yen	-3.5%	A rebound from extraordinary losses is possible, but the assumption prioritizes the slight decline in net sales and ordinary income. The net margin is assumed at 19.0%, near the five-year median.
EPS	approx. 134.0 yen	approx. 129.3 yen	-3.5%	Calculated by dividing net income of 22,800 million yen by 176,400 thousand shares outstanding.

3. Scenario Analysis

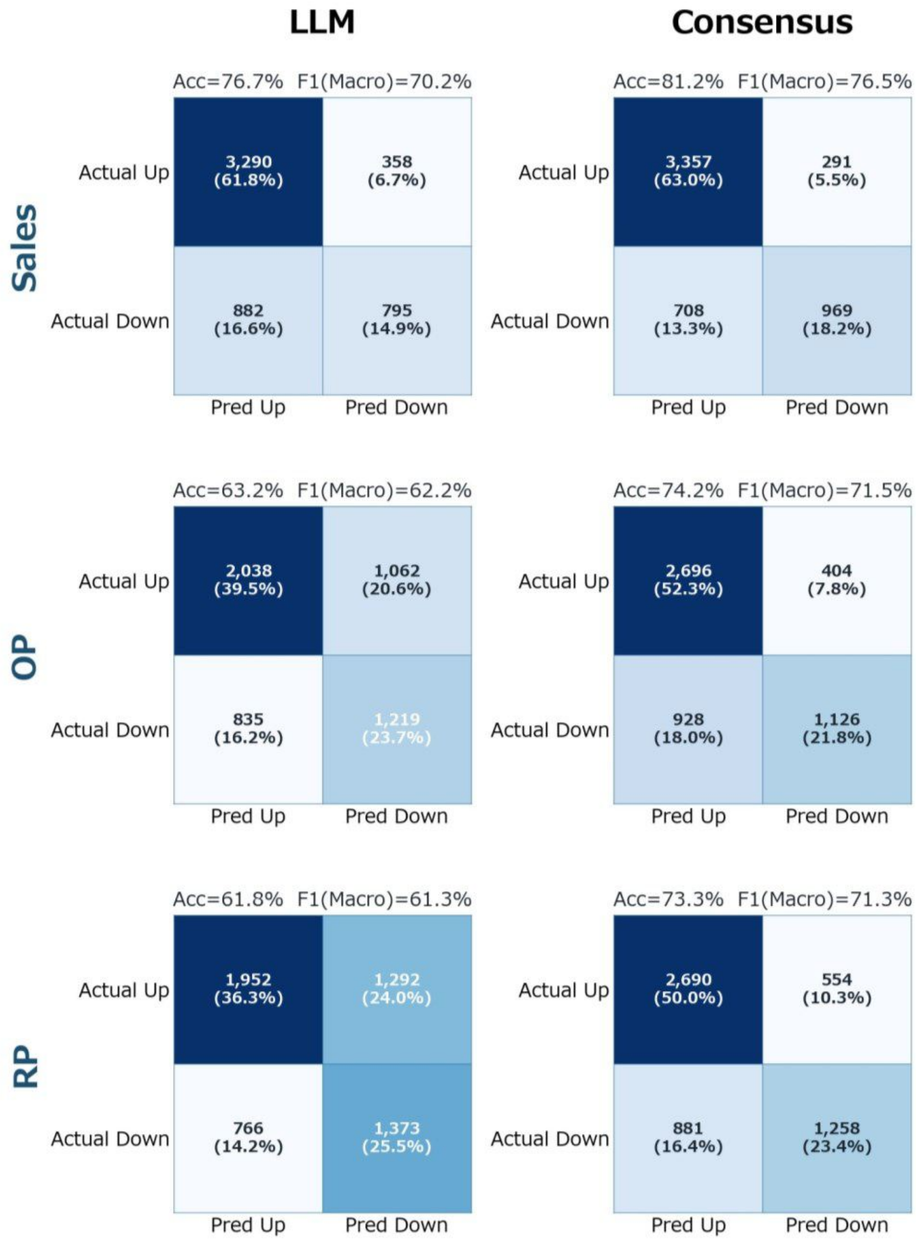
SCENARIO	EARNINGS OUTLOOK	CONDITIONS
Bull	Net sales of approximately 126,000 million yen, operating income of 33,400 million yen, and net income of 24,700 million yen.	Increased orders translate into sales, and high-level sales of semiconductor and FPD-related equipment continue. Operating margin remains in the 26% range, and a PER in the high 15x range is tolerated.
Base	Net sales of 120,000 million yen, operating income of 30,600 million yen, and net income of 22,800 million yen.	Reflects a decline in order backlog and assumes a slight decrease in both net sales and earnings. Profit margins remain at the high levels of recent years, but do not exceed the latest peak.
Bear	Net sales of approximately 112,000 million yen, operating income of 27,400 million yen, and net income of 20,000 million yen.	Declines in order backlog, yen appreciation, and slowing overseas demand combine, leading to lower sales and reduced capacity utilization, which lowers profit margins. PER also declines to around 13x.

Note: This is an excerpt from results generated using GPT-5.5 to forecast earnings for the fiscal year ending February 2026, based on information available as of the end of June 2025.
Source: Bloomberg, QUICK Workstation, EDINET Filing and Disclosure System (https://disclosure2.edinet-fsa.go.jp/), Morgan Stanley Research

Predictive accuracy

To perform a more comprehensive assessment of the accuracy of LLM analysis, we prepare a confusion matrix using both forecasts and actuals for March year-end companies only (Exhibit 6 and Exhibit 7). We also use an accuracy index that references Quick Consensus Plus estimates for comparison. [2]

Exhibit 6: Confusion Matrix for Earnings Forecasts (LLM vs. Consensus)



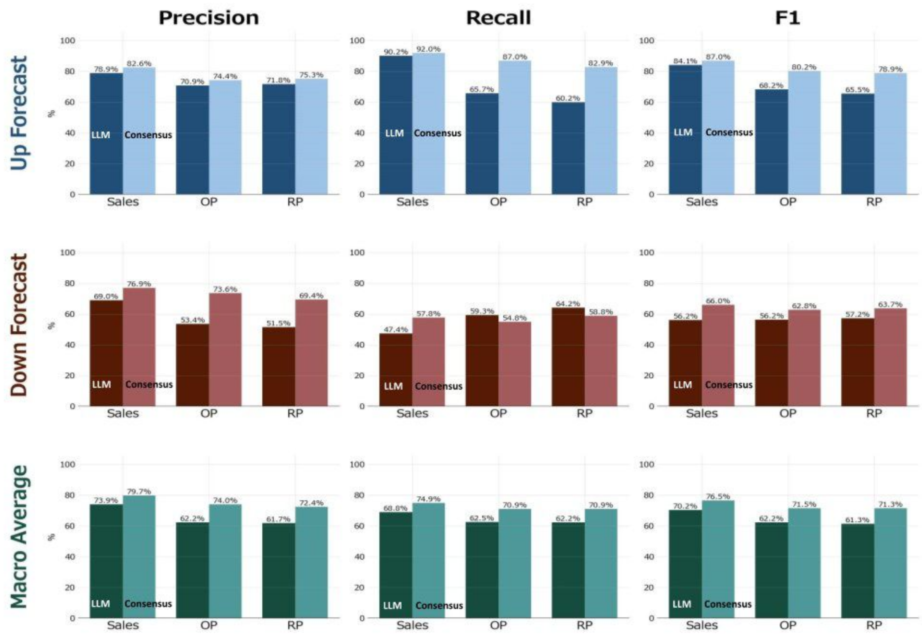
Note: TOPIX 1000 universe. The analysis covers only companies with fiscal year-ends in March. Forecasts as of June of each year from 2016 to 2024 were compared with actual results announced in the following year. "Consensus" refers to analysis results using QUICK Consensus Plus. For details of the data, please refer to "Supplementary Information" at the end of the report.
Source: Bloomberg, QUICK Workstation, EDINET Filing and Disclosure System (https://disclosure2.edinet-fsa.go.jp/), Morgan Stanley Research

2. Quick Consensus Plus estimates are proxy consensus estimates for companies that do not have analyst coverage, calculated using company forecasts as a substitute.

From our analysis, we found that consensus estimates are more accurate than LLM forecasts in all three line items: revenue, OP and RP. In particular, the confusion matrix shows that of those companies that actually reported OP and RP growth, the LLM had a lower ratio of correct predictions (ie, a lower recall rate for profit growth) than the consensus estimate. This indicates that the LLM has a tendency towards conservative forecasting. [3]

In addition, looking at the forecast decline in OP and RP, we note the LLM showed higher recall than the consensus forecast but lower precision. This demonstrates that although the LLM often more aggressively predicts profit declines than the consensus, its predictive accuracy was lower. Put together with the results of the profit growth forecasts, we note that LLM forecasts were broadly neutral when assessing revenue, but tended to emphasize the possibility of profit decline.

Exhibit 7: Comparison of Forecast Accuracy



Note: TOPIX 1000 universe. The analysis covers only companies with fiscal year-ends in March. The period covered is 2016 to 2024. Forecast values were calculated based on publicly available data as of the end of June each year. "Consensus" refers to analysis results using QUICK Consensus Plus. The macro average is defined as the average of accuracy metrics calculated for forecasts of sales/profit increases and forecasts of sales/profit decreases. For details of the data, please refer to "Supplementary Information" at the end of the report.
Source: Bloomberg, QUICK Workstation, EDINET Filing and Disclosure System (https://disclosure2.edinet-fsa.go.jp/), Morgan Stanley Research

3. Accuracy: The proportion of all predictions made by the LLM that were correct. Precision: The proportion of the LLM's positive predictions that were actually positive. Recall: The proportion of actual positive cases that the LLM correctly identified as positive. The F1 score is the harmonic mean of precision and recall.

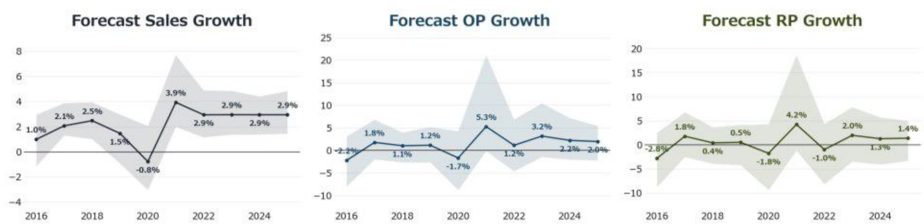
Characteristics of forecast financial indicators

From a time series of forecast growth rates, we note that although forecasts fell sharply in June 2020 (during the Covid-19 pandemic), they recovered and subsequently stabilized, broadly tracking actual earnings (Exhibit 8).

In addition, a comparison of forecasts as of June 2025 for each of the 17 TSE sectors shows a marked tendency for forecast sales and profit declines in the energy & resources and electric power & gas sectors (Exhibit 9). F3/26 results in the energy & resources sector showed sales declines alongside profit growth for oil wholesalers such as Idemitsu Kosan (5019) and ENEOS (5020), owing to increasing tension in the Middle East and the resultant surge in oil prices. This diverged from the LLM forecast.

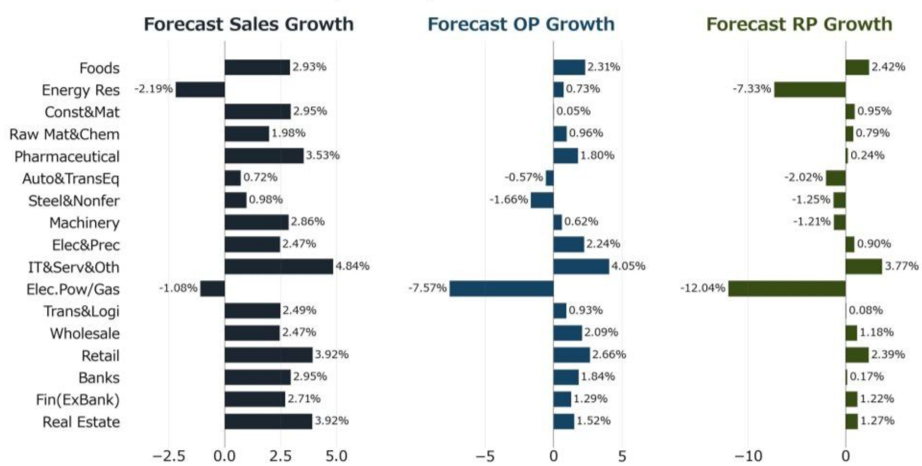
Similarly, F3/26 results in the electric power & gas sector showed a downtrend in retail electricity volume for EPCOs in particular, underpinning an overall decline in sales. However, Tokyo EPCO (9501) and Kyushu EPCO (9508) reported RP growth partly on a boost from lower fuel costs. This resulted in a less pronounced profit decline than had been projected by the LLM.

Exhibit 8: Time Series of Forecast Financial Indicators



Note: TOPIX 1000 universe. The period covered is 2016 to 2025. LLM forecast values were calculated based on publicly available data as of the end of June each year. The solid line represents the universe median, while the shaded area represents the interquartile range. For details of the data, please refer to "Supplementary Information" at the end of the report.
Source: Bloomberg, QUICK Workstation, EDINET Filing and Disclosure System (https://disclosure2.edinet-fsa.go.jp/), Morgan Stanley Research

Exhibit 9: Median Forecasts by Industry

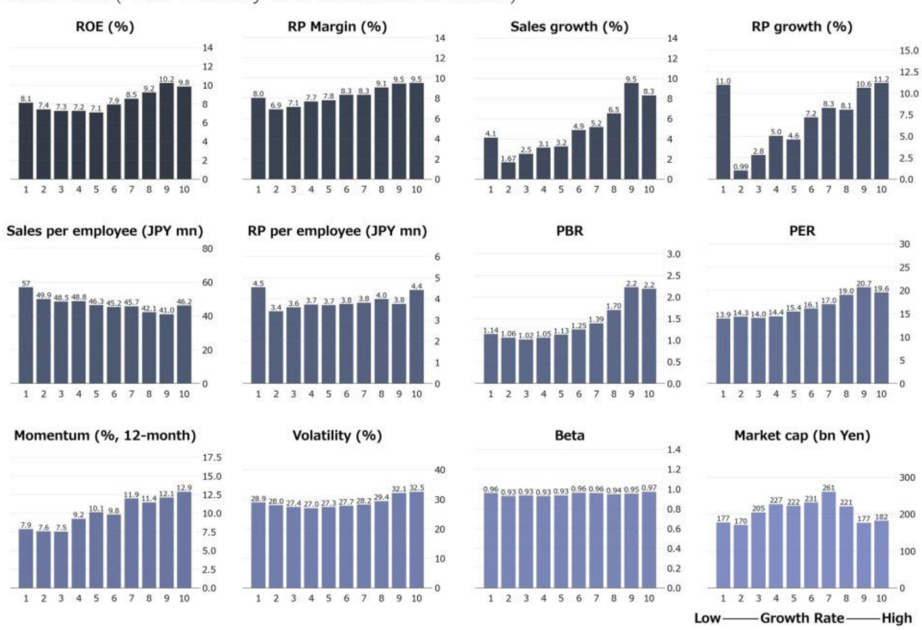


Note: TOPIX 1000 universe. Based on data as of June 2025. Estimates generated by an LLM were used as forecast values. The TSE 17-sector classification was used for industry classification. For details of the data, please refer to "Supplementary Information" at the end of the report.
Source: Bloomberg, QUICK Workstation, EDINET Filing and Disclosure System (https://disclosure2.edinet-fsa.go.jp/), Morgan Stanley Research

To grasp the characteristics of LLM forecasts, we investigated the relationship with financial and market indicators. Revenue forecasts exhibited a positive correlation with past sales growth and RP growth rates, indicating that in many cases the LLM assumed the continuation of past trends (Exhibit 10). Indeed, there is a tendency for trends to continue over a certain period, not just in the case of new companies but also with large companies when certain products or overseas operations contribute to earnings growth. Our prompt includes the past five years' worth of financial indicators, and despite the short period we believe the LLM picked up on the sustainability of sales growth and used this to underpin its forecasts.

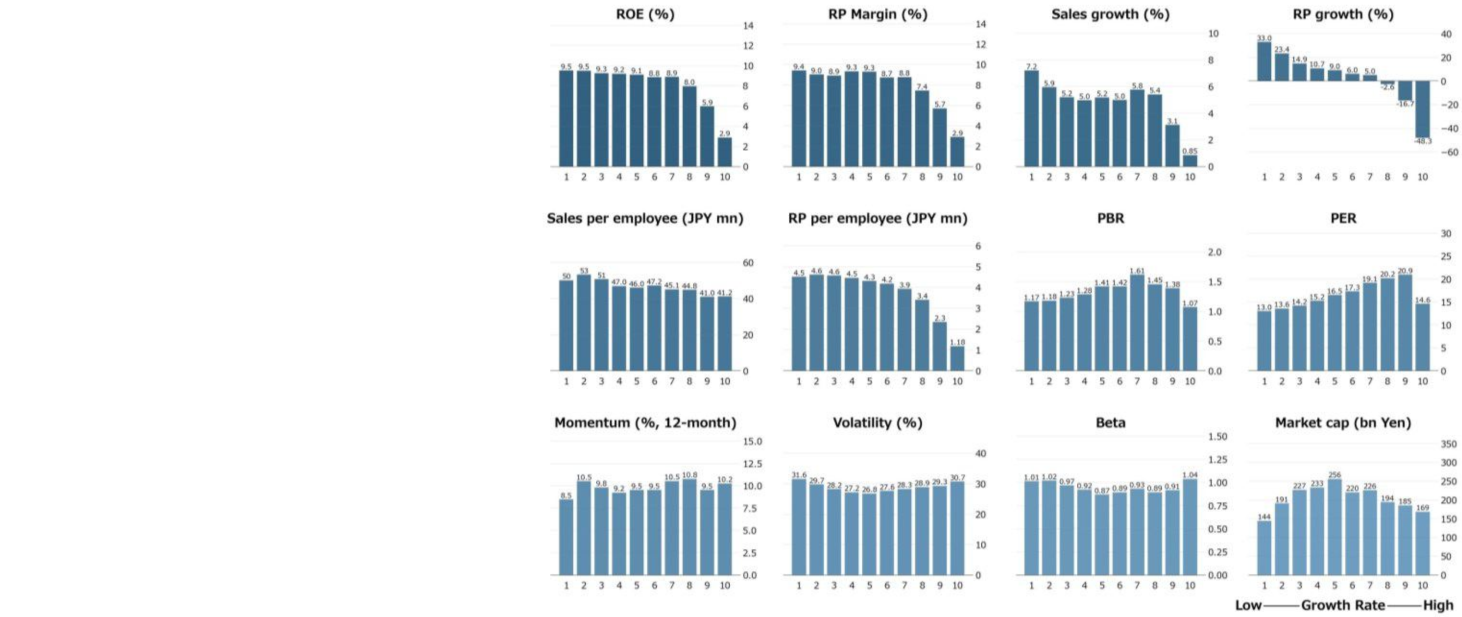
Meanwhile, the LLM's OP and RP forecasts showed a negative correlation, especially for RP growth. This is broadly in line with the observed trend for mean reversion (Exhibit 11 , Exhibit 12). However, as we confirmed previously, the LLM's profit decline forecast has higher recall but lower precision than the consensus forecast, which cautions against concluding that the LLM's approach to predictive profit declines was definitely effective. In our analysis, we completed the entire earnings forecasting process in a single inference round, and it appears that forecasting approach may have been influenced by a skew in the financial data (see the analysis of Rorze as an example). To make more effective use of the entirety of data used in the prompt, including economic indicators and MD&A, we would need to refine the overall process, for example through analysis by data category, self-verification, reanalysis, and the use of multiple LLM agents to carry out multiple steps independently, such as generation of forecasts through integrated assessment of multiple factors.

Exhibit 10: Relationship Between Forecast Sales Growth Rates and Financial/Market Indicators (After Industry and Size Neutralization)



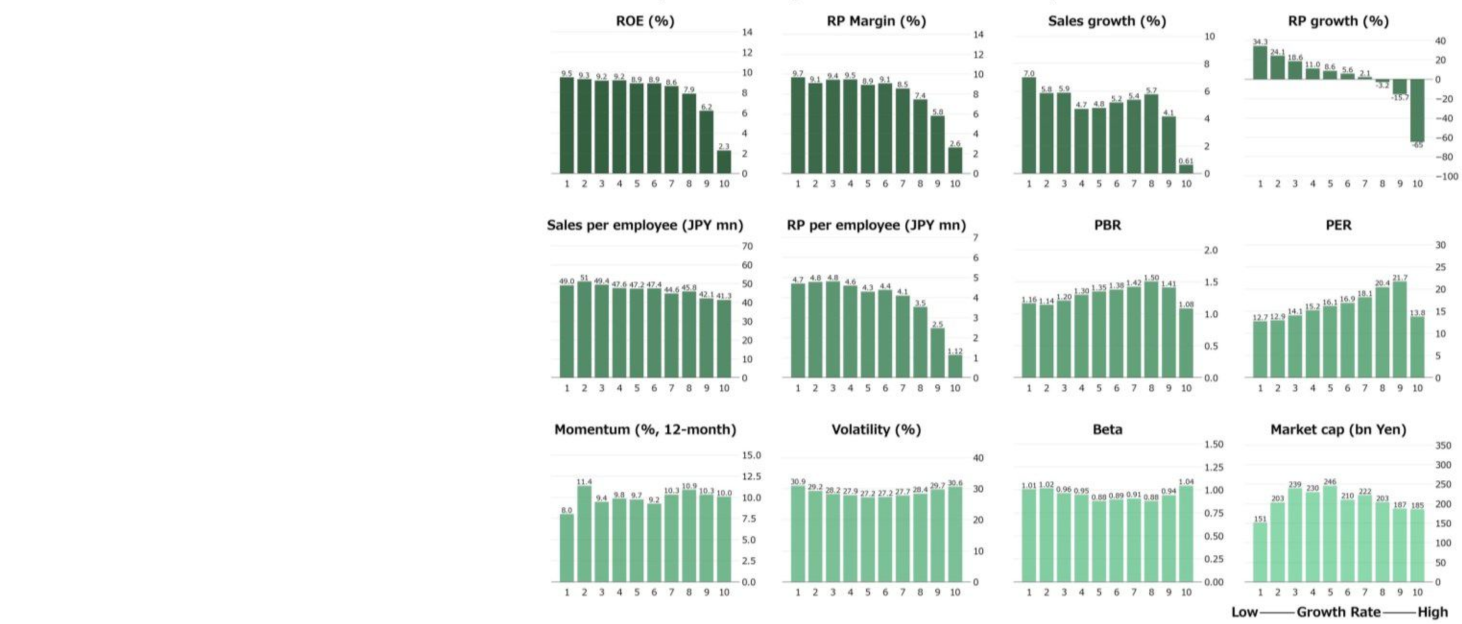
Note: The period covered is from June 2016 to April 2026. TOPIX 1000 universe. LLM forecast growth rates were cross-sectionally regressed on industry dummy variables based on the TSE 17-sector classification and market capitalization, and the residuals from this regression were defined as neutralized growth rates. Universe constituents were then divided into 10 groups based on the neutralized growth rates. For each decile, the median values of financial indicators and other metrics were calculated, and the values shown represent the average of those medians over the period. Higher values on the horizontal axis indicate higher growth rates. For details of the data, please refer to "Supplementary Information" at the end of the report.
Source: Bloomberg, QUICK Workstation, EDINET Filing and Disclosure System (https://disclosure2.edinet-fsa.go.jp/), Morgan Stanley Research

Exhibit 11: Relationship Between Forecast OP Growth Rates and Financial/Market Indicators (After Industry and Size Neutralization)



Note: The period covered is from June 2016 to April 2026. TOPIX 1000 universe. LLM forecast growth rates were cross-sectionally regressed on industry dummy variables based on the TSE 17-sector classification and market capitalization, and the residuals from this regression were defined as neutralized growth rates. Universe constituents were then divided into 10 groups based on the neutralized growth rates. For each decile, the median values of financial indicators and other metrics were calculated, and the values shown represent the average of those medians over the period. Higher values on the horizontal axis indicate higher growth rates. For details of the data, please refer to "Supplementary Information" at the end of the report.
Source: Bloomberg, QUICK Workstation, EDINET Filing and Disclosure System (https://disclosure2.edinet-fsa.go.jp/), Morgan Stanley Research

Exhibit 12: Relationship Between Forecast RP Growth Rates and Financial/Market Indicators (After Industry and Size Neutralization)



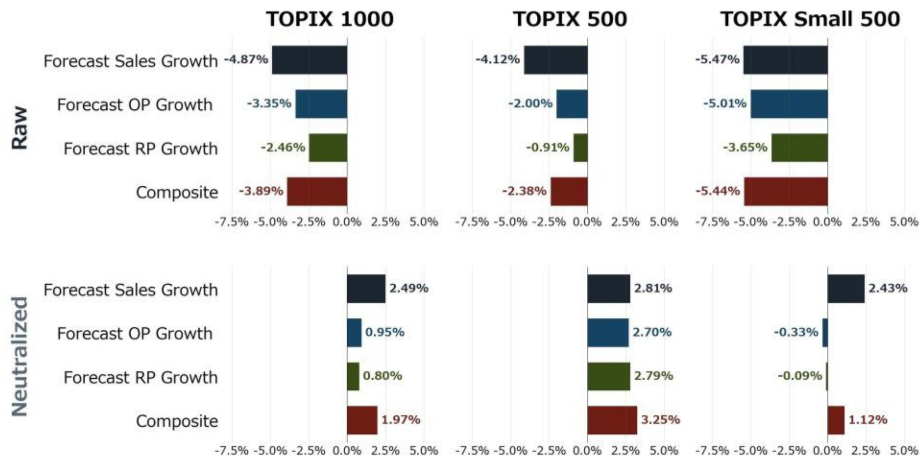
Note: The period covered is from June 2016 to April 2026. TOPIX 1000 universe. LLM forecast growth rates were cross-sectionally regressed on industry dummy variables based on the TSE 17-sector classification and market capitalization, and the residuals from this regression were defined as neutralized growth rates. Universe constituents were then divided into 10 groups based on the neutralized growth rates. For each decile, the median values of financial indicators and other metrics were calculated, and the values shown represent the average of those medians over the period. Higher values on the horizontal axis indicate higher growth rates. For details of the data, please refer to "Supplementary Information" at the end of the report.
Source: Bloomberg, QUICK Workstation, EDINET Filing and Disclosure System (https://disclosure2.edinet-fsa.go.jp/), Morgan Stanley Research

Backtesting results

To assess the stock-selection effect of LLM forecasts, we calculate the annual average return of a quintile spread portfolio (Exhibit 13 , Exhibit 14). For comparison purposes, we also carry out the same analysis using Quick Consensus Plus under the same conditions as the LLM forecasts (Exhibit 14 , Exhibit 16).

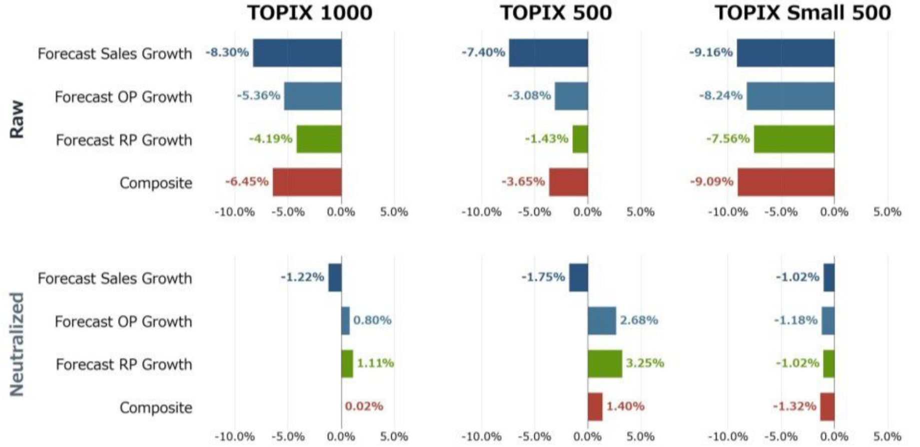
Our analysis identified a negative stock-selection effect when using non-neutralized LLM forecast growth rates, which was especially pronounced for revenue growth forecasts. We believe this is because it is relatively easy for market participants to set estimates for sales forecasts, so share prices already partially reflect predictive data.

Exhibit 13: Average Excess Returns of Quintile Spread Portfolios (Annualized, LLM-based)



Note: The period covered is from July 2016 to April 2026. The constituents of the universe were divided into five groups based on LLM forecast growth rates, and excess returns versus the benchmark were measured for each quintile. The analysis assumes a long position in the quintile with the highest forecast growth rates and a short position in the quintile with the lowest forecast growth rates. "Composite" is defined as the average of standardized forecast growth rates for sales, operating profit, and ordinary profit. For details of the analysis, including neutralization procedures, please refer to "Supplementary Information" at the end of the report.
Source: Bloomberg, QUICK Workstation, EDINET Filing and Disclosure System (https://disclosure2.edinet-fsa.go.jp/), Morgan Stanley Research

Exhibit 14: Average Excess Returns of Quintile Spread Portfolios (Annualized, Consensus-based)

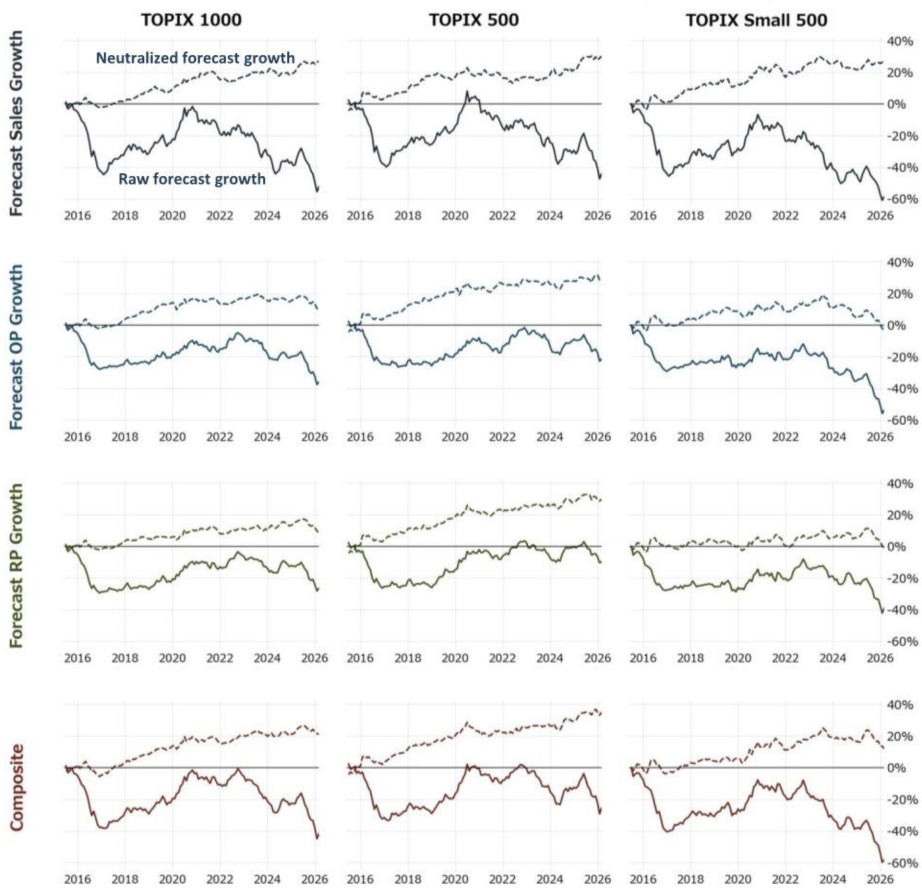


Note: The period covered is from July 2016 to April 2026. The constituents of the universe were divided into five groups based on consensus forecast growth rates, and excess returns versus the benchmark were measured for each quintile. The analysis assumes a long position in the quintile with the highest forecast growth rates and a short position in the quintile with the lowest forecast growth rates. "Composite" is defined as the average of standardized forecast growth rates for sales, operating profit, and ordinary profit. For details of the analysis, including neutralization procedures, please refer to "Supplementary Information" at the end of the report.
Source: Bloomberg, QUICK Workstation, EDINET Filing and Disclosure System (https://disclosure2.edinet-fsa.go.jp/), Morgan Stanley Research

When using non-neutralized consensus forecasts, we observed an even stronger negative stock-selection effect than when using LLM forecasts. This is probably because many market participants use consensus forecasts to inform investment decisions, so this data is probably substantially reflected in the share price.

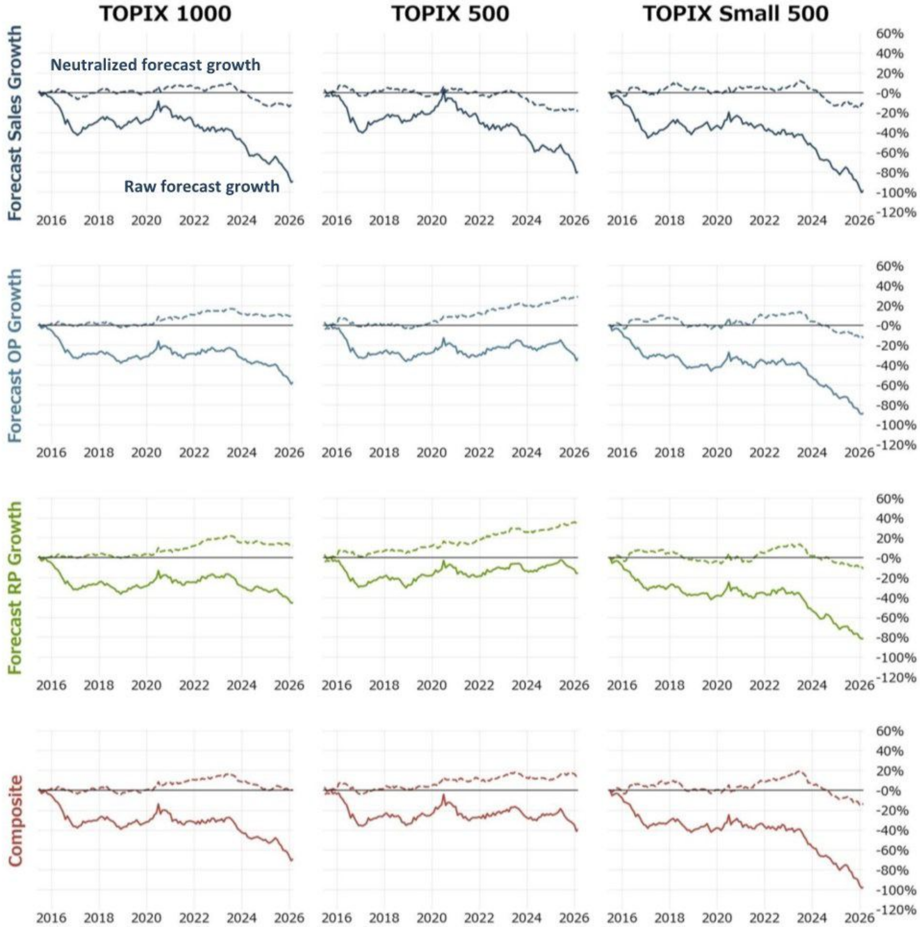
When we compared neutralized growth forecasts from the LLM and consensus estimates, we found that performance from OP growth rates is around the same, but that performance for RP growth is slightly higher when using consensus forecasts. Meanwhile, stock-selection effect is markedly higher for revenue growth when using LLM forecasts, likely because LLM estimates do not use company or analyst forecasts. As LLM forecasts do not use companies' optimistic/conservative estimates or the analyst forecasts based on them, they are in essence based on historical revenue trends or order backlogs. This may explain why LLM forecasts for one-year-forward earnings have lower precision than consensus estimates (Exhibit 7), while their forecasts for longer-term revenue and earnings trends (two years out and beyond) appear to capture company-specific predictive information.

Exhibit 15: Cumulative Excess Returns of Quintile Portfolios (LLM-based)



Note: The period covered is from July 2016 to April 2026. The constituents of the universe were divided into five groups based on forecast growth rates, and excess returns versus the benchmark were measured for each quintile. The analysis assumes a long position in the quintile with the highest forecast growth rates and a short position in the quintile with the lowest forecast growth rates. Estimates generated by an LLM were used as forecast values. "Composite" is defined as the average of standardized forecast growth rates for sales, operating profit, and ordinary profit. For details of the analysis, including neutralization procedures, please refer to "Supplementary Information" at the end of the report.
Source: Bloomberg, QUICK Workstation, EDINET Filing and Disclosure System (https://disclosure2.edinet-fsa.go.jp/), Morgan Stanley Research

Exhibit 16: Cumulative Excess Returns of Quintile Portfolios (Consensus-based)



Note: The period covered is from July 2016 to April 2026. The constituents of the universe were divided into five groups based on forecast growth rates, and excess returns versus the benchmark were measured for each quintile. The analysis assumes a long position in the quintile with the highest forecast growth rates and a short position in the quintile with the lowest forecast growth rates. QUICK Consensus Plus was used for the forecast values. "Composite" is defined as the average of standardized forecast growth rates for sales, operating profit, and ordinary profit. For details of the analysis, including neutralization procedures, please refer to "Supplementary Information" at the end of the report.
Source: Bloomberg, QUICK Workstation, EDINET Filing and Disclosure System (https://disclosure2.edinet-fsa.go.jp/), Morgan Stanley Research

Exhibit 17: Basic Statistics for Quintile Performance (Annualized, LLM-based, After Risk Neutralization)

LLM	Universe	Expected Growth Quintile	Avg Return	Volatility	Return / Volatility	Avg Drawdown	Max Drawdown	Turnover (round-trip)
Forecast Sales Growth	TOPIX 1000	Q1 (Growth: Low)	-0.7%	2.8%	-0.25	-6.7%	-12.8%	391.1%
		Q2	-0.3%	2.8%	-0.12	-5.5%	-11.5%	497.3%
		Q3	-0.3%	2.3%	-0.15	-5.9%	-10.0%	532.7%
		Q4	-0.2%	3.1%	-0.08	-3.1%	-10.6%	534.5%
		Q5 (Growth: High)	1.8%	2.2%	0.81	-1.5%	-5.5%	408.9%
		Spread (Q5-Q1)	2.5%	3.6%	0.68	-1.9%	-6.9%	800.0%
	TOPIX 500	Q1 (Growth: Low)	-1.5%	3.1%	-0.47	-9.4%	-18.0%	384.3%
		Q2	0.1%	3.3%	0.04	-4.5%	-10.8%	520.4%
		Q3	-0.1%	2.4%	-0.06	-3.9%	-9.9%	559.7%
		Q4	0.1%	3.4%	0.02	-3.6%	-8.8%	545.5%
		Q5 (Growth: High)	1.4%	3.1%	0.44	-2.1%	-8.2%	396.0%
		Spread (Q5-Q1)	2.8%	4.8%	0.59	-2.8%	-9.5%	780.3%
	TOPIX Small 500	Q1 (Growth: Low)	-0.3%	3.0%	-0.09	-4.7%	-9.0%	391.4%
		Q2	-0.2%	3.0%	-0.07	-7.5%	-16.7%	538.9%
		Q3	-0.5%	3.1%	-0.16	-5.9%	-14.0%	580.2%
		Q4	-0.5%	3.6%	-0.13	-3.6%	-12.3%	575.9%
		Q5 (Growth: High)	2.2%	3.4%	0.65	-1.9%	-7.9%	427.2%
		Spread (Q5-Q1)	2.4%	4.8%	0.50	-2.6%	-8.2%	818.6%
Forecast OP Growth	TOPIX 1000	Q1 (Growth: Low)	0.0%	2.7%	0.01	-5.0%	-10.9%	420.2%
		Q2	0.1%	2.1%	0.06	-3.8%	-9.6%	538.9%
		Q3	-0.5%	2.4%	-0.20	-5.7%	-9.2%	554.9%
		Q4	-0.5%	2.5%	-0.19	-3.0%	-11.1%	553.7%
		Q5 (Growth: High)	1.0%	2.3%	0.43	-1.2%	-5.5%	419.8%
		Spread (Q5-Q1)	0.9%	3.6%	0.26	-1.9%	-9.0%	840.0%
	TOPIX 500	Q1 (Growth: Low)	-0.4%	2.8%	-0.13	-6.8%	-12.0%	406.7%
		Q2	-0.7%	2.7%	-0.27	-6.8%	-13.0%	542.2%
		Q3	-0.1%	2.8%	-0.04	-5.3%	-13.3%	577.7%
		Q4	-1.2%	2.8%	-0.44	-4.4%	-15.7%	557.6%
		Q5 (Growth: High)	2.3%	3.2%	0.73	-0.9%	-4.8%	400.4%
		Spread (Q5-Q1)	2.7%	4.7%	0.57	-1.4%	-5.8%	807.1%
	TOPIX Small 500	Q1 (Growth: Low)	0.1%	3.2%	0.03	-7.2%	-13.7%	429.2%
		Q2	0.0%	2.5%	0.01	-4.9%	-8.5%	589.6%
		Q3	-0.1%	2.8%	-0.04	-3.9%	-7.7%	609.6%
		Q4	1.0%	2.7%	0.35	-3.7%	-11.7%	609.2%
		Q5 (Growth: High)	-0.2%	3.2%	-0.08	-3.4%	-14.1%	448.1%
		Spread (Q5-Q1)	-0.3%	5.1%	-0.06	-4.4%	-20.7%	877.3%
Forecast RP Growth	TOPIX 1000	Q1 (Growth: Low)	-0.3%	2.7%	-0.11	-4.7%	-9.2%	443.5%
		Q2	0.4%	2.3%	0.20	-2.4%	-5.7%	575.0%
		Q3	-0.6%	2.4%	-0.26	-6.5%	-12.7%	599.1%
		Q4	0.1%	2.5%	0.04	-3.3%	-9.6%	578.7%
		Q5 (Growth: High)	0.5%	2.2%	0.23	-1.3%	-5.5%	430.7%
		Spread (Q5-Q1)	0.8%	3.6%	0.22	-1.8%	-8.4%	874.1%
	TOPIX 500	Q1 (Growth: Low)	-0.6%	2.8%	-0.23	-6.5%	-11.6%	422.9%
		Q2	-1.2%	2.4%	-0.50	-9.9%	-16.8%	580.8%
		Q3	-0.3%	2.2%	-0.14	-6.4%	-14.5%	637.3%
		Q4	-0.1%	2.7%	-0.02	-2.5%	-9.3%	601.5%
		Q5 (Growth: High)	2.1%	2.9%	0.74	-0.7%	-3.6%	429.5%
		Spread (Q5-Q1)	2.8%	4.5%	0.62	-1.5%	-6.5%	852.4%
	TOPIX Small 500	Q1 (Growth: Low)	-0.6%	3.1%	-0.20	-6.2%	-15.5%	441.6%
		Q2	0.8%	3.1%	0.26	-2.7%	-6.1%	617.1%
		Q3	0.2%	2.8%	0.08	-3.3%	-8.1%	643.4%
		Q4	1.0%	3.1%	0.32	-4.2%	-10.9%	624.9%
		Q5 (Growth: High)	-0.7%	3.2%	-0.22	-4.2%	-12.0%	456.9%
		Spread (Q5-Q1)	-0.1%	4.8%	-0.02	-3.3%	-11.8%	898.5%
Composite	TOPIX 1000	Q1 (Growth: Low)	-1.2%	2.6%	-0.45	-7.6%	-14.9%	422.2%
		Q2	0.3%	1.9%	0.17	-4.0%	-8.5%	548.2%
		Q3	0.1%	2.2%	0.03	-4.3%	-8.7%	582.7%
		Q4	0.1%	2.2%	0.06	-1.0%	-5.0%	554.9%
		Q5 (Growth: High)	0.8%	2.5%	0.32	-2.2%	-7.3%	407.6%
		Spread (Q5-Q1)	2.0%	3.9%	0.50	-1.9%	-9.3%	829.8%
	TOPIX 500	Q1 (Growth: Low)	-1.4%	2.8%	-0.51	-9.6%	-15.7%	407.5%
		Q2	0.0%	2.5%	0.02	-4.2%	-8.4%	550.7%
		Q3	0.1%	2.5%	0.03	-5.9%	-14.3%	593.5%
		Q4	-0.6%	2.6%	-0.24	-2.6%	-9.4%	571.5%
		Q5 (Growth: High)	1.8%	3.1%	0.60	-1.2%	-5.6%	403.4%
		Spread (Q5-Q1)	3.3%	4.7%	0.69	-2.2%	-8.3%	810.9%
	TOPIX Small 500	Q1 (Growth: Low)	-0.6%	3.1%	-0.19	-6.4%	-13.7%	432.4%
		Q2	-0.1%	2.8%	-0.03	-8.9%	-13.2%	602.6%
		Q3	-0.2%	2.6%	-0.08	-5.2%	-11.0%	633.0%
		Q4	1.1%	2.7%	0.40	-0.9%	-2.9%	598.6%
		Q5 (Growth: High)	0.5%	3.3%	0.16	-2.4%	-11.0%	438.9%
		Spread (Q5-Q1)	1.1%	5.3%	0.21	-3.4%	-12.5%	871.3%

Note: The period covered is from July 2016 to April 2026. The constituents of the universe were divided into five groups based on risk-neutralized growth rates, and excess returns versus the benchmark were measured for each quintile. Stocks in the fifth quintile (Q5) indicate higher growth rates. "Composite" is defined as the average of standardized forecast growth rates for sales, operating profit, and ordinary profit. Estimates generated by an LLM were used as forecast values. For details of the analysis, including neutralization procedures, please refer to "Supplementary Information" at the end of the report.

Source: Bloomberg, QUICK Workstation, EDINET Filing and Disclosure System (https://disclosure2.edinet-fsa.go.jp/), Morgan Stanley Research

Exhibit 18: Top 50 Stocks by Forecast Growth Rate (Based on Risk-neutralized Composite)

Code	Name	Sector	Market cap (bn Yen)	PBR
1963	JGC HOLDINGS	Const&Mat	582.2	1.4
2501	SAPPORO HOLDINGS	Foods	693.4	3.2
2503	KIRIN HOLDINGS	Foods	2,023.3	1.6
2802	AJINOMOTO	Foods	4,976.7	6.7
2914	JAPAN TOBACCO	Foods	11,730.0	2.9
3064	MONOTARO	Retail	931.5	7.6
3288	OPEN HOUSE GROUP	Real Estate	1,069.5	1.9
3349	COSMOS PHARMACEUTICAL	Retail	483.4	1.8
3391	TSURUHA HOLDINGS	Retail	935.0	1.1
3402	TORAY INDUSTRIES	Raw Mat&Chem	1,686.5	1.0
3549	KUSURI NO AOKI HOLDINGS	Retail	359.1	2.6
3941	RENGO	Raw Mat&Chem	333.0	0.7
4061	DENKA	Raw Mat&Chem	363.1	1.2
4385	MERCARI	IT&Serv&Oth	622.9	5.6
4502	TAKEDA PHARMACEUTICAL	Pharmaceutical	8,385.8	1.1
4503	ASTELLAS PHARMA	Pharmaceutical	4,039.2	2.2
4507	SHIONOGI &	Pharmaceutical	2,820.1	1.9
4631	DIC	Raw Mat&Chem	341.0	0.7
4751	CYBERAGENT	IT&Serv&Oth	633.1	3.5
4755	RAKUTEN GROUP	IT&Serv&Oth	1,650.3	1.7
5020	ENEOS HOLDINGS	Energy Res	3,574.3	1.1
5101	THE YOKOHAMA RUBBER	Auto&TransEq	1,047.8	1.0
5110	SUMITOMO RUBBER IND.,	Auto&TransEq	531.2	0.7
5214	NIPPON ELECTRIC GLASS	Const&Mat	729.2	1.5
5444	YAMATO KOGYO	Steel&Nonfer	741.2	1.4
5463	MARUICHI STEEL TUBE	Steel&Nonfer	365.9	1.1
6268	NABTESCO	Machinery	614.6	2.2
6383	DAIFUKU	Machinery	2,575.2	5.7
6707	SANKEN ELECTRIC	Elec&Prec	195.7	1.6
6753	SHARP	Elec&Prec	363.9	1.4
6920	LASERTEC	Elec&Prec	4,025.1	17.9
6971	KYOCERA	Elec&Prec	4,094.1	1.2
7003	MITSUI E&S	Machinery	578.9	2.8
7012	KAWASAKI HEAVY IND.,	Auto&TransEq	2,701.0	3.3
7201	NISSAN MOTOR	Auto&TransEq	1,322.2	0.3
7649	SUGI HOLDINGS	Retail	594.7	2.0
7747	ASAHI INTECC	Elec&Prec	875.1	5.5
7751	CANON	Elec&Prec	5,344.4	1.6
7936	ASICS	IT&Serv&Oth	3,255.2	12.0
8053	SUMITOMO	Wholesale	6,979.5	1.5
8111	GOLDWIN	Raw Mat&Chem	312.3	2.6
8304	AOZORA BANK,	Banks	352.1	0.7
8309	SUMITOMO MITSUI TRUST GROUP	Banks	3,618.5	1.1
8331	THE CHIBA BANK,	Banks	1,686.0	1.4
9022	CENTRAL JAPAN RAILWAY	Trans&Logi	3,748.4	0.7
9048	NAGOYA RAILROAD	Trans&Logi	348.3	0.7
9201	JAPAN AIRLINES	Trans&Logi	1,072.8	0.8
9501	TOKYO ELECTRIC POWER COMPANY HOLDINGS	Elec.Pow/Gas	2,100.5	0.6
9531	TOKYO GAS	Elec.Pow/Gas	2,234.2	1.3
9843	NITORI HOLDINGS	Retail	1,268.3	1.3

Note: Based on data as of the end of April 2026. TOPIX 500 universe. The list shows the top 50 stocks by neutralized forecast growth rate (Composite). "Composite" is defined as the average of standardized forecast growth rates for sales, operating profit, and ordinary profit. Estimates generated by an LLM were used as forecast values. For details of the analysis, including neutralization procedures, please refer to "Supplementary Information" at the end of the report.
Source: Bloomberg, QUICK Workstation, EDINET Filing and Disclosure System (https://disclosure2.edinet-fsa.go.jp/), Morgan Stanley Research

Exhibit 19: Bottom 50 Stocks by Forecast Growth Rate (Based on Risk-neutralized Composite)

Code	Name	Sector	Market cap (bn Yen)	PBR
1803	SHIMIZU	Const&Mat	2,177.3	2.4
1969	TAKASAGO THERMAL ENG.	Const&Mat	633.0	3.2
2127	NIHON M&A CENTER HOLDINGS	IT&Serv&Oth	220.5	4.4
2432	DENA	IT&Serv&Oth	310.0	1.2
2593	ITO EN,	Foods	339.3	2.0
2811	KAGOME	Foods	245.0	1.3
3003	HULIC	Real Estate	1,356.1	1.5
3048	BIC CAMERA	Retail	304.9	1.7
3086	J.FRONT RETAILING	Retail	618.4	1.5
3382	SEVEN & I HOLDINGS	Retail	4,873.1	1.3
3591	WACOAL HOLDINGS	Raw Mat&Chem	242.6	1.2
3635	KOEI TECMO HOLDINGS	IT&Serv&Oth	516.6	1.9
4452	KAO	Raw Mat&Chem	2,646.3	2.5
4587	PEPTIDREAM	Pharmaceutical	149.6	2.9
4927	POLA ORBIS HOLDINGS	Raw Mat&Chem	296.3	1.8
4967	KOBAYASHI PHARMACEUTICAL	Raw Mat&Chem	452.8	2.2
5021	COSMO ENERGY HOLDINGS	Energy Res	660.7	1.1
5344	MARUWA	Const&Mat	909.1	6.5
5706	MITSUI KINZOKU	Steel&Nonfer	2,431.5	6.7
5711	MITSUBISHI MATERIALS	Steel&Nonfer	669.5	0.9
5803	FUJIKURA	Steel&Nonfer	10,599.6	20.9
5830	IYOGIN HOLDINGS	Banks	945.9	1.1
5901	TOYO SEIKAN GROUP HOLDINGS,	Const&Mat	496.1	0.7
6098	RECRUIT HOLDINGS	IT&Serv&Oth	10,753.7	6.9
6201	TOYOTA INDUSTRIES	Auto&TransEq	6,656.9	1.0
6301	KOMATSU	Machinery	6,100.2	1.7
6305	HITACHI CONST. MACH.	Machinery	1,177.1	1.3
6323	RORZE	Machinery	647.4	5.0
6326	KUBOTA	Machinery	2,907.1	1.1
6479	MINEBEA MITSUMI	Elec&Prec	1,334.2	1.6
6506	YASKAWA ELECTRIC	Elec&Prec	1,472.1	3.0
6586	MAKITA	Machinery	1,643.1	1.6
6752	PANASONIC HOLDINGS	Elec&Prec	7,861.9	1.6
6762	TDK	Elec&Prec	5,618.7	2.6
6857	ADVANTEST	Elec&Prec	20,686.3	26.0
6951	JEOL	Elec&Prec	323.5	2.2
6981	MURATA MANUFACTURING	Elec&Prec	10,121.2	3.7
6988	NITTO DENKO	Raw Mat&Chem	2,034.3	1.8
7203	TOYOTA MOTOR	Auto&TransEq	47,748.2	1.2
7309	SHIMANO	Auto&TransEq	1,420.4	1.6
7458	DAIICHIKOSHO	Wholesale	168.8	1.4
7832	BANDAI NAMCO HOLDINGS	IT&Serv&Oth	2,336.8	2.7
7984	KOKUYO	IT&Serv&Oth	345.3	1.3
8015	TOYOTA TSUSHO	Wholesale	6,480.3	2.1
8418	YAMAGUCHI FINANCIAL GROUP	Banks	630.8	0.9
8595	JAFCO GROUP	Fin(ExBank)	117.0	0.9
8804	TOKYO TATEMONO	Real Estate	748.5	1.3
9024	SEIBU HOLDINGS	Trans&Logi	1,125.9	2.1
9104	MITSUI O.S.K.LINES,	Trans&Logi	2,154.4	0.7
9602	TOHO	IT&Serv&Oth	1,238.0	2.4

Note: Based on data as of the end of April 2026. TOPIX 500 universe. The list shows the bottom 50 stocks by neutralized forecast growth rate (Composite). "Composite" is defined as the average of standardized forecast growth rates for sales, operating profit, and ordinary profit. Estimates generated by an LLM were used as forecast values. For details of the analysis, including neutralization procedures, please refer to "Supplementary Information" at the end of the report.
Source: Bloomberg, QUICK Workstation, EDINET Filing and Disclosure System (https://disclosure2.edinet-fsa.go.jp/), Morgan Stanley Research

Supplementary information

Reference materials

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[2] Gupta, Udit. "GPT-InvestAR: Enhancing stock investment strategies through annual report analysis with large language models." arXiv preprint arXiv:2309.03079 (2023).

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[4] Kim, Alex, Maximilian Muhn, and Valeri Nikolaev. "Financial statement analysis with large language models." arXiv preprint arXiv:2407.17866 (2024).

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Supplementary information on data

Our prompt includes the following data.

Equity market data (two years' worth: month-end share prices; individual stock returns; TOPIX returns; market cap; issued shares; P/B; P/E; individual stock cumulative returns; TOPIX cumulative returns), financial indicators (five years' worth: sales, OP, RP, NP, ROE, RP margins, leverage, sales growth rate, RP growth rate, shareholders' equity, total assets, total liabilities, interest-bearing debt, cash & deposits, R&D costs, overseas sales); economic indicators (one year's worth: BOJ policy rate, 10y JGB yields, Japan CPI, Japan manufacturing PMI, Japan retail sales, Japan industrial production, US ISM manufacturing PMI, China manufacturing PMI, USD/JPY, oil price), and MD&A text from the annual securities report (most recent fiscal year).

We obtained the MD&A for our corporate analysis by downloading XBRL tagged annual report files from the EDINET website (https://disclosure2.edinet-fsa.go.jp/WEEK0010.aspx) and extracting textual data for management's analysis of financial position, operating results, and cash flow. We use EDINET's API to download the files and extract text data.

Example prompt

Exhibit 20: Example Prompt for Company Analysis

B. Bias Mitigation Principles

B1. Discounting Optimism in Management Outlooks and Annual Securities Report Text

- Read Annual Securities Reports and management comments on the premise that they are generally biased toward optimism.
- Do not use forward-looking expressions such as "growth," "expansion," "strengthening," or "improvement" themselves as grounds for raising forecasts. Reflect them only within a cautious range when there is specific numerical support.
- Do not directly transfer medium-term targets or wishful expectations into forecast values.

B2. Symmetric Treatment of Profit-Increasing and Profit-Decreasing Factors

- For each earnings driver, comprehensively examine tailwinds and headwinds, and internally check whether the analysis is mechanically biased toward the tailwind side.
- Risks should include not only "unexpected deterioration," but also less conspicuous downside factors such as "expected improvements do not materialize," "demand remains flat year on year," and "cost increases pressure profit margins."

B3. Scenario Symmetry

- Bull and Bear scenarios should have symmetric ranges to the extent reasonably conceivable from the input data. Avoid making only the Bull scenario detailed while the Bear scenario is merely formal.
- Do not mechanically place the Base scenario in the middle; set it at the level judged most probable and clearly state the rationale.

B4. Pre-Output Self-Calibration (Internal Process; Do Not Output)

- Is the sales growth rate extreme compared with the median and average of the past five years? If extreme, is there support in the input?
- Is the profit margin within the past five-year range? If forecasting outside the range, is there support in the input?
- If there are violations, revise the forecast values and confidence before output. Do not output the inspection results themselves.

C. Analysis Procedure

C1. Organization of the Company's Current Situation

- Organize trends in sales, profit, profitability, growth, and volatility based on the financial performance of the most recent five years.
- From the share price time series, PBR, and PER, organize implications for relative performance, momentum, and valuation.
- From the Annual Securities Report text, extract the business issues, growth factors, cost factors, and risk factors that the company emphasizes.
- Describe observed facts and estimates separately (A3).

C2. Identification of Earnings Drivers

- Organize the main drivers affecting next-period profit into 3–5 items.
- Label each driver as "tailwind / headwind / neutral" and indicate the direction of its impact on profit.
- Driver candidates: sales, volume, price, cost of sales, SG&A expenses, capital investment, foreign exchange, supply-demand balance, business portfolio, extraordinary factors, etc.
- Link the rationale for each driver to specific figures or descriptions in the input data.

C3. Next-Period Profit Forecast

- Required forecast items: net sales, operating profit, ordinary profit.
- For each item, present the forecast value, year-on-year change, main rationale, and confidence.
- Do not forecast net sales, operating profit, and ordinary profit independently; consider their interrelationships.
- Factor in the impact of the macro environment as well (but only within the scope of the input 【Macroeconomic Indicators】).
- Be sure to apply B1 (discounting management optimism) and B2 (symmetric treatment).
- If the rationale within the input is insufficient, do not attempt excessive precision; clearly state the assumptions relied upon.

C4. Risk Organization

- List at least three key risks in descending order of impact.
- For each risk, separately describe the "impact on profit forecast" and the "impact on share price forecast."
- Do not write about events that actually occurred after the analysis date as known facts (A2).
- Be sure to include less conspicuous downside risks (B3) as well.

D. How to Present Evidence

- Link evidence to specific descriptions and figures in the input data.
- When referring to the Annual Securities Report text, quote as briefly as possible while indicating the key point.
- When referring to the financial table, specify which year and which item were examined.
- When referring to the share price time series, describe it so that relative movements are understandable.
- Do not use evidence for which it cannot be identified which information in the input it is based on.
- For estimates and assumptions, explicitly state the facts in the input on which they are based.

Note: Excerpt from the section of the prompt concerning the company analysis.
Source: Morgan Stanley Research

Backtesting details

Neutralization of forecast growth rates

In order to exclude the impact of financial indicators and earnings on forecast growth rates, we neutralize the data using a cross-sectional regression model (defined below). We use TSE 17 sectors as sector dummy variables, and use market cap as proxy for corporate scale.

Exhibit 21: Neutralization of Forecast Growth Rates

$$Est\_profit\_growth_i = \underbrace{\sum_{k=1}^{K} \beta_k x_{k,i}}_{\text{Explanatory variables: ROE, Sale growth, RP growth, Size, PBR, Beta, Volatility, Momentum, Sector-dummy}} + \epsilon_i$$

Neutralized forecast growth

Source: Morgan Stanley Research

Performance testing process

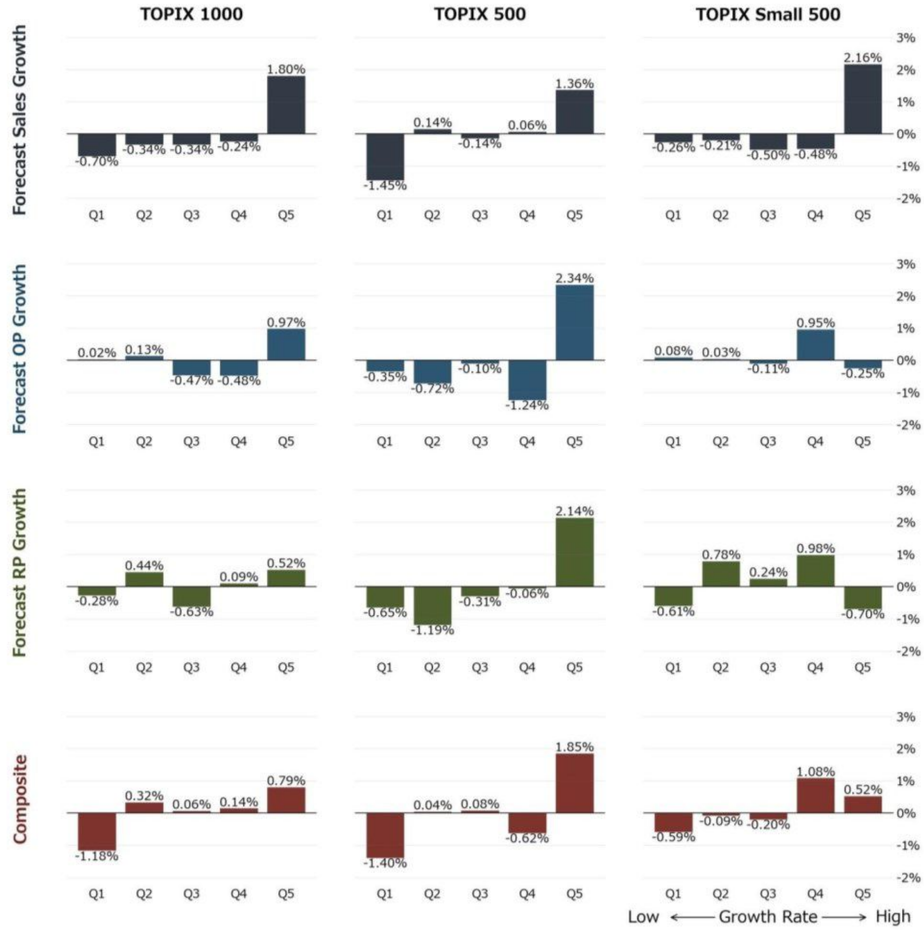
We define our investment universes as TOPIX, TOPIX 500, TOPIX Small 500, and TOPIX Micro Cap. We divide the stocks in each universe at the end of every month into quintiles based on forecast growth rates. For each quintile, we calculate excess returns vs. benchmark for the following month assuming investment weighted in proportion to log market cap. We calculate the spread return assuming a strategy that is long on the fifth quintile (highest growth) and short on the first quintile (lowest growth). We define the benchmark as a portfolio holding all stocks in the investment universe at log market cap, with performance calculated without reference to transaction costs, market impact, short-selling costs, and other incidentals. For this reason, our estimate yields stronger performance than could be obtained from real-world investment, but we deem the impact immaterial to the claims in this report even when using performance before accounting for costs. We estimate volatility and risk-return ratios using monthly returns. The data for returns and related indicators in the exhibits are all based on excess returns versus benchmark. The performance testing period is July 2016 through April 2026.

Performance decay

To ascertain the longevity of effectiveness for stock selection, we simulated a buy & hold strategy on a spread portfolio over 12 months following month-end rebalancing. We measured the period average excess return incrementally obtained for each individual month (the sum of all 12 figures in the exhibit is equivalent to the average return from a buy and hold strategy for 12 months on the spread portfolio).

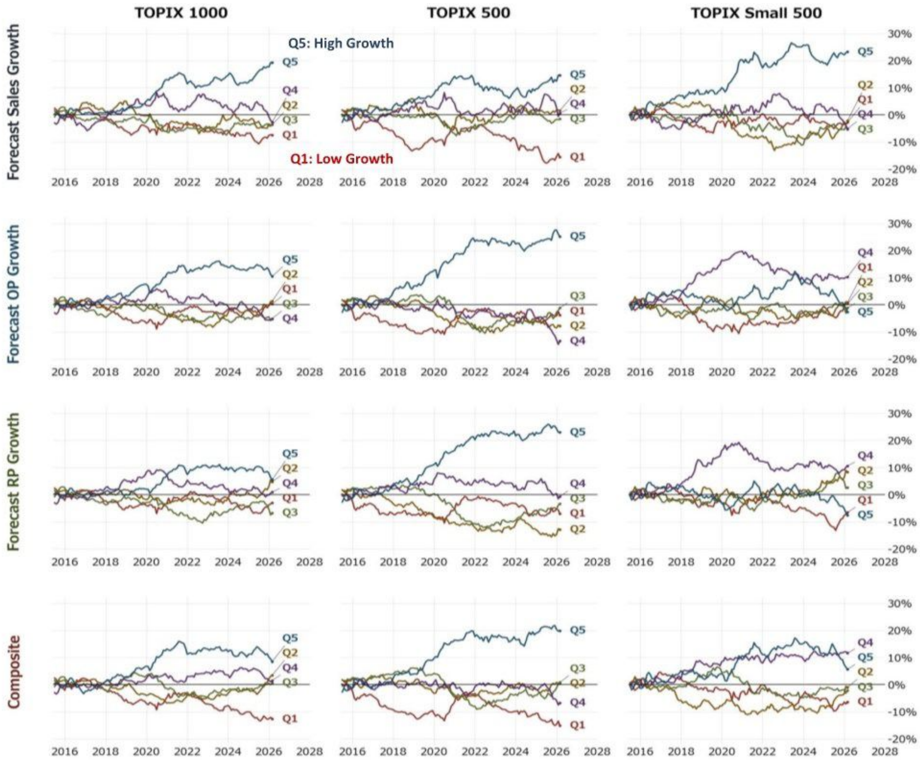
Supplementary data

Exhibit 22: Average Excess Returns of Quintile Portfolios (Annualized, LLM-based, After Risk Neutralization)



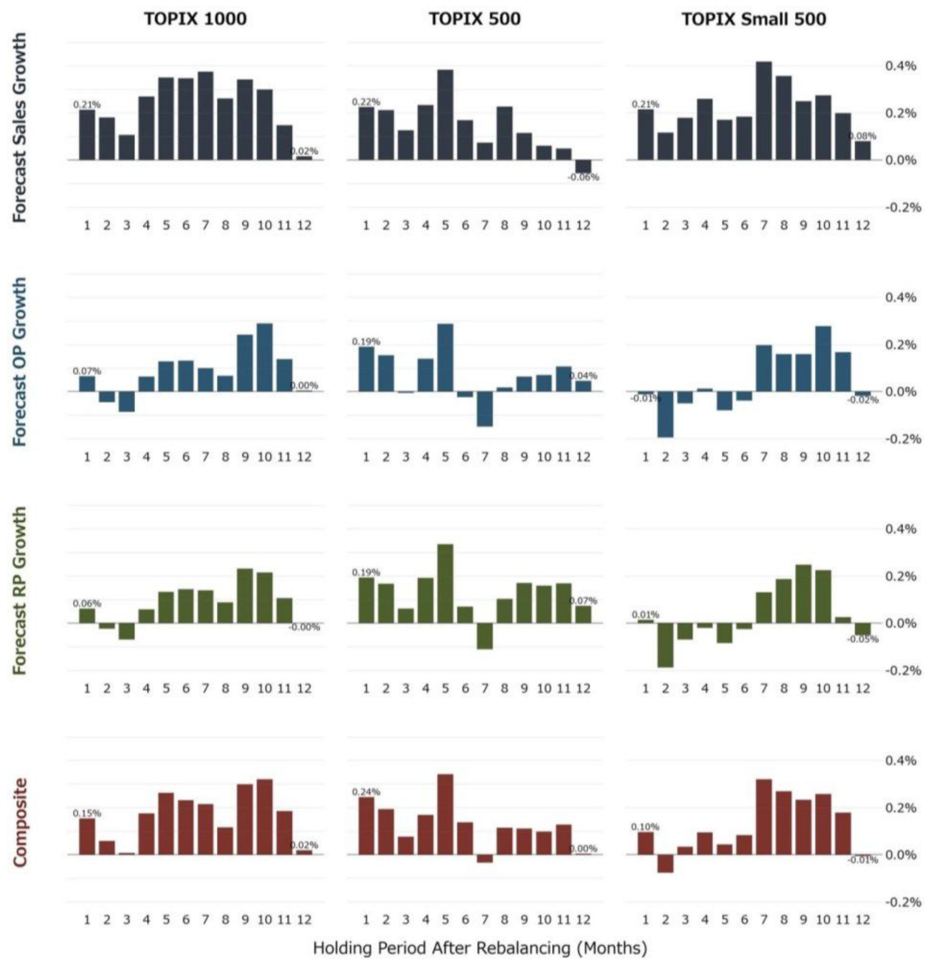
Note: The period covered is from July 2016 to April 2026. The constituents of the universe were divided into five groups based on risk-neutralized growth rates, and excess returns versus the benchmark were measured for each quintile. Stocks in the fifth quintile (Q5) indicate higher growth rates. "Composite" is defined as the average of standardized forecast growth rates for sales, operating profit, and ordinary profit. Estimates generated by an LLM were used as forecast values. For details of the analysis, including neutralization procedures, please refer to "Supplementary Information" at the end of the report.
Source: Bloomberg, QUICK Workstation, EDINET Filing and Disclosure System (https://disclosure2.edinet-fsa.go.jp/), Morgan Stanley Research

Exhibit 23: Cumulative Excess Returns of Quintile Portfolios (LLM-based, After Risk Neutralization)



Note: The period covered is from July 2016 to April 2026. The constituents of the universe were divided into five groups based on risk-neutralized growth rates, and excess returns versus the benchmark were measured for each quintile. Stocks in the fifth quintile (Q5) indicate higher growth rates. "Composite" is defined as the average of standardized forecast growth rates for sales, operating profit, and ordinary profit. Estimates generated by an LLM were used as forecast values. For details of the analysis, including neutralization procedures, please refer to "Supplementary Information" at the end of the report.
Source: Bloomberg, QUICK Workstation, EDINET Filing and Disclosure System (https://disclosure2.edinet-fsa.go.jp/), Morgan Stanley Research

Exhibit 24: Decay of Quintile Spread Returns (LLM-based, After Risk Neutralization)



Note: The period covered is from July 2016 to April 2026. The constituents of the universe were divided into five groups based on forecast growth rates, and excess returns versus the benchmark were measured for each quintile. The analysis assumes a long position in the quintile with the highest forecast growth rates and a short position in the quintile with the lowest forecast growth rates. Estimates generated by an LLM were used as forecast values. "Composite" is defined as the average of standardized forecast growth rates for sales, operating profit, and ordinary profit. For details of the analysis, including neutralization procedures, please refer to "Supplementary Information" at the end of the report.
Source: Bloomberg, QUICK Workstation, EDINET Filing and Disclosure System (https://disclosure2.edinet-fsa.go.jp/), Morgan Stanley Research

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(as of April 30, 2026)

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	Coverage Universe		Investment Banking Clients (IBC)			Other Material Investment Services Clients (MISC)	
Stock Rating Category	Count	% of Total	Count	% of Total IBC	% of Rating Category	Count	% of Total Other MISC
Overweight/Buy	1546	42%	467	51%	30%	709	44%
Equal-weight/Hold	1568	43%	358	39%	23%	715	44%
Not-Rated/Hold	4	0%	0	0%	0%	1	0%
Underweight/Sell	555	15%	84	9%	15%	202	12%
Total	3,673		909			1627	

Data include common stock and ADRs currently assigned ratings. Investment Banking Clients are companies from whom Morgan Stanley received investment banking compensation in the last 12 months. Due to rounding off of decimals, the percentages provided in the "% of total" column may not add up to exactly 100 percent.

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