

Along with the redesign of *jaive* we have also modified the accompanying portfolio optimizer tool 'Allocator'. The main improvements in the new Allocator are the integration of the investment process, the addition of further asset classes (corporate bonds and world assets), and some enhancements in the portfolio optimization model. In the following, we will present two of the technical innovations in more detail: Firstly the optimization type regarding sector and regional allocation, and secondly the impact of the objective function's risk parameters on the optimal portfolio.

The Allocator now comes with two different optimization types: 'world/regions' and 'regions/sectors'. The 'world/regions' optimization is in fact the same as in the previous Allocator where equity allocation was optimized on a regional level. In addition, the asset class groups 'world equities' and 'world bonds' can now be included in the optimization process, which is particularly useful for the asset allocation requirements of many pension funds.

The new 'regions/sectors' optimization breaks up the hierarchy of regional and sector allocation for equities. In the previous Allocator, sector allocation was a downstream allocation following the already optimized regional weights, independent of the other regions' sector allocation. With this new optimization framework, both regional and sector allocation are optimized simultaneously. Thus the two-step procedure previously used can be avoided and the allocation truly diversifies across both the region *and* the sector dimensions. This means that sectors in different regions are no longer treated independently, but rather their interaction with other regions or regional sectors is taken into consideration, leading to an improved asset allocation.

An overview of the results of this 'sectors/regions' optimization is presented in the Allocator sheet 'tactical deviations' (see table below). These results can be summed up across the two dimensions of regions and sectors, yielding both the overall exposure to the corresponding region and the allocation to global sectors ('global sectors' being the sum of SWI, EMU, USA, and JAP).

	Sectors SWI			Sectors EMU			Sectors USA			Sectors JAP			Sum of all regions		
	SAA	Tactical deviation	TAA	SAA	Tactical deviation	TAA	SAA	Tactical deviation	TAA	SAA	Tactical deviation	TAA	SAA	Tactical deviation	TAA
OIL GAS				1.9%	0.4%	2.3%	2.7%	-0.2%	2.5%	0.2%	1.6%	1.8%	4.9%	1.8%	6.7%
MATERI	1.1%	-0.5%	1.6%	2.2%	-2.0%	0.2%	0.8%	-0.8%	0.0%	2.2%	-1.2%	1.0%	6.3%	-3.5%	2.8%
INDUST	3.0%	-0.2%	2.8%	3.1%	-0.9%	2.1%	3.2%	0.5%	3.7%	5.3%	-0.4%	4.8%	14.5%	-1.0%	13.5%
CON GDS	6.3%	2.0%	8.3%	3.0%	-1.8%	1.2%	2.5%	-1.9%	0.6%	5.9%	-1.8%	4.0%	17.7%	-3.5%	14.2%
HEALTH	8.3%	1.1%	9.4%	1.0%	-0.5%	0.5%	3.1%	-2.2%	0.9%	1.4%	2.2%	3.6%	13.9%	0.6%	14.5%
CON SER	0.1%	-0.1%	0.0%	1.5%	-0.1%	1.4%	2.9%	-0.9%	2.0%	2.4%	1.0%	3.4%	6.9%	-0.1%	6.8%
TELECOM	0.3%	-0.3%	0.0%	2.0%	-1.6%	0.4%	0.7%	-0.7%	0.0%	0.7%	2.1%	2.9%	3.7%	-0.5%	3.2%
UTILIT	0.1%	0.0%	0.1%	2.5%	1.4%	3.9%	1.0%	-0.7%	0.3%	1.3%	3.7%	5.1%	4.9%	4.4%	9.3%
FINANC	5.7%	2.2%	7.9%	6.8%	-0.2%	6.5%	3.8%	0.7%	4.5%	4.1%	-1.5%	2.6%	20.3%	1.2%	21.5%
TECHNO	0.2%	-0.1%	0.0%	1.1%	0.2%	1.3%	4.2%	-0.5%	3.7%	1.6%	1.0%	2.5%	7.0%	0.5%	7.5%
Total	25.0%	5.1%	30.1%	25.0%	-5.1%	19.9%	25.0%	-6.6%	18.4%	25.0%	6.7%	31.7%	100.0%	0.0%	100.0%

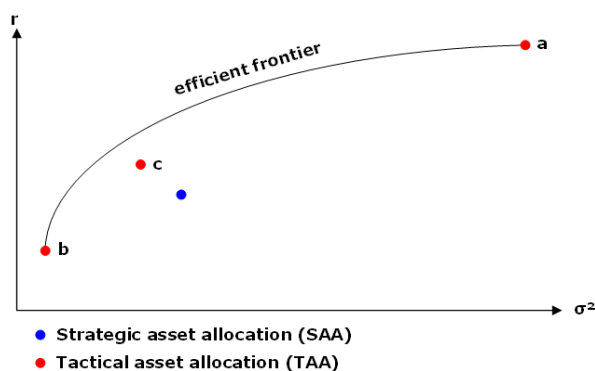
Exemplary CHF equity-only portfolio as of November 30, 2009, with a 1-month forecast horizon

As our second subject, we want to take a look at the impact of the objective function's risk parameters on the optimal portfolio. This objective function in the Allocator is as follows: $\max[r - \alpha \cdot \sigma^2 - \beta \cdot TE^2 - \gamma \cdot SBD]$. What the optimization does is basically maximize the expected portfolio return (r) while minimizing the penalties for variance (σ^2), squared tracking error (TE^2), and squared benchmark deviation (SBD). The impact of these penalties is controlled through the parameters α , β and γ . The higher these parameters are, the more severe the penalty. These parameters are found in the 'global' sheet in the Allocator and are preset to be adequate for a standard investor.

Depending on an investor's risk profile, these parameters can be adjusted to match individual preferences. A risk parameter of zero means that there is no penalty regarding the respective measure. A positive risk parameter indicates risk aversion and is interpreted as the amount of additional expected return that is needed to compensate one unit of additional risk. Example: The risk parameter α is preset to a value of 3. This means that the expected return has to rise by 3% to compensate for 1% of additional variance risk.

The resulting portfolio allocation greatly depends on the risk parameters set. Let us have a look at different settings and the impact on the optimal portfolio in a simplified efficient frontier environment. When all the risk parameters are set to zero, there will be an unrestricted maximization of expected portfolio return (portfolio a in the diagram), i.e. the Allocator will simply identify the portfolio with the highest possible return.

Solely increasing the risk parameter α (variance) slides the optimal portfolio down along the efficient frontier. Ultimately, for an infinitely high value, the optimization turns into a minimum-variance portfolio b. As soon as we include squared tracking error or squared benchmark deviation by setting their corresponding risk parameters (β and γ) higher than zero, the TAA portfolio c will deviate from the efficient frontier and move somewhat closer to the strategic asset allocation. These examples show the dependence of the optimal portfolio on the risk parameters set in the Allocator. A sophisticated investor is well advised to make an educated decision about how to set these parameters. However, the preset values are adequate for a standard investor, and it is highly recommended that the given parameters be used.



© Kraus Partner Investment Solutions Ltd. - Zurich

The above information provides additional advice for *jaive* licensees, but is not to be understood as investment advice or as a sale or purchase recommendation. Before each purchase or sale decision, the sale documentation should be studied and a professional adviser consulted. Kraus Partners cannot accept any liability for the above information, and in particular, would like to hereby emphasize that future trading ranges cannot be automatically deduced from the historic trend in value. With regard to investments in foreign currencies, allowances must likewise be made for the effects of varying exchange rates. For the rest, the General Terms and Conditions of Business of Kraus Partners apply as well as, insofar as applicable, the provisions of the license contract.