2020 Risk Management Study – Summary

Overcoming home bias: Which strategies really strengthen a portfolio?

Philipp Brugger and Ingo Schmitz

Many German institutional investors still have a tendency to invest a disproportionate share of their assets in Germany and the eurozone. This study examines the phenomenon of 'home bias' and quantifies the benefits of an internationalisation strategy that focuses on equities and bonds, i.e. asset classes that offer good liquidity.

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1 Introduction

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The study to which this summary refers examines home bias among institutional investors and quantifies the impact of greater internationalisation in a portfolio.

The coronavirus crisis is having a variety of different leverage effects in the capital markets, especially in the eurozone. Certain structurally unfavourable factors were already curbing the appeal of investments in Europe before the pandemic. These effects are now being reinforced to some extent and new capital market risks are emerging, including a spike in many countries' public debt and an erosion of the substance of many companies' business models.

Not all, but some of these new risks could be asymmetrically unfavourable for investments in the eurozone. No doubt there are also positive changes taking place. The agreement on the EU recovery fund, for example, is likely to have lowered the risk premium on eurozone assets. However, this does little to change certain fundamental structural patterns such as an ageing population and the fact that the region is lagging behind in the field of digital technology.

Against this backdrop, the question of why German investors continue to disproportionately favour investments in German and European assets becomes even more pressing. The coronavirus pandemic has further increased the need for investors to critically review the level of internationalisation of their portfolio.

In addition, the now significantly narrower interest-rate differential between the US and the eurozone means that currency hedging costs are the lowest they have been in a long time. Opportunities for lucrative investments in other currencies, such as US dollars, may therefore have improved recently – provided the net effect of yield changes and lower hedging costs is positive.

The study to which this summary refers examines home bias among institutional investors and quantifies the impact of greater internationalisation in a portfolio. For this purpose, we developed an analytical framework that deviates slightly from the 'traditional' approach of portfolio optimisation through strategic asset allocation and instead examines a variety of options derived by means of a systematic approach.

In practice, institutional investors are confronted with regulatory requirements which, to some extent, limit the scope of an internationalisation strategy. This study therefore assessed the appeal of a series of individual internationalisation steps. As we will see, some of these steps are more worthwhile than others in terms of the weighting of certain regions and (sub-) asset classes. The analytical framework allowed

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us to define very different optimum combinations of the degree of internationalisation and currency hedging depending on the individual sub-asset class.

The study found that a nuanced internationalisation strategy nearly always improves the portfolio. For the purposes of this study, the focus was limited to equities and bonds as asset classes that offer good liquidity. Brief digressions refer to the possibility of adding alternative asset classes such as commodities and real estate, whereas more illiquid investment options in areas such as infrastructure, private debt and private equity have been completely disregarded in this study.

All in all, this study helps to understand how internationally diversified portfolios can be constructed in practice – one possible way for investors to respond to challenging structural conditions in the eurozone and the impact of the coronavirus pandemic. Some aspects build on earlier studies conducted by Union Investment, especially on the topics of 'Japanisation' of the eurozone and deglobalisation (see footnotes 2 and 3 on page 11). The key points of the study are summarised below. Union Investment has made the full version of the study available at www.die-risikomanager.de (German only).

2 Home bias – taking stock

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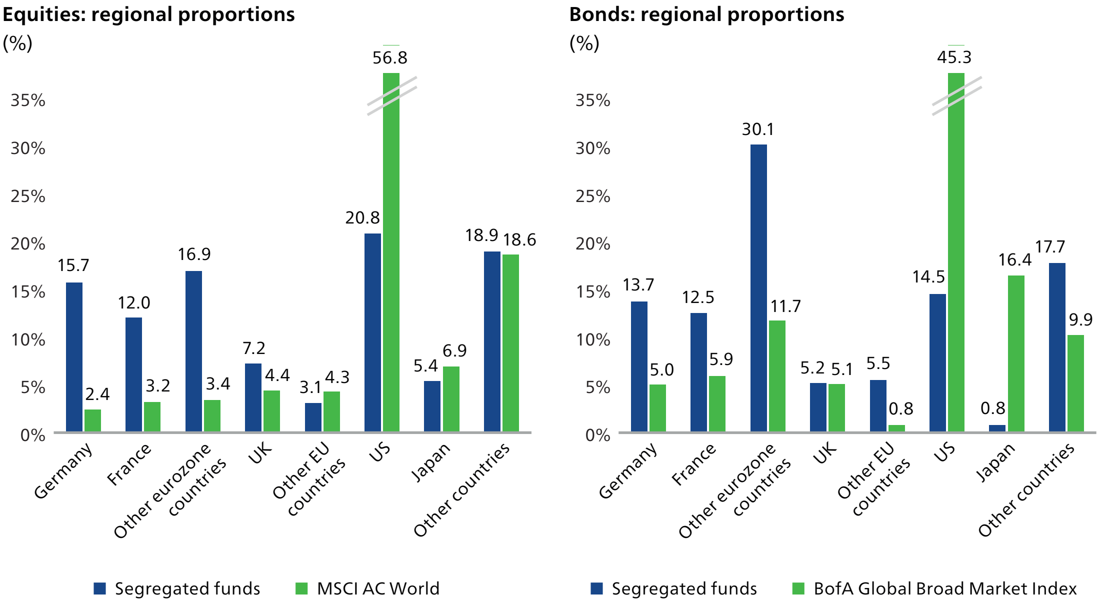
Many German institutional investors continue to allocate a disproportionately large share of their portfolio assets to German and eurozone securities. This phenomenon is known as 'home bias' or 'near bias'.

Despite several decades of globalisation in the real economy and the capital markets, many investors still have a tendency to focus more on domestic investments than on opportunities abroad. This home bias apparently continues to be driven by reasons such as a better (perceived) level of information about economic conditions in the investor's home country, language barriers and country-specific regulation. Higher transaction costs in other countries, currency effects and tax rules can also play a part.

The home bias of institutional investors can be demonstrated with an analysis of segregated funds.[1] Among the most important groups of investors in this category are insurance companies, pension providers and banks. At the start

Figure 1 **Regional allocation of equities and bonds in segregated funds compared with the global capital market**



Sources: Deutsche Bundesbank, Union Investment; as at January 2020.

[1] Figures published by Deutsche Bundesbank were used for the purposes of this analysis.

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of 2020, their aggregate investment volume amounted to nearly €1,639 billion.

Bonds are the most important type of investment in segregated funds and account for 58 per cent of investments. The environment of structurally low interest rates that has been cemented in the eurozone for some time is therefore of particular significance. Investment fund units account for 26 per cent of assets, whereas equities play a lesser role as they make up just 16 per cent of the mix. The regional allocation of investments reveals the prevalence of home bias. The phenomenon is reflected most obviously in equity investments, but also manifests itself in the bond segment.

It should be pointed out that home bias has declined noticeably in recent years. Around 30 years ago, more than 80 per cent of equities and bonds held by German segregated funds were from Germany. In 2020, this proportion had fallen to 16 per cent for equities and 14 per cent for bonds.

Alongside the focus on German assets, it is also possible to identify a 'near bias' (i.e. a preference for investments in the eurozone), especially on the fixed-income side. Near bias has actually increased and therefore partially replaced home bias.

An analysis of German segregated funds carried out by Union Investment confirms these findings. It identified both a disproportionate preference for domestic investments and a shift towards investments in the eurozone. On the bond side, the proportion of investments in German paper has fallen from 55 per cent in 2007 to around 21 per cent, which is likely to be driven at least in part by particularly low yields on Bunds. Over the same period, the proportion of investments in paper from other eurozone countries increased from around 31 per cent to 41 per cent. The proportion of investments in German equities declined from 30 per cent to 19 per cent, while investments in North American equities recorded the biggest uptick, from just under 8 per cent in 2007 to around 23 per cent in 2020.

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3 Reducing home bias – but how?

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There are a number of arguments in favour of greater internationalisation in a portfolio. Our newly developed systematic analytical approach clearly reveals the disadvantages of home bias in terms of risk and return. It demonstrates that individual, smaller steps can also help to improve a portfolio. It is often beneficial to hedge currency risk on the bond side, while for equities, it can frequently be more attractive not to hedge positions.

Why are home bias and near bias disadvantageous? More investment beyond the eurozone is a good idea for a variety of reasons. For one thing, the environment of low – or even negative – interest rates in the eurozone seems cemented for years to come.[2] Structural factors such as low demand for loans in the corporate sector and demographic change suggest that for the foreseeable future, economic momentum in the eurozone will remain weak and interest rates low. This means that upward potential in the European bond market will continue to be more limited than in other regions. At the same time, the European equity market is suffering from Europe being less advanced than other regions in the field of digital technologies.

Coronavirus and its consequences

The coronavirus crisis is creating added incentives to shift portfolios to a more international position, at least over a medium to long-term horizon. A key factor underpinning this claim is the asymmetrical impact of the pandemic, which could further harm the eurozone's standing in relative terms. The crisis is also acting as a catalyst for digitalisation. The EU economy had already been lagging behind in the technology sector before the pandemic, and this gap is likely to widen further going forward.

The combination of the pandemic and the trade dispute between the US and China could also reinforce trends towards deglobalisation.[3] This will affect not only the EU, but also Asia and other emerging market regions that heavily rely on exports. The US economy, on the other hand, has a stronger domestic focus and is therefore less vulnerable to a slowdown in global trade. And last but not least, government support packages adopted to mitigate the fallout from the coronavirus crisis could have a stronger structurally preservative effect in the EU than in the US, protecting weaker companies from becoming insolvent. This 'zombification' of parts of the economy will weigh on growth in the EU over the medium term.

2 See also Union Investment's study "Internationalisierung schlägt Japanisierung – Auswege aus dem Niedrigzinsumfeld" ('Internationalisation beats Japanisation – escaping the low-interest-rate environment', available in German only); published in November 2019, www.institutional.union-investment.de/startseite-de/Kapitalmarkt/Themenpapier-Japanisierung

3 See also Union Investment's study "Systemschock für den Welthandel: Wie verändert Covid-19 die Globalisierung?" ('A systemic shock for global trade – the impact of COVID-19 on globalisation', available in German only); published in August 2020, www.institutional.union-investment.de/startseite-de/Kapitalmarkt/Themen_Systemschock_fuer_den_Welthandel.html

The observation that the coronavirus crisis has reduced the interest-rate differential between US Treasuries and Bunds and that internationalisation is therefore currently less advantageous than, for example, in 2019, is true only at first glance. Firstly, it must be taken into account that the cost of currency hedging has fallen significantly, and secondly, it is likely that the interest-rate differential is going to widen again in the medium term because the US economy is more dynamic.

The path towards an international portfolio

Strategic asset allocation is at the heart of traditional portfolio optimisation. But for the purposes of this study, we chose a different point of reference: We used the actual distribution of assets in the global capital markets. On this basis, we developed an optimisation framework characterised by a high degree of variability, which made it highly relevant to real life. Figuratively speaking, it enabled us to tweak the dials and levers of each asset class individually and isolate the corresponding optimisation effect. Matching these configurations with different levels of currency hedging allowed us to analyse a virtually unlimited range of combinations.

In concrete terms, we constructed two portfolios to generate a side-by-side comparison that illustrates the scale of the impact of internationalisation. The first portfolio was set up

Figure 2 **Comparison of the status quo portfolio and the world portfolio**

		Status quo portfolio			World portfolio*			Difference in percentage points (Status quo portfolio minus world portfolio)	
Asset class	**Region**	Asset class weighting	Weighting of the region within the asset class	Weighting within the overall portfolio	Asset class weighting*	Weighting of the region within the asset class	Weighting within the overall portfolio	Weighting of the region within the asset class	Weighting within the overall portfolio
Equities	Germany	13.6%	19.9%	2.7%	13.6%	2.5%	0.3%	+ 17.4 pps	+ 2.4 pps
	Other eurozone countries		36.0%	4.9%		6.3%	0.9%	+ 29.7 pps	+ 4.0 pps
	US		25.7%	3.5%		48.0%	6.5%	– 22.3 pps	– 3.0 pps
	Other developed countries		15.4%	2.1%		31.2%	4.2%	– 15.8 pps	– 2.1 pps
	Emerging markets		2.9%	0.4%		12.0%	1.6%	– 9.1 pps	– 1.2 pps
Government bonds	Core eurozone	38.4%	58.9%	22.6%	38.4%	27.8%	10.7%	+ 31.1 pps	+ 11.9 pps
	Eurozone periphery		22.7%	8.7%		13.9%	5.3%	+ 8.8 pps	+ 3.4 pps
	US		14.6%	5.6%		45.8%	17.6%	– 31.3 pps	– 12.0 pps
	Emerging markets		3.9%	1.5%		12.5%	4.8%	– 8.6 pps	– 3.3 pps
Corporate bonds (investment grade)	denominated in euros	45.7%	94.7%	43.3%	45.7%	37.1%	17.0%	+ 57.6 pps	+ 26.3 pps
	denominated in US dollars		5.3%	2.4%		62.9%	28.7%	– 57.6 pps	– 26.3 pps
Corporate bonds (high yield)	denominated in euros	2.4%	83.3%	2.0%	2.4%	27.4%	0.7%	+ 55.9 pps	+ 1.3 pps
	denominated in US dollars		16.7%	0.4%		72.6%	1.7%	– 55.9 pps	– 1.3 pps

* Asset class-adjusted world portfolio: The weighting of the asset classes was copied from the status quo portfolio assuming that the investor would keep the weighting of the asset classes unchanged during the internationalisation. In the non-adjusted world portfolio, 60 per cent of assets are allocated to equities, 30 per cent to government bonds, 9 per cent to IG corporate bonds and 1 per cent to HY corporate bonds.

Sources: Deutsche Bundesbank, J.P. Morgan, Union Investment; as at January 2020. The sum of the individual percentage figures may not always add up to exactly 100 per cent owing to rounding.

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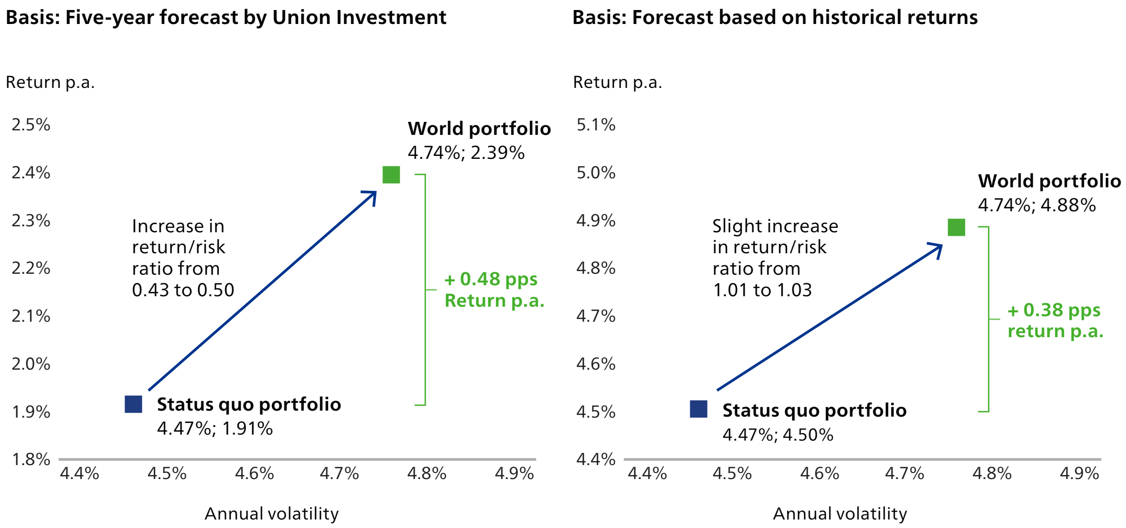
as a 'status quo portfolio'. It represents the portfolio of the average German institutional investor and reflects the prevailing home and near bias, i.e. a focus on investments from Germany and the eurozone.[4] The portfolio consisted of (figures have been rounded) 13.6 per cent equities, 38.4 per cent government bonds, 45.7 per cent investment-grade (IG) corporate bonds and 2.4 per cent high-yield (HY) bonds.

The status quo portfolio was contrasted with the 'world portfolio', which reflects the actual regional distribution of each asset class in the global financial markets. It is, by definition, fully internationalised and therefore free of home bias and near bias.[5] To simplify our analysis, the world portfolio was (initially) fully hedged against exchange rate fluctuations. For the purposes of the comparison, we harmonised the world portfolio with the four asset classes with a total of 13 regions reflected in the status quo portfolio and replicated its weighting of the asset classes in the world portfolio.

Across all asset classes, German and eurozone investments were weighted less heavily in the world portfolio, while higher proportions were invested in US and other non-eurozone assets.

To compare the two portfolios, we used their return/risk ratio, which measures the return on an investment per unit of risk. Expected returns were generally determined using Union Investment's fundamental capital market forecasts (five-year horizon). These forecasts are produced using a newly developed method that is based on a broad range of data and proprietary analyses. Return estimates based on historical data were mainly used for cross-checking. Assumptions regarding volatility and correlation were based on historical data from 2001 onwards.

Figure 3 **Comparison of the status quo portfolio and the world portfolio based on different return assumptions**



Source: Union Investment.

4 Figures published by Deutsche Bundesbank and data from Union Investment were used to construct this portfolio.

5 Data from J.P. Morgan and Barclays was used to construct this portfolio.

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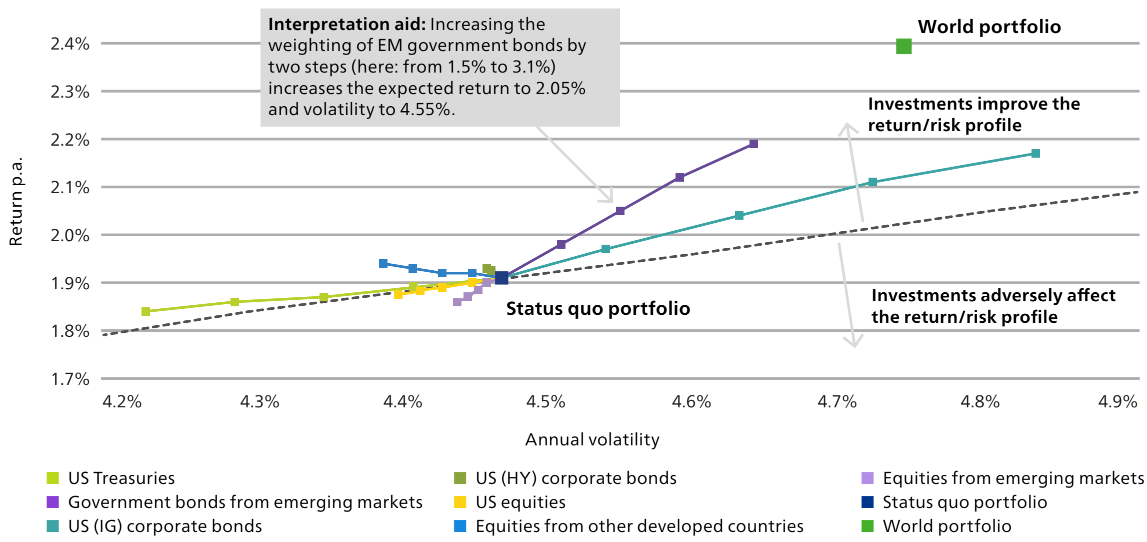
The comparison (see figure 3) shows that, based on Union Investment's five-year forecast, the expected return of the world portfolio (2.39 per cent) is higher than that of the status quo portfolio (1.91 per cent). The higher degree of internationalisation does increase the level of volatility, but only moderately. All things considered, the return/risk ratio of the world portfolio is 0.50 – up from 0.43 for the status quo portfolio. These results can be verified using historical returns, which demonstrate a similar pattern – albeit at a different level (about 2.5 percentage points difference) due to the gap between forecasts based upon historical returns and forward-looking forecasts. This gap can be explained by the fact that in the prevailing environment of low interest rates, Union Investment's forecasts are much lower than the historical returns from the last 20 years.

Impact of individual internationalisation steps

The global portfolio illustrates the benefits of internationalisation in a world without limitations. In practice, institutional investors are faced with regulatory conditions that may limit the scope of an internationalisation strategy. Regulatory requirements differ significantly for each individual group of investors – insurance companies are subject to different rules than banks or foundations.

But investors can achieve improvements compared with the status quo portfolio without having to go for a fully-fledged internationalisation approach. Individual, targeted changes can also enhance the portfolio. We conducted a sensitivity analysis to assess the impact on returns and volatility that can be achieved with individual internationalisation steps targeting specific asset classes and regions. Seven of the 13 components of the status quo portfolio were selected as 'international' components and increased in four steps until their weightings matched those of the world portfolio. The remaining six components were classified as 'home regions' and their weighting was gradually reduced.

Figure 4 **Impact of individual internationalisation steps**



Note: Every dot represents one internationalisation step in the corresponding asset class.
Source: Union Investment.

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For six out of our seven 'international' asset classes, increasing the weighting resulted in an improved return/risk ratio (see figure 4). The effect is particularly eye-catching for equities from other developed countries (Japan, UK and others) and high-yield corporate bonds denominated in US dollars. Government bonds from emerging markets and (investment-grade) corporate bonds denominated in US dollars offer higher expected returns and an improved return/risk profile, but at the cost of higher volatility. The increase in the proportion of US government bonds, on the other hand, results in lower expected returns but also lower levels of volatility. All in all, the return/risk ratio improved here too compared with the status quo portfolio.

As the degree of deviation between the status quo portfolio and the world portfolio differs from one asset class to another, the scale of the steps required to bridge the gap between the two portfolios differs as well. As a result, the effect of individual steps on return and volatility also varies significantly. The greatest change in volatility was triggered by adjustments to US Treasuries – for each adjustment step, volatility decreased by 0.62 percentage points. The biggest change in expected return was triggered by internationalisation adjustments to government bonds from emerging markets (plus 0.41 percentage points) and (investment-grade) corporate bonds denominated in US dollars (plus 0.71 percentage points).

Currency hedging

Up to this point in the analysis, all investments in currencies other than the euro had been fully hedged against exchange-rate risks. It is generally important to take a nuanced approach to hedging. Full currency hedging does not always generate the best results. A comparison of a hedged and an unhedged version of the world portfolio using historical financial market data illustrates the relevance of hedging. At the same level of expected return, the currency-hedged version comes with significantly lower volatility, but also a greater maximum loss. This is because positions in US dollars can provide diversification when the US dollar appreciates against the euro in a crisis ('risk-off function'). In summary, it can be said that not hedging currency positions diversifies the investment, but in the past, it was not an attractive choice from a return/risk perspective. Only in times of crisis does it become a useful option to forego currency hedging in order to reduce the maximum possible loss.

The targeted internationalisation of fixed-income investments can be worthwhile, but it is important to think carefully about currency risk. Which sub-asset classes lend themselves particularly well to internationalisation, and what would be the best hedging approach for these? Using a eurocentric portfolio as a point of reference, we analysed a variety of internationalised portfolios with regard to their

Figure 5 **Historical risk-adjusted return**

Optimum addition and level of hedging of EM government bonds denominated in US dollars

	Level of currency hedging										
Degree of internationalisation	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
0%	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73
10%	0.86	0.86	0.86	0.86	0.85	0.85	0.85	0.84	0.84	0.83	0.83
20%	0.92	0.93	0.94	0.94	0.95	0.95	0.94	0.94	0.93	0.92	0.91
30%	0.92	0.94	0.96	0.98	1.00	1.00	1.01	1.00	0.99	0.98	0.95
40%	0.88	0.91	0.94	0.98	1.00	1.02	1.03	1.03	1.02	1.00	0.97
50%	0.82	0.86	0.90	0.94	0.97	1.00	1.02	1.02	1.01	0.99	0.95
60%	0.77	0.81	0.85	0.90	0.93	0.97	0.99	1.00	0.99	0.96	0.92
70%	0.72	0.76	0.81	0.85	0.89	0.92	0.95	0.96	0.95	0.92	0.88
80%	0.68	0.72	0.76	0.80	0.84	0.88	0.91	0.92	0.91	0.88	0.83
90%	0.65	0.69	0.72	0.76	0.80	0.84	0.86	0.88	0.87	0.84	0.79
100%	0.62	0.65	0.69	0.73	0.77	0.80	0.83	0.84	0.83	0.80	0.75

Source: Union Investment, as at July 2020.

return/risk profile. For this analysis, we changed both the degree of internationalisation and the degree of currency hedging across the whole scale from 0 per cent to 100 per cent. The two dimensions were then linked in order to determine the historically 'optimum' return/risk combination.[6] The results showed that adding assets such as government bonds from emerging markets (denominated in US dollars) for diversification would be the most attractive option. The best outcomes were generated when combining 40–60 per cent internationalisation with a hedging level of 50–80 per cent (see figure 5).

Corporate bonds from emerging markets are also an attractive option. Combined with a hedging ratio of 70–90 per cent, they provide good returns. Bonds from the US should be a core component of any internationalisation strategy, because in this market, you can find a wealth of corporate bonds that offer an excess return compared with European corporates on a currency-hedged basis and have a track record of higher returns.

In the equity segment, the benefits of internationalisation are particularly pronounced when currency risks are not hedged. One key reason for this is the risk-off function of the US dollar. Equities from the US are especially attractive due to the strong representation of the tech sector in the sector allocation and because of the companies' greater competitiveness and higher profitability. An unhedged exposure to US equities for diversification purposes can increase the expected return without raising the expected risk. It would therefore improve the return/risk ratio of the relevant portfolio.

[6] Historical financial market data from 2003 onwards was used for the purposes of this analysis.

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4 More than internationalisation: active portfolio management

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The world portfolio has further scope for improvement. The know-how of an active portfolio manager and well-chosen additions of further asset classes turn it into a 'prospects portfolio'. The strategies available within the 'realm of possibilities' differ in terms of the size of their impact. Certain versions of the prospects portfolio offer a better return/risk profile than the world portfolio.

First, we optimised the world portfolio by applying the Union Risk Contribution approach, which Union Investment primarily uses for client-specific institutional portfolios. This produced a prospects portfolio with an improved expected return and slightly higher volatility (2.95 per cent and 5.1 per cent respectively, compared with 2.39 per cent and 4.7 per cent in the world portfolio), i.e. a better overall return/risk portfolio. This is partly attributable to higher weightings of high-yield corporate bonds (roughly plus 6 percentage points compared with the status quo portfolio) and bonds from emerging markets (roughly plus 7 percentage points).

Correlation and co-drawdown analyses show that adding investments from outside Europe clearly improves a portfolio's diversification. It is also evident that clever asset class combinations offer investors opportunities to leverage diversification potential: equities and bonds form distinct clusters that combine well, and the same is true for commodities.

The extent to which asset classes other than equities and bonds can be added varies depending on the type of investor. This is why we initially excluded commodities and less liquid real estate investments. The study contains brief digressions on the potential that can be tapped by including these supplementary asset classes. It is widely accepted that these investment categories should be included in a balanced asset allocation due to their favourable characteristics for diversification. This also applies in the context of a dedicated internationalisation strategy.

Going beyond the realm of liquid asset classes greatly increases the range of options. In the real estate segment, German institutional investors have so far focussed much more strongly on domestic investments than is the case in the equity and bond segments. But the appetite for investing abroad has been growing rapidly in recent years. Real estate investments in other countries can be lucrative. Certain markets may offer higher returns, but

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most importantly, these investments provide opportunities for diversification. In many countries, market transparency has improved in recent years and risks have diminished. The conditions for a real estate internationalisation strategy have therefore become more favourable.

But active portfolio management has more tools in the box than just internationalisation strategies, even within the confines of liquid asset classes. Modern investment approaches exploit not only regional discrepancies but also structural patterns in the capital markets, some of which may only manifest themselves in certain phases. Disruptive megatrends such as digitalisation and the economic transformation required to adjust to and combat climate change, for example, open up scope for so-called 'themed investment' strategies. Selecting suitable 'themes', efficiently incorporating these into the investment strategy and continuously monitoring the portfolio, i.e. keeping a close eye on current trends or changing attitudes towards the topic, are key elements of this approach. This means that 'themed investing' can only ever be a sub-discipline of active management.

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5 Conclusion

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Home bias and near bias mean that institutional investors are missing out on potential returns in other economic areas. The study to which this summary refers uses a systematically developed analytical framework to show what can be achieved by a differentiated international strategy compared with a portfolio in which a disproportionately large share of the assets is allocated to German and other eurozone securities.

The benefit of individual internationalisation measures for institutional investors varies, depending on the asset class and region. Equities from other developed countries (e.g. Japan and the UK) and high-yield bonds from the US may particularly improve the portfolio. Government bonds from emerging markets and (investment-grade) US corporate bonds also offer higher expected returns and an improved return/risk profile for the overall portfolio, but at the cost of higher volatility.

A higher proportion of US government bonds, on the other hand, results in lower expected returns but also lower levels of volatility, which means a better return/risk profile. When it comes to currency hedging, there are clear recommendations: Bonds from emerging markets (denominated in US dollars) are the most attractive from a return/risk perspective. Partial hedging should be used to reduce the currency risk of these investments. In the equity segment, however, the benefits of internationalisation are particularly pronounced when currency risks are not hedged.

In a global environment that is currently rather fragile as a result of the coronavirus pandemic and the dispute between the US and China, recommending an internationalisation strategy must of course be tempered with a word of caution in view of the geopolitical uncertainties. The implicit assumption underlying Union Investment's long-term capital market forecasts – and thus this study – is that there will be no dramatic shift in the tectonic plates of the global economy and that the capital markets adequately reflect other political developments and trends in the real economy. On this basis, there are also arguments in favour of internationalising portfolios that are only indirectly addressed by our analysis. This is because coronavirus and emerging signs of new blocs being formed – with the US and China leading the way – are expected to reinforce trends towards deglobalisation that already existed before the pandemic in certain areas.

A less integrated global economy means that the correlation in the capital markets between different investment regions may diminish. This would increase the potential for diversification offered by internationalisation and investors would be able to take advantage of this.

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Regional asymmetries are likely to be amplified by the coronavirus pandemic, at least in the medium to long term, and could adversely affect the eurozone in many instances. This makes the internationalisation of portfolios more necessary and more attractive than ever.

The full version of the study can be downloaded at **www.die-risikomanager.de**. (German only)

We work for your investment

Published by:

Union Investment Institutional GmbH
Weissfrauenstrasse 7
60311 Frankfurt am Main
Germany

Tel: +49 (0)69 2567 7652
Fax: +49 (0)69 2567 1616

www.die-risikomanager.de (German only)

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