



Do analysts predict market returns?

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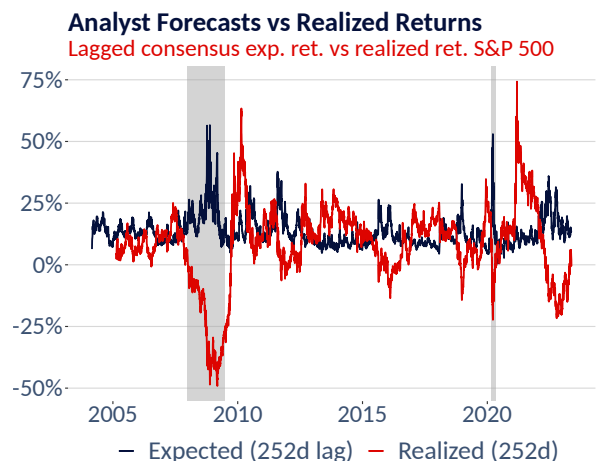
- Sell-side analysts from investment banks continuously follow a set of stocks and regularly publish recommendations and price targets founded on their fundamental and quantitative research.
- These target prices are aggregated for indices like the S&P 500 by financial data providers such as Bloomberg to derive a marketwide implied expected return, also dubbed the 'Return Potential'.
- We have tested this metric's predictive power for several markets and found no correlation between its level and realized price performance over the subsequent one to 36 months.
- What's more, a simple linear regression model almost perfectly explains the spread between current prices and consensus price targets as a function of past performance, valuation levels, and interest rates.

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Sell-side analysts working for investment banks routinely issue forward-looking price targets for the stocks they cover, which can be summed and weighed for broad market indices. The difference between the contemporary index level and these price targets can be considered the implied expected price return. We have asked ourselves whether the return outlook given by analysts on aggregate (consensus estimate) does indeed provide information about future market performance. The answer is simple and disappointing but yields some intriguing insights into the sell-side analyst's reaction function.

1 The predictive power of consensus price targets

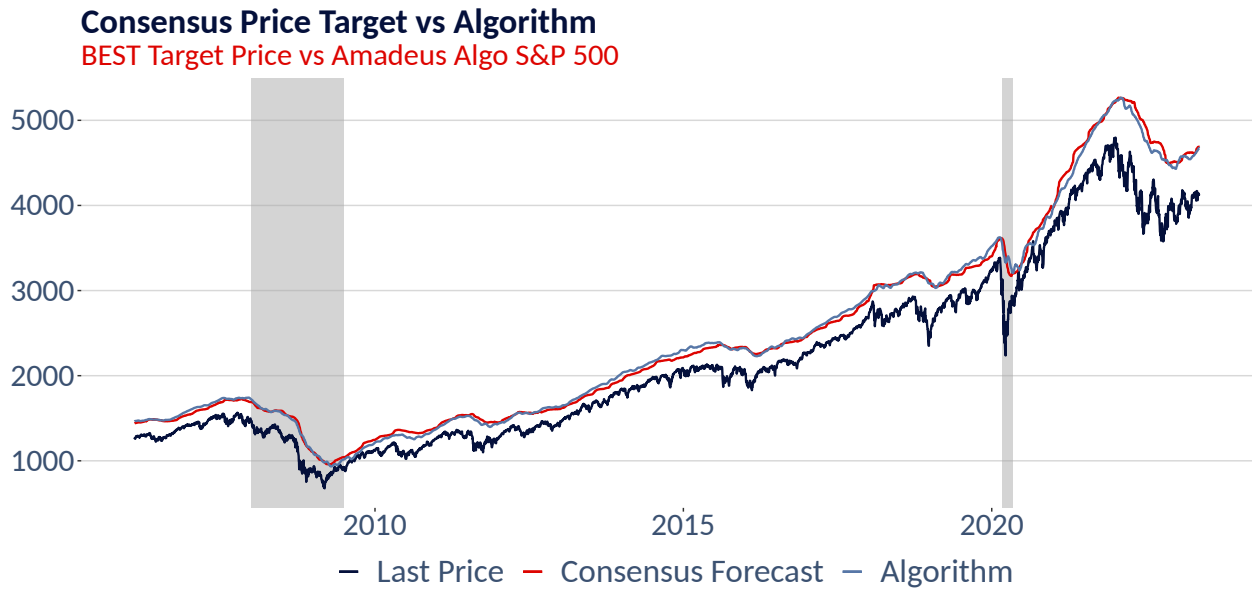
Any larger investment bank, boutique or brokerage house employs a team of so-called sell-side equity analysts who publish research on a list of stocks. Aside from prose on business models, competitive dynamics, and political or macroeconomic developments, these reports contain a range of quantitative metrics. This includes forecasts of the trajectory of individual business segments, consolidated financial statements, and a Buy, Hold or Sell recommendation accompanied by a 12-monthly price target. These price targets are collected by service and data providers such as Bloomberg or Factset, according to the company's sector or country, allowing them to derive a bottom-up price target for the respective market represented by an index. One observation immediately catches the eye when comparing these price targets with concurrent index levels. Expected price returns are never negative, or in other words, on aggregate, sell-side analysts are always



Source: Bloomberg, Amadeus

Figure 1: We have lagged bottom-up implied expected returns by 252-days and compared them to the actual price returns realized by the S&P 500. The visual impression is hardly encouraging.

bullish. The discovery is not too surprising since investment banking, most importantly advisory on Mergers & Acquisitions (M&A) and Initial Public Offerings (IPO), is a cyclical activity, and analysts are thus likely to be incentivized to talk up the market, regardless of their actual views. Furthermore, sell-side analysts are keen to maintain close and friendly relationships with the companies they cover to keep and generate business opportunities and to benefit from access to executives for their clients and themselves - the highly skewed ratio between the number of Buy and Sell recommendations is a well-documented phenomenon [1]. Finally, given their typically narrow coverage, they are also likely to be concerned with finding relative value within a country, sector or industry. They may, therefore, know-



Source: Bloomberg, Amadeus

Figure 2: A simple linear regression model using past price performance, earnings yield, dividend yield, and benchmark interest rates as independent variables explains most of the variation in marketwide consensus price targets (R^2 of 0.80 for the S&P 500 and even 0.84 for the SMI). While sell-side analysts show some sensitivity to valuation levels, reducing return expectations when earnings multiples are high, realized performance over the most recent semester is the most critical driver of implied expected returns, given considerable inertia in analysts' estimates.

ingly or unknowingly adjust for marketwide changes in valuation levels and economic outlook.

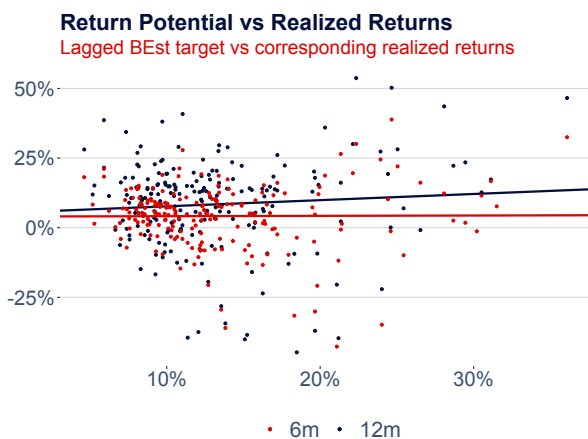
Nevertheless, some market observers monitor the relative spread level between contemporary prices and consensus price targets as a measure of the market's 'Return Potential'. If the gap is low compared to its own history, so the logic, markets will have a hard time rising further. The idea is intuitively intriguing. Analysts spend a lot of time researching monetary policy and economic growth or talking to chief executives to

get first-hand insights into the state of business. If they note a slowdown in commercial activity or if markets have overshot fair values indicated in cash flow models due to irrational exuberance or dropped below them as a result of exaggerated fear, the 'Return Potential' should contract or widen accordingly.

Unfortunately, as often in finance, a seemingly convincing theory does not necessarily translate into real insights. We have put the hypothesis introduced above to the test, using historical prices and sell-side consensus targets (BEst Target Price) for popular indices, including the S&P 500, the STOXX 600, the SMI, the FTSE 100, the MSCI China and the TOPIX. Bloomberg estimates consolidated price targets since 2004 through bottom-up aggregation of targets issued for index members and scaled in line with their weight in the index.

We derived the historical 'Return Potential' as shown in Figure 1 as BEst Target Price/Last Price - 1. To determine whether this metric has predictive power, we subsequently lagged it by one to 36 months and regressed it against the realized return over the respective periods. Notably, results obtained for longer return horizons need to be digested with caution given the increased risk of capturing spurious correlations between reliably bullish consensus expected returns and longer-term realized performance in markets following a positive trend.

Figure 4 presents the findings obtained monthly for the S&P 500 and the six and 12 months time horizon. As can be easily seen, there has been no correlation (R^2 is statistically insignificant and close to 0). We also don't



Source: Bloomberg, Amadeus

Figure 3: The scatter plot illustrates what regression analysis confirms; no statistically significant relationship between marketwide implied expected returns and subsequent realized performance over the short to medium-term.

Dependent variable:	
Return Potential	
30d ret	-0.840*** (-0.853, -0.827)
30d Lagged 30d	-0.431*** (-0.444, -0.418)
60d Lagged 60d	-0.157*** (-0.168, -0.147)
Dividend Yield	-2.332*** (-2.669, -1.995)
Yield Deviation	1.363*** (1.246, 1.480)
Interest Rate	-0.048 (-0.127, 0.032)
Constant	0.201*** (0.193, 0.210)
Observations	4,506
R ²	0.809
Adjusted R ²	0.808

Note: *p<0.1; **p<0.05; ***p<0.01

Source: Bloomberg, Amadeus

Table 1: Regression Results S&P 500

Dependent variable:	
Return Potential	
30d ret	-0.719*** (-0.737, -0.700)
30d Lagged 30d	-0.334*** (-0.352, -0.315)
60d Lagged 60d	-0.116*** (-0.130, -0.102)
Dividend Yield	0.077 (-0.152, 0.307)
Yield Deviation	1.595*** (1.485, 1.705)
Interest Rate	-0.255*** (-0.336, -0.175)
Constant	0.130*** (0.121, 0.138)
Observations	4,484
R ²	0.770
Adjusted R ²	0.770

Note: *p<0.1; **p<0.05; ***p<0.01

Source: Bloomberg, Amadeus

Table 2: Regression Results STOXX 600

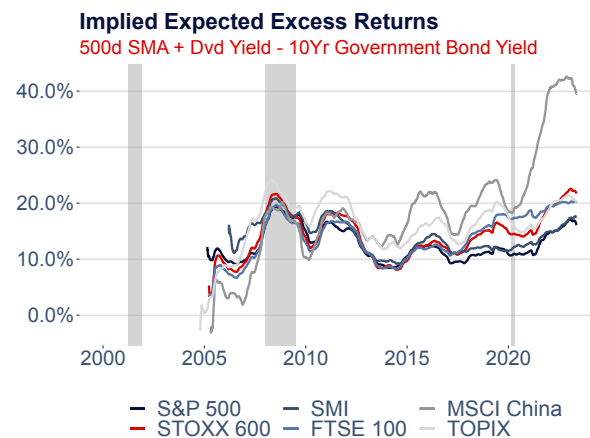
find any significant correlation over shorter or slightly longer time horizons. The results are alike for all other indices we have checked, with one unexpected exception being the U.K., yielding a statistically significant positive beta and an R* of 0.04 for the 12 months horizon. Outside the Northern island nation, the indicator appears entirely unrelated to future returns.

2 The determinants of consensus' target prices

However, while this statistic doesn't tell us much about the market or where it is heading, it is still informative as it gives us information about the analysts themselves. We already outlined above that consensus return expectations have always been positive. Aside from this, Figure 2 nicely demonstrates that they follow a much smoother trajectory than the market, almost resembling a simple moving average (SMA). Furthermore, tracking the 'Return Potential' over time, we note that its moving average level (500 days) was notably lower between the Great Financial Crisis and the Covid Crash. For instance, in the case of the S&P 500, the median implied expected return after 2004 and before the 2008 recession was 12.9%. It stood at 14.6% during the time spanning the official start of the recession and the market's full recovery in 2013. However, between that point and the beginning of the Covid Crash in March 2020, the median consensus expected return dropped to only 9.7%, before returning to an average of 12% over the three years since then. We, therefore, suspected that aside from recent market performance, interest rates and/or valuation levels may affect the metric.

Consequently, we ran several regressions to estimate the drivers of the 'Return Potential' implied by analysts' price targets. Interestingly, a simple linear regression of

the variable on preceding 30-day returns already yields an R* of 0.57 in the case of the S&P 500. The beta coefficient is negative, indicating that the gap between the actual price level and target prices widens when markets drop and shrink when it rises. This is not surprising, given the observed smoothing effect. In other words, as we know from the analysis shown in Figure 4 that the 'Return Potential' has no predictive power, it becomes clear what could probably be concluded through visual inspection of Figure 2 already; on aggregate analysts are effectively trailing the market. Our R* for the S&P 500 increased to 0.79 if we added 30-day returns lagged by 30 and 60-day returns lagged by 60 days as explanatory variables, with beta coefficients



Source: Bloomberg, Amadeus

Figure 4: Since the Great Financial Crisis, consensus implied expected excess returns have been remarkably similar for Western equity markets but structurally higher for Japan and China. Recently return expectations have diverged, with the U.S. and Switzerland showing the narrowest gap between prices and targets, followed by the U.K., Europe and Japan, while China undoubtedly plays in a different league.

shrinking gradually from -0.88 to -0.2, indicating that most recent market performance has the greatest effect. Adding even further back lagged returns, though still statistically significant, did not meaningfully improve the model's R^* . Including dividend yield as an independent variable does not significantly alter the model in the case of the S&P 500. Still, it improves our R^* for the STOXX 600 and the TOPIX, which is logical given the more substantial role of dividends relative to buybacks in these markets. It is important to remember that, *ceteris paribus*, dividends should decrease the difference between target prices and current prices as they negatively impact share prices while share repurchases increase Earnings per Share (EPS) and thus feed positively into the expected price. To compare implied expected returns across markets with systematically different preferences of how cash is returned to shareholders, it is, therefore, crucial to adjust for it.

Lastly, we added two variables representing required returns and valuation levels: the yield of the respective 10-year government bonds and the deviation of the inverse Price/Earnings ratio (earnings yield) from its historical mean. As outlined, based on our observations between 2013 and 2020, we assume that analysts are broadly sensitive to valuation levels and indeed, including earnings yield to the model increases the R^* to 0.802, and adding both earnings yield and interest rates returns an R^* of 0.8021, corresponding to a correlation coefficient of 0.9. Interestingly, the interest rate variable does not improve the model and demonstrates no statistical significance in the presence of the dividend and earnings yield factor in the case of the S&P 500 and the TOPIX.

While earnings yields tend to be somewhat correlated with interest rates (see for instance the FED model [2]), thus likely capturing most of the effect, both variables are still statistically significant at the 0.1% level for the STOXX 600, the SMI, the FTSE 100, and the MSCI China. Figure 2 demonstrates the fitted values for the S&P 500 alongside the BEst Price Target reported by Bloomberg. As can be seen, our algorithm tracks the consensus target price reported by Bloomberg almost perfectly.

3 Conclusion

Service providers like Bloomberg collect the 12-month price targets issued by sell-side analysts on companies they cover and derive consensus target prices for industry, sector, and country-level indices such as the S&P 500. The difference between these price targets and the concurrent price level is the implied expected return, also known as the 'Return Potential' on the Bloomberg terminal. We have investigated whether this metric contains information about future performance. Unfortunately, having analyzed the data for

the S&P 500, the STOXX 600, the SMI, the FTSE 100, the MSCI China, and the TOPIX, we see no correlation between the level of the 'Return Potential' and realized price performance over the subsequent one to 36 months, leading us to conclude that aggregate price targets have no predictive power.

Beyond this, we have estimated the analysts' reaction function and find that a simple regression model comprising three measures of past performance, dividend yield, earnings yield, and benchmark interest rates explains roughly 80% of the metric's variance except in the U.K. (R^* of 0.67). We conclude that price targets, while consistently above observed levels, are trailing the market. Consensus implied expected returns are primarily a function of recent performance and, to a lesser degree, influenced by the level of earnings multiples. Lastly, we find that median expected excess returns since 2004 have been lowest for the U.S. at 10.8% and highest for China and Japan at 16.8% and 16.2%, respectively as analysts likely set relatively higher target prices in markets perceived as riskier.

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