ENHANCING INCOME INVESTING WITH ARTIFICIAL INTELLIGENCE

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Overview

Income investing has long been of interest to equity investors seeking capital growth and attractive yields. Ageing populations and historically low interest rates have increased demand for such investments further. But income investing is not without its complexities. How can artificial intelligence help asset managers overcome these potential pitfalls and deliver consistent outperformance for clients?

In this study, we apply our capabilities in a subset of artifical intelligence machine learning - to forecast which high yield companies are most likely to reduce their dividend in the next twelve months, and which ones on the other hand show a robust, sustainable yield

We found that the most significant characteristics to predict the future dividend growth of a company are its current dividend yield and the stock volatility adjusted price momentum, together with profitability and valuation metrics. Conversely, the model demonstrated that sell side consensus does not seem to do an impressive job in predicting future dividend growth.

Applying this information to a Robust Equity Income (REI) strategy results in consistent outperformance and improved fundamental metrics (higher ROE, lower long-term debt to total-assets and higher earnings growth) compared with a traditional high dividend strategy. Moreover, excluding companies with a high likelihood of a dividend cut does not come at the cost of a significant reduction in dividend yield but significantly benefits the overall performance of the strategy.

Introduction

Investing in high dividend paying companies has long been of interest to investors seeking capital appreciation and attractive yields. In the aftermath of the global financial crisis and the Zero Interest Rate Policies (ZIRP) pursued by central banks worldwide, the search for alternative sources of yield became even more popular.

Investing in high yielding stocks, however, comes with potential pitfalls and there are three key elements of income investing that investors must be aware of:

- 1. An investment strategy should not focus solely on dividends, as these might not be sustainable in the future. Changes in corporate fortunes may force a company to cut its dividend, with significant negative consequences for the price performance of the stock. A significant recent example is Credit Suisse. Prior to its acquisition by UBS in 2023, the Bank saw its dividend yield fall from around 6% in 2016 to just 2% only two years later, before a final cut to just over 1% in 2021.
- 2. A generous dividend policy might be the symptom of a lack of future company growth plans. Telecoms and Oil & Gas are a good example of saturated industries with relatively lacklustre growth potential and attractive but possibly not



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Key Points

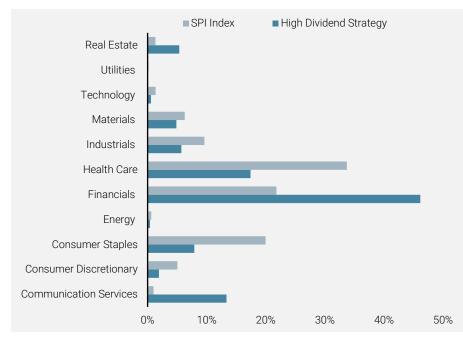
- Next 12 months dividend growth can be forecasted with exceptional accuracy using a machine learning model
- Combining dividend yield with the forecasted dividend growth overcomes many of the shortcomings of a traditional equity income strategy
- 3. Such a strategy can achieve a significantly higher risk-adjusted return

sustainable – dividend yields. This lack of future growth is often linked to a lower stock quality and lower profitability, measured for instance as return on equity (ROE). It can also be related to higher levels of debt.

3. Pure yield strategies tend to be concentrated on few sectors like Financials, Real Estate and Telecoms, leading to a potentially risky lack of diversification.

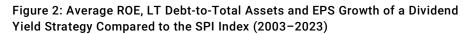
Figure 1 shows the hypothetical average sector exposure of a naïve Swiss dividend yield portfolio compared to the SPI index from January 2003 to December 2023, while Figure 2 shows the average ROE, long-term debt to total assets, and EPS growth.

Figure 1: Average Sector Composition of a Naïve Dividend Yield Strategy Compared to the SPI Index (2003–2023)



Source: Unigestion. The strategy maximises the exposure to Dividend Yield under liquidity constraints and a Tracking Error constraint of 5% to guarantee the strategy to be implementable. For illustrative purpose only.

First to be noted is the above-mentioned significant overweight in Financials, Telecom and Real Estate, and the underweight in Health Care, Industrials and Consumer Staples. Second, the naïve dividend yield portfolio has, on average, only one-quarter of the earnings growth of the SPI. At the same time, the portfolio shows a 4% lower ROE and a higher long-term debt-to-total asset ratio than the broad market index.





Source: Unigestion



These results highlight the main potential problem of a strategy that focuses uniquely on dividend yield. While the lack of earnings growth might justify the higher yield, the management may have no alternative means to generate shareholder value by investing in the company and therefore generating future earnings. At the same time, this lack of growth might be precisely why the dividend proves unsustainable over the long term.

So, when considering a dividend yield strategy, it is important to consider not only the current level of dividend yield but also the sustainability of the dividend, future potential growth, and the quality of the companies and industries selected.

How can the high yield investor use machine learning to achieve this?

Using machine learning to forecast the growth and sustainability of dividend payments

To estimate the future dividend growth of a company, we developed a machine learning model that uses a large sample of different company characteristics trained with a random forest algorithm. The model is trained every year using three years of past monthly data on the following twelve-month's dividend growth. The characteristics used can be grouped into the categories reported in Table 1.

Table 1: Group of Company Characteristics Used to Train a Random Forest Algorithm on Next Twelve Months Dividend Growth

Dividend
Current Dividend Yield
Dividend Yield NTM Consensus
LTM Dividend Growth
Dividend Growth Consensus
Market
Price Momentum
Price Volatility
Change in Share Outstanding
Quality
Return on Equity
Return on Asset
Return on Investment Capital
Debt-to-Equity
Valuations
Book-to-Price
Earnings-to-Price

Source: Unigestion. The list is not exhaustive and represents only an extract of the main characteristics.

Our results show that the most significant characteristics to predict the future dividend growth of a company are its current dividend yield and the stock volatility adjusted price momentum. Importantly, taking a cautious approach to dividend yield is better than simply maximising a high yield. As explained in the previous section, a high dividend yield is more difficult to sustain in itself, let alone to form a base from which to deliver future dividend growth. Hence, the observed negative correlation between current dividend yield and future dividend growth. On the other hand, strong and stable equity momentum provides a market signal that a company is doing well, increasing the likelihood of positive growth in future dividends.

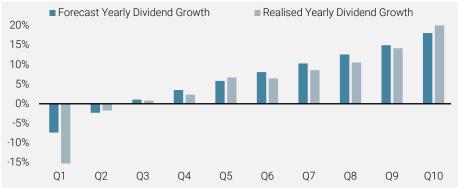
Other important characteristics to predict next year dividend growth are the profitability of a company (ROE), and its valuation (book-to-price). Higher profitability and a lower valuation are linked to better dividend growth.



Finally, while the consensus forecasted dividend growth is positively correlated to next year dividend growth, this relationship is not particularly strong. Put simply, sell side consensus does not seem to do an impressive job in predicting future dividend growth.

Our model's predictions of next year dividend growth are highly accurate. Figure 3 compares the average forecasted and realised yearly dividend growth of ten portfolios built on the model forecast. The actual, realised dividend growth increases smoothly with increases in the forecast dividend growth.

Figure 3: Forecasted vs. Realised Average Dividend Growth Rate (2003-2023)



Source: Unigestion

This accuracy is consistent over the past 20 years. Table 2 shows the average yearly dividend growth, for each year from 2003 to 2023 of five different portfolios built using the model's predictions.

Table 2: Yearly Realised Dividend Growth of Portfolio Sorted on Dividend Growth Forecast (2003–2023)

Dividend Growth Forecast Quintile						
	Q1	Q2	Q3	Q4	Q5	Q5-Q1
2003	-30%	-23%	-4%	4%	-6%	24%
2004	3%	15%	7%	19%	20%	17%
2005	4%	25%	27%	29%	22%	18%
2006	5%	20%	12%	5%	40%	34%
2007	-1%	8%	17%	17%	42%	42%
2008	0%	14%	24%	31%	21%	22%
2009	-30%	-10%	-13%	-6%	-6%	24%
2010	-39%	-8%	-11%	11%	14%	53%
2011	0%	6%	5%	22%	19%	20%
2012	-7%	-1%	7%	9%	7%	14%
2013	-14%	2%	12%	12%	22%	36%
2014	-1%	7%	5%	11%	23%	24%
2015	3%	9%	5%	12%	13%	9%
2016	-8%	0%	3%	-1%	17%	25%
2017	0%	0%	7%	5%	10%	11%
2018	-6%	3%	6%	8%	15%	21%
2019	-20%	5%	9%	2%	14%	34%
2020	-19%	-5%	-2%	16%	9%	28%
2021	-34%	-3%	-1%	11%	14%	47%
2022	-5%	4%	11%	16%	20%	25%
2023	0%	-5%	-1%	-4%	8%	8%
	-10%	3%	6%	11%	16%	

Source: Unigestion

On average, our 'highest dividend growth' portfolio (Q5) achieves a dividend growth 26% higher than the 'lowest dividend growth' portfolio (Q1). The difference between the two portfolios, varies from a minimum of 8% in 2023 to a maximum of 47% is 2021. Finally, for each of the 20 observations, the model successfully predicts the portfolio with the lowest dividend growth, while for the portfolio with the highest dividend growth, the hit rate is 15 out of 20.

The results are robust even when controlling for consensus forecast and current dividend yield. Tables 3 and 4 show the average realised dividend growth of portfolios sorted on our dividend growth forecast, as well as FY1 consensus growth and current dividend yield, respectively.

Table 3: Realised Average Dividend Growth of Portfolio Sorted on ExpectedDividend Growth and Consensus FY1 Forecast (2003-2023)

	Dividend Growth Forecast Quintile						
		Q1	Q2	Q3	Q4	Q5	Average
sna	conQ1	-7%	8%	9%	17%	32%	12%
Consensus	conQ2	-8%	3%	4%	14%	27%	8%
Ö	conQ3	-9%	15%	15%	21%	36%	16%
	Average	-8%	9%	10%	17%	32%	

Source: Unigestion, Capital IQ. We build only three rather than five portfolios for consensus as a significant portion of the SPI has no consensus forecast

Table 4: Realised Average Dividend Growth of Portfolio Sorted on ExpectedDividend Growth and Current Dividend Yield (2003-2023)

	Dividend Growth Forecast Quintile						
		Q1	Q2	Q3	Q4	Q5	Average
	Q1	-3%	21%	16%	25%	25%	17%
iie	Q2	-2%	6%	11%	12%	21%	10%
DY Quintile	Q3	-17%	5%	4%	12%	10%	3%
Ъ	Q4	-8%	4%	6%	12%	10%	5%
	Q5	-21%	-5%	-7%	1%	3%	-6%
	Average	-9%	3%	5%	9%	14%	

Source: Unigestion.

First, note how our forecast is significantly more accurate than sell side estimates. Second, consistent with our previous instincts, high dividend yield companies tend to exhibit lower dividend growth than low yielding companies.

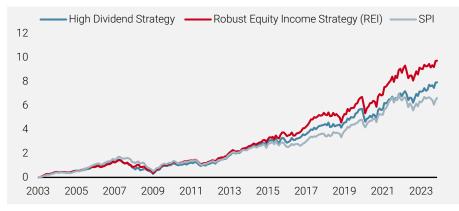
However, our forecast seems to be accurate across each dividend yield quintile, even among companies that pay a high dividend yield. In particular, we can successfully identify the high yielding companies that have an elevated probability of reducing their dividend in the next twelve months. The average yearly dividend reduction of these companies is an astonishing 21%. These are precisely the stocks we should avoid when investing in a dividend yield strategy and that would inevitably enter a portfolio if an investor focused solely on actual dividend yield.

Enhancing a dividend strategy

Using our dividend forecasting model we can combine the observable current dividend yield of a stock with its expected dividend growth to obtain a *robust dividend yield* variable. This variable should deliver a high score for companies that have a high yield and a low probability of significantly reducing their dividend in the next twelve months. Companies with a lower dividend yield but a high probability of an increase in their dividend policy should also receive a high score.

Figure 4 shows the simulated compounded performance of a traditional dividend yield strategy compared with the robust equity income (REI) strategy and the SPI index, from January 2003 to December 2023.

Figure 4: Cumulative Performance of a Dividend Yield Strategy Compared to the Robust Equity Income (REI) Strategy and the SPI Index (2003–2023)



Source: Unigestion. The two dividend strategies are subject to the same liquidity constraints and a Tracking Error constraint of 5%. For illustrative purpose only.

On average the robust equity income strategy achieves an annualised return of 8.4% with a volatility of 13.1% and an information ratio of 0.64. This compares with an annualised return of 7.2%, annualised volatility of 13.3%, and an information ratio of 0.54 for a traditional dividend yield strategy. Meanwhile, the SPI would deliver scores of 7.1%, 13.3% and 0.55 respectively. By including the dividend growth forecast to our dividend yield strategy, we can improve performance by over 1% per year.

Furthermore, as Figure 5 shows, the robust equity income strategy achieves a higher ROE - plus a significantly higher EPS growth and a lower long-term debt-to-total assets - than a traditional strategy.

Figure 5: Average ROE, LT Debt-to-Total Assets and EPS Growth of a Robust Equity Income (REI) Strategy Compared to a Strategy Based Solely on DY and the SPI Index (2003–2023)





It's also notable that, on average, over the last 20 years the robust equity income strategy achieves a dividend yield level similar to that provided by the traditional one (Figure 6) – but with a higher yearly dividend growth.

Figure 6: Average Dividend Yield and Dividend Growth of a Robust Equity Income (REI) Strategy Compared to a Strategy Based Solely on DY and the SPI Index (2003–2023)

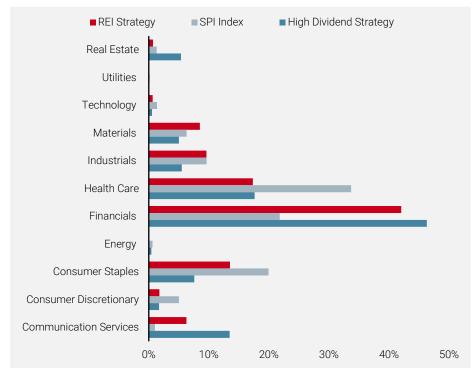


Source: Unigestion.

Excluding companies with a high likelihood of a dividend cut does not significantly reduce the dividend yield. But, it does improve the overall performance of the strategy.

Finally, in terms of sector exposure (Figure 7), the robust equity income strategy reduces the concentration in Financials, Real Estate and Telecoms, and the underweight in industrials and Consumer Staples observed with a traditional dividend strategy.

Figure 7: Average Sector Composition of a Traditional and a Robust Equity Income (REI) Strategy Compared to the SPI Index (2003–2023)



Source: Unigestion.

The robust equity income portfolio seems therefore better diversified than a traditional dividend yield one.

Conclusions and forecast for 2024

We developed a model that helps us predict the dividend growth for companies and the likelihood of a significant dividend cut over the next 12 months. Ultimately this enabled us to predict the sustainability of the dividend policy of a company. Combined with the dividend yield, this gives us a powerful tool to enhance a traditional dividend yield strategy, by capturing a similar yield but significantly increasing its potential performance. We conclude by presenting the list of companies in the SPI that belong to the best and worst dividend growth quintile, based on our model forecast as of December 2023.

Table 5: Dividend Forecasting Model, Worst Quintile for 2024

Ticker	Name	Score	DY (%)
SCMN SW	SWISSCOM AG-REG	-1.04	4.35
APG SW	APG SGA SA	-0.93	5.46
TXGN SW	TX GROUP AG	-0.92	3.73
MTG SW	MEIER TOBLER GROUP AG	-0.74	5.41
STRN SW	SCHLATTER INDUSTRIES AG	-0.70	0.78
KNIN SW	KUEHNE + NAGEL INTL AG-REG	-0.38	4.83
CICN SW	CICOR TECHNOLOGIES-REG	-0.36	3.01
BUCN SW	BUCHER INDUSTRIES AG-REG	-0.35	2.27
CPHN SW	CPH CHEMIE & PAPIER HLDG-REG	-0.33	5.29
STGN SW	STARRAGTORNOS GROUP AG	-0.29	3.02
COTN SW	COMET HOLDING AG-REG	-0.27	1.40
OERL SW	OC OERLIKON CORP AG-REG	-0.19	9.22
EMSN SW	EMS-CHEMIE HOLDING AG-REG	-0.18	3.08
ELMN SW	ELMA ELECTRONIC AG-REG	-0.17	0.45

Table 6: Dividend Forecasting Model, Best Quintile for 2024

Ticker	Name	Score	DY (%)
BSKP SW	BASLER KANTONALBK - PC	1.20	3.16
SQN SW	SWISSQUOTE GROUP HOLDING	1.19	1.08
EFGN SW	EFG INTERNATIONAL AG	1.17	3.33
ESUN SW	EDISUN POWER EUROPE AG	1.16	1.00
SLHN SW	SWISS LIFE HOLDING AG-REG	1.16	4.28
BCGE SW	BANQUE CANTONALE DE GENEVE	1.15	1.33
VZN SW	VZ HOLDING AG	1.15	1.77
ZURN SW	ZURICH INSURANCE GROUP AG	1.12	5.02
BCVN SW	BANQUE CANTONALE VAUDOIS	1.09	3.50
BKW SW	BKW AG	1.08	1.87
SREN SW	SWISS RE AG	1.08	5.70
HELN SW	HELVETIA HOLDING AG-REG	1.07	5.09
PGHN SW	PARTNERS GROUP HOLDING AG	1.07	3.05
BALN SW	BALOISE HOLDING AG - REG	1.07	5.61
TKBP SW	THURGAUER KANTONALBANK-CERT	1.07	2.59

Source: Unigestion. Pink shade – SMI companies. DY represent the current Dividend Yield as of December 2024

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