FHS St.Gallen
Hochschule
für Angewandte Wissenschaften

LAPIS
Swiss Precision
Asset Management

BACHELOR THESIS SUMMARY

COMPARISON OF THE HISTORICAL PERFORMANCE OF DIVIDEND INVESTMENTS

1 Introduction

The following paragraphs summarize the background and research results of the bachelor thesis in compressed form.

Lapis Asset Management Ltd is an asset management company based in Lugano. The company offers asset management services to private and institutional clients around the world, both onshore and offshore. The investment strategies are based on the Lapis core portfolio, which is the intellectual property of Lapis Asset Management Ltd. In addition to attractive, easy-to-follow and well diversified investment strategies, a high degree of cost transparency is also one of the strengths of Lapis Asset Management Ltd. It also assures clients that they can access their assets at all times.

In addition to the Lapis core portfolio, Lapis Asset Management Ltd also invests in dividend stocks. For example, it has maintained the Lapis Top 25 Dividend Yield Index, its own stock index with a focus on dividend returns, since October 2015. Working with global asset manager GAM (Luxembourg) S.A., it developed a related stock fund – the Lapis Top 25 Dividend Yield Fund – in 2016. The fund is maintained in USD (with tranches for distributions, reinvestments and institutional investors) and GBP (with a tranches for distributions). Lapis Asset Management Ltd has also published another index, the Lapis MidCap 50 Dividend Yield Index.

Lapis Asset Management Ltd is convinced of the advantages of pursuing a dividend strategy and consequently the use of a dividend fund. However, the question is whether an investment strategy with a focus on dividend stocks can achieve better long-term returns than, for example, a traditional stock index. Therefore, as part of a bachelor thesis I first determined the historical dividend returns. I also looked at the differences in performance among the world's largest dividend funds. In summary, the Lapis Asset Management Ltd bachelor thesis shows, on the basis of scientific facts and empirical research, the benefits of top dividend investment.

2 Dividend yields

> *"During times of persistently low and in some cases even negative interest rates, companies try to keep shareholders happy by providing them with solid dividends." (Panagiotis Spiliopoulos, Vontobel)*

The renewed importance of dividends in recent years is reflected in the change in the amount of distributions paid in 2016. A study by fund manager Henderson estimates that global corporate distributions reached USD 1,180 billion that year – a record amount.

2.1 Definition of terms

The dividend yield is calculated by dividing dividend income by the share price. Dividend income is the gross dividend, i.e. the dividend without deducting source or withholding taxes.

$$\text{Dividend yield (gross)} = \frac{\text{Gross divdend per share}}{\text{Share price}}$$

In addition to the amount of the dividend yield, shareholders are also interested in the sustainability of the dividends. They want to know if a company will be able to continue paying the dividend yield – or even increase it – over the long term. In this connection, the payout ratio is key. The payout ratio is calculated by dividing distributed dividends by consolidated earnings.

$$\text{Payout ratio} = \frac{\text{Dividend per share}}{\text{Earning per share}}$$

Thus, a low payout ratio means that the company is retaining a majority of its earnings, for example, to finance future growth plans. Investors use the payout ratio, among other factors, to assess whether a company will be able to continue paying dividends over the long term. Companies that have a long-term and sustainable dividend policy tend to have stable payout ratios.

There are different opinions in the literature about the impact of high dividend payments on a company's financial situation. One view is that high dividend payments reduce a company's strength. Liquidity and equity capital decrease in exact proportion to the amount of the dividends. So if external financing is required for investment projects, payment of the dividend may be jeopardized.

On the other hand, in his 1991 book “Beating the Dow” Michael O’Higgins notes the advantages of a company paying dividends as follows:

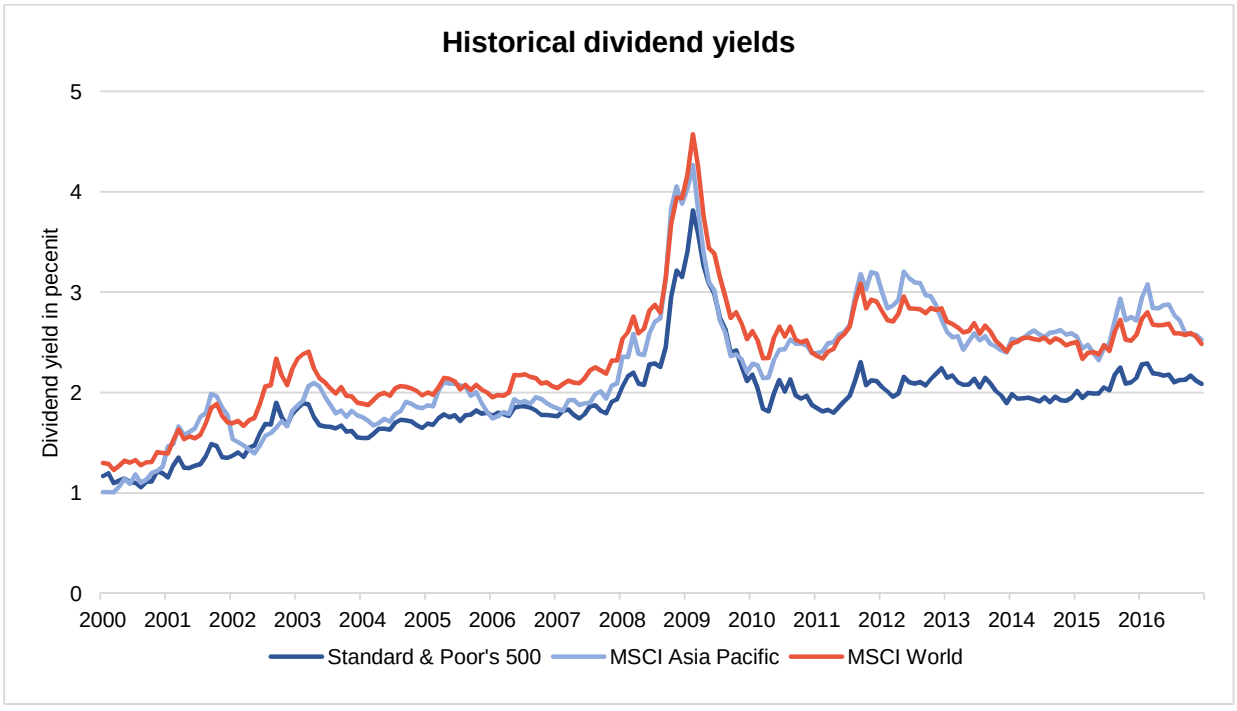
> *“Companies that do not pay dividends are either in a growth phase or they do not have the necessary financial freedom. The latter is often a consequence of poor revenue or profitability.”*

Consequently, O’Higgins equated payment of a high dividend with high profitability or a high cash flow. He also views cash flow as a key indicator that cannot be manipulated through accounting techniques, unlike earnings figures.

In view of the foregoing considerations it would be interesting to look at how dividend yields have developed over time. This will be done in the next section.

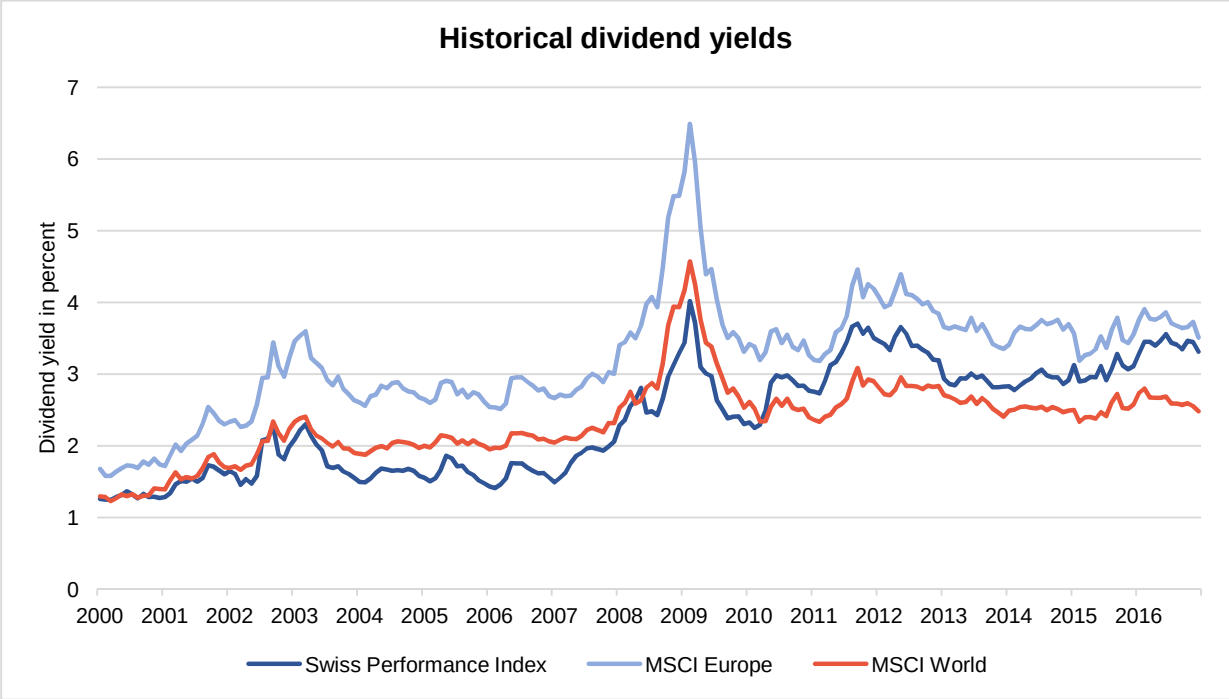
2.2 Research results

The following figure shows the dividend yields of the Standard & Poor’s 500 MSCI Asia Pacific and MCSI World Indexes. The chart shows that yields developed in a very similar manner in these regions. The fact that the MSCI World is relatively strongly correlated with the US market (S&P 500) is not very surprising, especially as US stocks make up around 50% of the index. However, it is interesting to see that the performance of the Asian market was about the same.



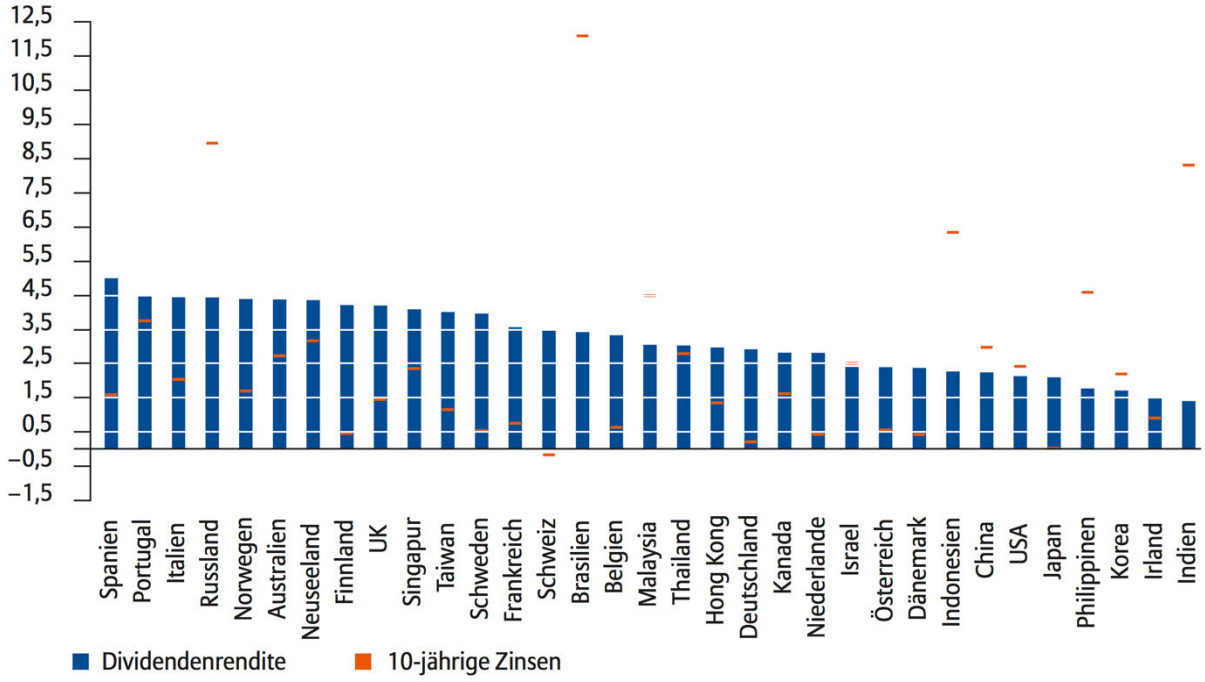
This chart also shows that dividend yields have been relatively constant. With the exception of the sharp rise following the financial crisis, yields have always posted a slight increase. For example, the stocks in the Standard & Poor's 500 Index have an average dividend yield of 2%. The figure for Asian stocks and the MSCI World Index are both around 2.5%. However, the aforementioned increase in 2008 and 2009 also shows that the correction of stock prices on the markets led to relatively high dividend yields. Because dividends are always paid with a time delay, this correction seems plausible.

However, it is worth taking a look at Europe. The following chart shows the dividend yields for the Swiss Performance Index, the MSCI Europe Index and the MSCI World Index.



The development of these three indices is similar as well. They also show a rise after the financial crisis. Since that time, the MSCI Europe has posted dividend yields of between 3.5% and 4.5%. The dividends paid by the Swiss Performance Index have – in proportion to its share prices – been slightly lower than those paid by the MSCI Europe Index. However, European companies pay, on average, higher dividend yields than the companies in the MSCI World Index. The same is also true when comparing US stocks (in the S&P 500 Index).

In addition, the results of a study of global dividend yields by insurance company Allianz based on the MSCI Index were also consulted. The study compares the dividend yields against the yields on 10-year government bonds.



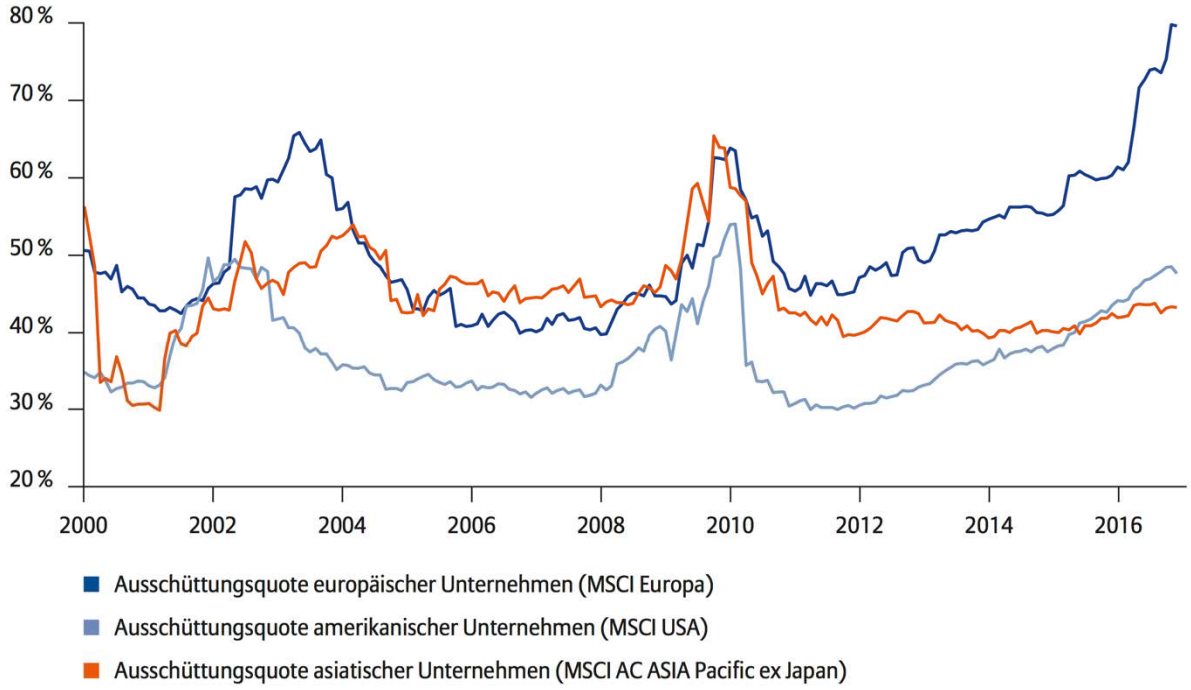
TN: ■ Dividend yields ■10-year yields

This research strengthens the view that European companies have higher dividend yields than their international peers. These yields are in some cases well above the yields on 10-year government bonds. However, it should be noted that the markets in southern Europe in particular continue to be valued lower, which results in relatively higher dividend yields. The Allianz study also found that US companies are increasingly conducting share buybacks, which is not taken into consideration in the above statistics.

Sidebar: Historical payout ratios

In addition to dividend yields, it is also necessary to look at historical payout ratios. Once again, we turn to the study by Allianz. However, the US market is represented by the MSCI USA Index instead of the Standard & Poor's 500 Index. Furthermore, the MSCI Asia Pacific ex Japan excludes the Japanese market. The results can be found on page 6.

NB Uneditable text



TN: ■ Payout ratio of European companies (MSCI Europe)
■ Payout ratio of US companies (MSCI USA)
■ Payout ratio of Asian companies (MSCI AC Asia Pacific ex Japan)

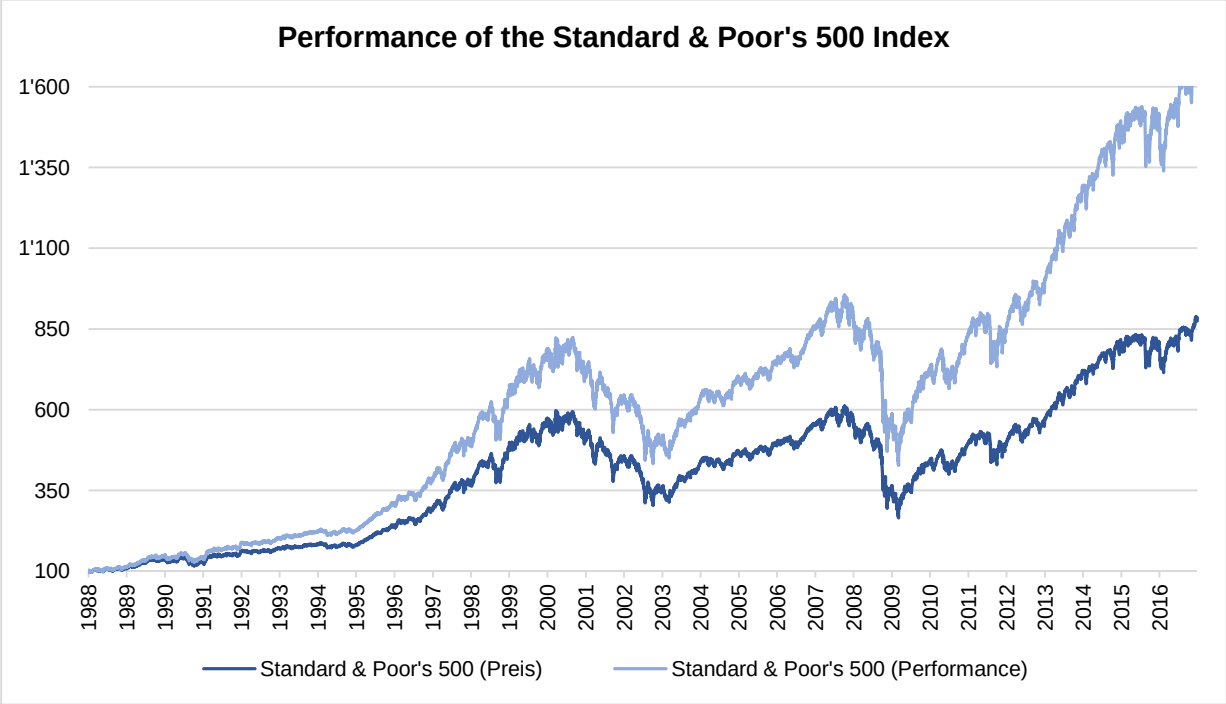
The historical payout ratios have a clearly higher range of fluctuation than the dividend yields. As the chart above shows, the ratios fluctuated between 30% and 80%. It also reveals once again that European companies have higher payout ratios than companies in other countries. And this ratio has risen steadily, especially in recent years. Even US companies posted higher ratios, with the figure now at about the same level as for 2010. The only region where payout ratios are level over the past three years is Asia, where the figure is now around 20% lower than it was in 2010.

The chart also shows that payout ratios are influenced by crisis years. For example, the decline in 2010 can be attributed to the aftereffects of the global financial crisis as well as the European sovereign debt crisis. Here, too, there was a tendency for adjustments to dividend payments to be made on a time-delayed basis.

Sidebar: Price and performance indexes

Another decisive factor is the compound interest effect. In this scenario, the dividends are re-invested and therefore they also participate in the future development of the share price. This has a corresponding impact on the overall performance of the investment.

The following analysis shows that dividend income makes up a substantial portion of overall performance. The analysis compares the performance of the Standard & Poor's 500 Index with (performance index) and without (price index) dividends. The former always includes the distributed dividend income.

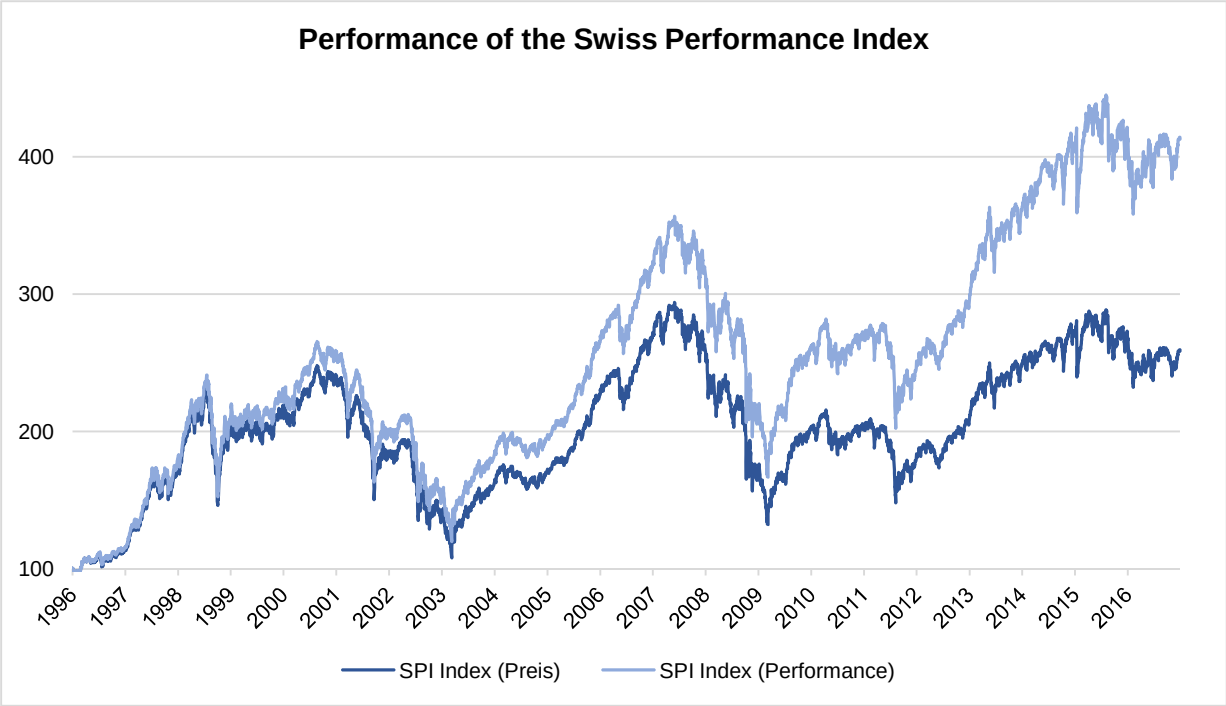


TN: (price)

The long-term comparison shows that the longer dividends are reinvested, the more they contribute to performance. While the differences around the turn of the millennium appear small, they have grown ever larger since the financial crisis. The price index has an annual return of around 7.5% per year for the entire period under review. By contrast, the performance index posted returns of around 9.7% per year.

A more extreme picture is revealed by looking at the period since 2000. The performance index had returns of around 4.5% per year, while the price index posted annual returns of 2.5%.

The Swiss stock market, measured using the Swiss Performance Index, also reveals the difference between the price and performance indexes. The following chart makes it clear.



TN: (price)

The figure shows that the difference between the two indexes has grown steadily since 2004. From 1996 to the end of 2016, the price index increased by around 4.5% annually. The performance index – including dividends – rose by an even greater 6.8% per year.

So, it is clear that dividends made a corresponding contribution to the overall return of the portfolio. Research shows that dividend yields have remained more or less constant and, at least in Europe, are sometimes well above the yields on 10-year government bonds. The question now is: How have investments with a focus on companies that pay healthy dividends performed in the past? Just as interesting is whether dividend investments can exceed the performance of a traditional stock benchmark over the long term. This question will be answered in Section 3.

3 Performance comparison

The main results of the bachelor thesis will be presented in the following paragraphs. Doing so involves an analysis of the performance of selected dividend funds over a period of three and five years. The indices of Lapis Asset Management Ltd were also included in the analysis.

3.1 Parameters of the analysis

The parameters of the analysis used to compare performance were defined in advance. These parameters are briefly explained in the following paragraphs.

Investment funds

One of the objectives of the bachelor thesis is to compare the performance of the ten largest dividend funds in the world, including the Standard & Poor's Index, which is used as the benchmark. The following evaluation criteria were defined for the fund evaluation:

- Focus on dividend-oriented investment funds in USD
- Prioritization by fund volumes in USD millions
- Track record of more than three years (tradable since at least January 1, 2014)
- Investor restrictions (private individuals/institutions) not taken into account
- Market restrictions not taken account

Morningstar data was used to evaluate the dividend funds. This financial information and analysis company maintains a database of more than 39,000 investment funds. These funds can be sorted according to various criteria. The investment funds used for the performance comparison, sorted by assets under management (AuM), can be found in the table on page 10. The table also shows the Bloomberg ticket for each fund as well as its launch date.

Name	Ticker	Currency	AuM (mn)	Launch
M&G Global Dividend Fund	MGGDAAU LN	USD	$8,620	11/12/10
Fidelity Global Dividend Fund	FFGDAAU LX	USD	$5,230	5/12/2010
Schroder International Selection Fund Global Dividend Maximiser	SGENYAA LX	USD	$3,470	6/27/2007
BGF Global Equity Income Fund	BGFGEA2 LX	USD	$2,270	12/6/2012
Threadneedle TSIF - Global Equity Income	TGEDRNA LN	USD	£1,910	5/4/2012
Pioneer Funds – Global Equity Target Income	PGETIAU LX	USD	$2,140	7/18/2008
Veritas Global Equity Income Fund	VERGIRU ID	USD	£1,120	7/31/2007
Pictet - High Dividend Selection	PHIDSPU LX	USD	€954	2/28/2005
Invesco Funds - Invesco Global Equity Income Fund	IGEIAAU LX	USD	$1,040	9/30/2011

Where possible, reinvesting fund units were given preference over distributing units. In addition, the Lapis Asset Management Ltd index mentioned above and the Standard & Poor's Index were included as benchmarks. In order to ensure comparability with the fund products the performance indexes were selected in each case.

Measurement basis

The comparison of the performance of the evaluated funds was carried out on the basis of historical return, risk and performance figures. The daily prices from Bloomberg were used for this purpose.

Return calculations

To represent the returns the constant annual returns were calculated on the basis of daily prices. In order to ensure the comparability of distributing and reinvesting funds the net asset values were corrected as of the distribution date for the distribution amount (gross). Bloomberg offers the option of obtaining the daily NAV on the basis of the total return (incl. gross distribution amounts). As a result, it was not necessary to take account of the distributions manually. The fund costs (TER) are likewise already included in the NAV.

Risk calculation

Risk was calculated on the basis of the standard deviation. In turn, the daily rates were used to calculate volatility, which was then annualized.

Performance

The performance of the funds and the indexes was compared using the Sharpe ratio. In order to calculate the excess return, the riskless interest rate was subtracted from the effective return. The yield to maturity of US Treasury bills was used as the riskless interest rate. In addition, the yield to maturity of a bond with the same term as the period being analyzed was selected, set to the beginning of the period. This was done in order to determine whether a risk-free investment with the same term at the start of the period under review could have been chosen instead of the investment in the fund.

Analysis period	Riskless interest rate USD (YTM)
2014 to 2016	0.766%
2012 to 2016	0.833%

Costs

The performance of the fund was calculated on the basis of the fund's internal costs. Measured in terms of the total expense ratio (TER), these costs were already deducted from the Bloomberg data. External fees, such as brokerage commissions and custody account fees, were not included. The performance index data was generally taken into account for the indexes. As a result, it was not necessary to make manual corrections for the distributed units. Instead, notional internal costs (TER) of 1% were included in the calculations. The amount of these costs was verified on the basis of long-term studies and are also reflected in the costs,

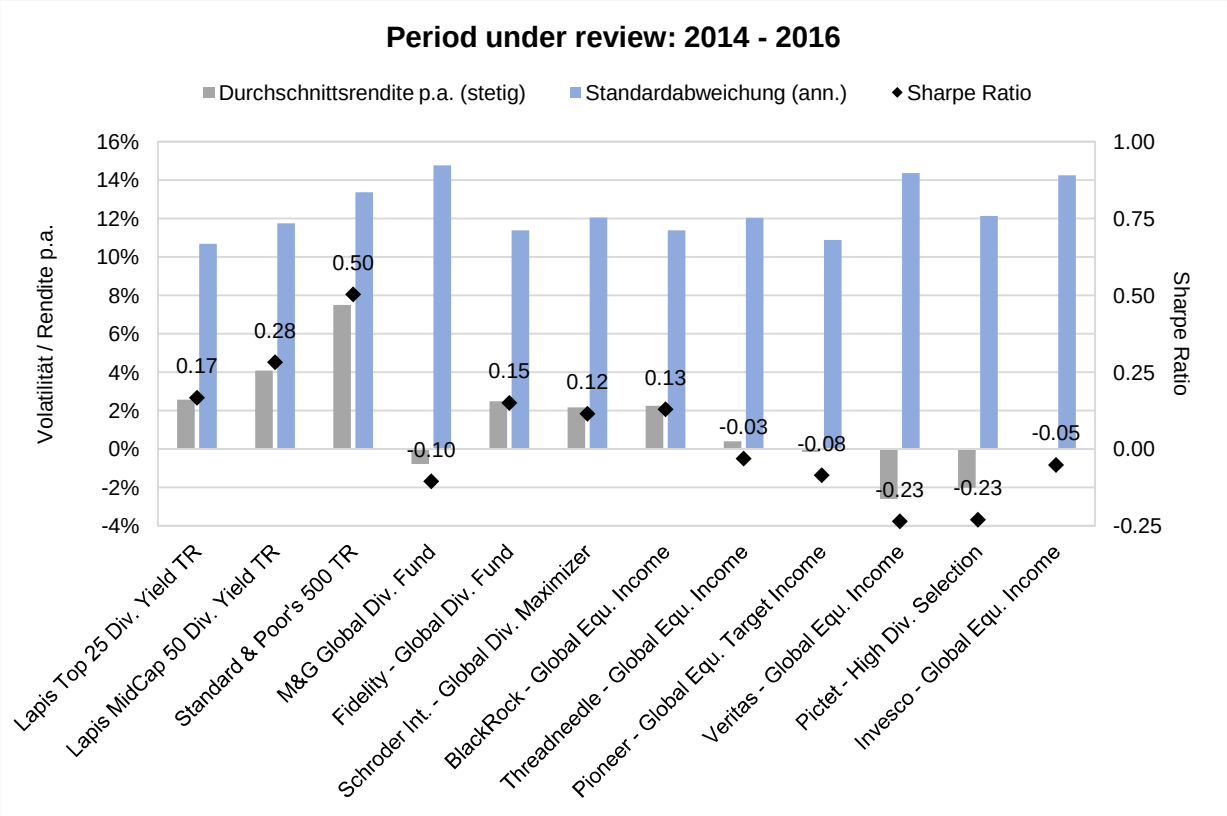
for example, of the Lapis Top 25 Dividend Yield Fund, although some individual tranches have even lower costs (e.g., 0.750%).

Taxes

Tax consequences were not included in the bachelor thesis. At the same time, it was noted that the tax treatment of distributing and reinvesting funds can vary and that this can also have an impact on performance. However, because the tax burden will vary depending on the tax domicile and the domicile of the investment fund and ETF and this therefore makes it difficult to make a meaningful assumption, it was not taken into account in the calculation.

3.2 Research results

The research results reveal considerable differences among the individual funds. There were positive and negative values for both returns and Sharpe ratios for the period from 2014 to 2016.

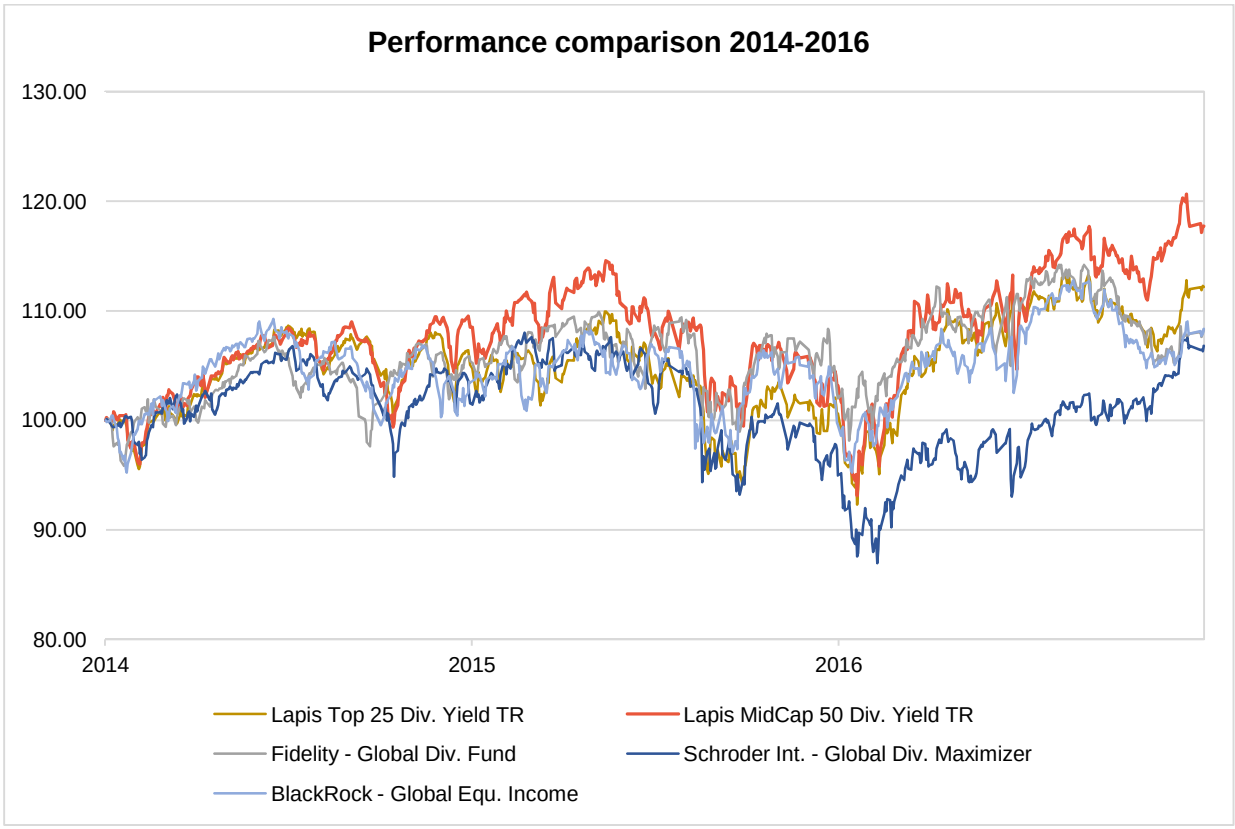


TN: Dividend yield p.a. (constant)
Standard deviation (ann.)
Sharpe ratio
Volatility/yield p.a.
Sharpe ratio

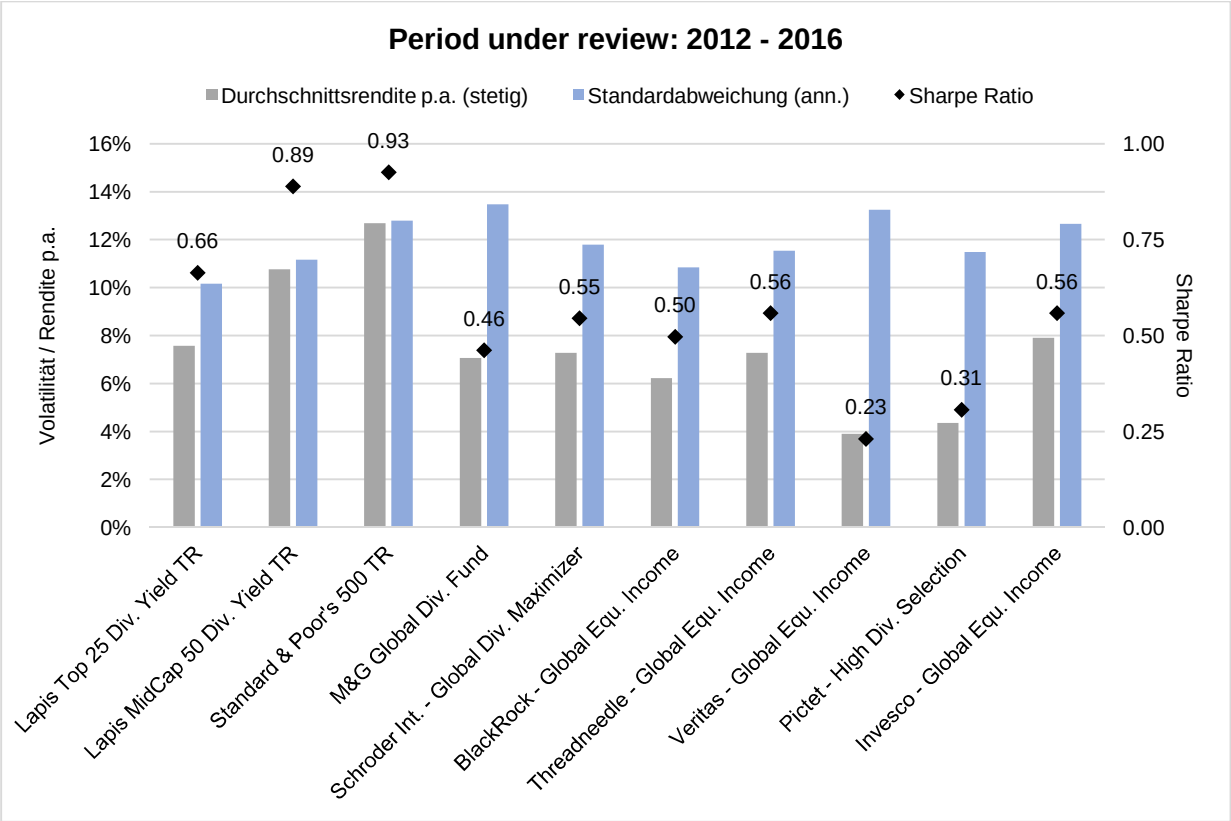
For the three years that were observed it was clear that the funds had roughly similar standard deviations. The differences in terms of returns, however, were substantial. For example, the average annual returns were -2.6% to 7.5%. The situation was similar for the Sharpe ratio. The Lapis MidCap 50 Dividend Yield had the highest ratio (0.28). At -0.23 each, the Veritas Global Equity Income and Pictet High Dividend Selection funds had the worst Sharpe ratio.

The two Lapis indexes have posted solid performance over the past three years. After correcting for notional internal fund fees (TER), the two indexes had better Sharpe ratios than the benchmark funds. Only the Standard & Poor's 500 Index posted a higher figure. The marginal outperformance of the Standard & Poor's 500 Index compared to the Lapis indexes in terms of returns is mainly the result of the bull markets over the past several years. By contrast, it can be assumed that the more defensive Lapis indexes will tend to perform better than the overall market during periods of correction.

The following chart shows the performance of the two Lapis indexes as well as the three best funds (based on the Sharpe ratio) during the period under review. The analysis again reveals the attractive performance of the Lapis MidCap 50 Dividend Yield as well as the Lapis Top 25 Dividend Yield Index.



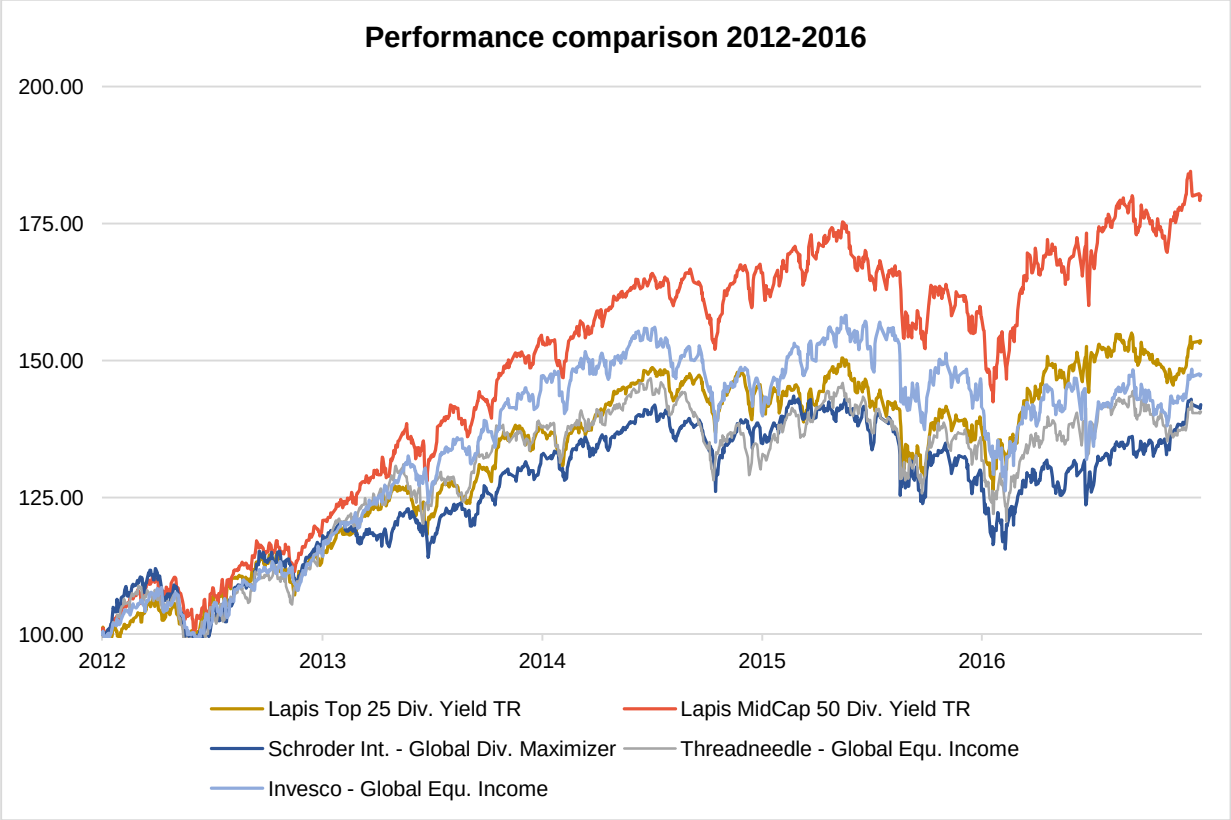
Observed over a period of five years, two funds – the Fidelity Global Dividend Fund and the Pioneer Global Equity Target Income Fund – stand out due the lack of a track record. The remaining funds have overall positive returns and Sharpe ratios. The results are presented in the following chart.



TN: Dividend yield p.a. (constant)
Standard deviation (ann.)
Sharpe ratio
Volatility/yield p.a.
Sharpe ratio

As the chart shows, the Lapis indexes have posted attractive performance figures over the past five years as well. Both funds have a considerably higher Sharpe ratio than the benchmark funds. The excess returns relative to the risk incurred were thus significantly higher. However, once again the Lapis index was unable to beat the performance of the Standard & Poor's 500 Index.

The following performance chart once again compares the performance over the past five years, indexed as of January 2012, of the Lapis index and the three best funds during the period under analysis.



The chart shows that the two Lapis index funds again posted the best performance. The Lapis MidCap 50 Dividend Yield Index performed nearly 30% better than the Invesco Global Equity Income Fund. This reveals the substantial performance of the index.