How we Analyse the Risks of Financial Instruments at LONG-TERM INVESTING Research AG

Anybody who deals thoroughly with the risks of investment inevitably learns that the simple subdivision of risky and safe investments is actually always too superficial.

A 10-year government bond has an extremely low default risk and, therefore, is regarded as very safe. However, in view of the inflation risk the picture for this fixed-interest paper with long maturity looks less impressive. Who can say how the inflation rate will develop over the next few years? If it remains above the nominal yield of the bond, the purchasing power of the invested money cannot be sustained.

Gold is viewed as a classical hedge against inflation risks. But what happens with the price of gold if we are not hit by hyperinflation?

Real estate promises stability and independence from inflation. But purchasing and selling property is mostly connected with very high expenses. And anybody who intends to sell property at a reasonable price sometimes discovers that this can last a long time, or is not possible at all because there is no suitable buyer. Are real estate investors really aware of the liquidity risk that they bring upon themselves with their investment?

And do shares really benefit from the growth trends in the global economy, or do the global developments actually pose a risk for them? The answer depends very much on the specific characteristics of every single company.

Over the last few years many investors have been forced to discover that the risks of their investments were actually different to what they had imagined. Some investors were not even aware of the risks that were connected with their investments.

One reason for this lies in the one-sided orientation of the usual information currently prepared about financial instruments. It focuses mainly on the profit chances of an investment. Expenses and risks are mentioned only reluctantly and rarely explained in detail.

Moreover the current prevailing understanding of risk analysis has contributed to the confusion of investors. It is still oriented very strongly to the one dimensional risk concept of the so-called “modern portfolio theory”, which is focused solely on price fluctuations. However, in practice this has turned out to be of little meaning, in particular for long-term investors.

Investors are often confronted with mathematical risk numbers that are incomprehensible even for many experts – and are in some cases questionable in their manner of calculation.

However, only those who know the risks connected with their investments are able to develop an adequate investment strategy. *Long-Term Investing Research AG* therefore aims to provide a comprehensive and easy-to-understand risk evaluation for the investor.

In particular our methodology of analysing and explaining risk differs from analyses that have been undertaken to date in the following way:

- Conventional risk analysts very often make insufficient distinctions between the single risk types. Some even try to encapsulate the risk of a financial instrument in one reference number. It is especially popular to equate general investment risk with price risk because this risk dominates in the short term and also can easily be expressed mathematically. However, with increasing investment duration, the relevance of the price risk decreases, while the default risk and the inflation risk gain in importance. In particular the popularity of the seemingly mathematically exact "standard deviation" as a risk measure creates a false sense of security, which in the past has led to many wrong investment decisions.

- For every financial instrument there are different risks in different magnitudes, which have different importance for different investors. Only somebody who can properly evaluate not only the price risk linked with an investment, but also the default risk, the liquidity risk and the inflation risk can develop an appropriate investment strategy. Therefore in our analysis we have differentiated clearly between the particular risk kinds.

- Some risk analysts use measures whose methodology is not transparent for outsiders. This is true especially for so-called ratings; their assessment criteria are very much opaque. On the contrary, we have defined clear criteria for risk evaluation and conduct it in a way that is also understandable for non-professionals.

- To avoid incomprehensibility we have developed an intelligible system that values risks with a similar system to school marks. This allows the evaluation of different risks for different financial instruments with the same methodology, and makes them comparable.

- Mathematical risk models are often used without checking the stability of input factors thoroughly. In particular the instability of many correlation coefficients has often led to misleading results in the past. Sometimes measures based on these models aimed to reduce risk have actually turned out to increase risk.

- We refer to mathematical risk models only if the statistical stability of the input factors is proven for a long time frame, and is logically supported by an in-depth analysis of the underlying contexts.

The specific features of our methodology are more exactly explained below:

1) Clear differentiation of the risk kinds

In our system of risk evaluation these risk types are clearly differentiated:

The **default risk:** The risk of a **sustained financial loss**

The **price risk:** The risk of a **temporary depreciation of** the investment because of price fluctuations.

The **liquidity risk:** The risk that if, **in the absence of sufficient demand,** an investment cannot be sold, or only sold with delays or with high expenses or with steep value discounts.

The **inflation risk:** There is the danger of a **loss of purchasing power** of the invested money due to increases in the general price level.

The relevance of the single risks depends relatively strongly on the investment perspective of the investors. While for short-term investors price risk and liquidity risk are especially significant, for long-term investors above all the default risk and inflation risk play a crucial role.

2) Clear criteria of risk evaluation:

With our risk evaluation we follow criteria that are clearly defined and also easy to understand:

1) Criteria for default risk:

At company level: debt (on the balance sheet and off the balance sheet); free cash flow; dependence of asset values on forecasts and intangibles. product variety; barriers to market entry; management arrogance; dependence on technology change

With government bonds: budget deficits; shadow budgets and deficits; current account; monetary system; demography; sustainability of social security system; political stability

2) Criteria for price risk:

Volatility measures such as standard deviation or β for different periods

3) Criteria for liquidity risk:

Bottom levels of stock market turnover; bid-ask spreads; transaction costs

4) Criteria for inflation risk:
Duration, capital intensity; interest sensitivity, price elasticity of demand

3) Easy-to-understand risk evaluation based on school marks

To create an easy-to-understand system of risk evaluation we have categorised risks according to school marks. In the first step, we have applied the German system with marks from 1 to 6, but our methodology can easily be adjusted to the systems of assigning marks in other countries.

We evaluate every investment with regard to four risk categories, awarding a school mark for every risk kind. Thus a specific risk profile is determined, which every investor can compare with his own perceptions of risk. In analogy to the school report, which summarizes the achievements and the shortcomings over a school year, we prepare a risk report that contains all the relevant risk characteristics of a stock, bond, fund or another financial instrument.

In detail we award the following risk marks:

1: very good (minimum risk) (comparable in the United Kingdom: A grade; France: 18-20; Spain 9-10, Italy & Netherlands: 10; Switzerland: 6)

2: good (practically no risk; increased risk only under very unlikely extreme circumstances) (comparable in the United Kingdom: B grade; France: 15-17.9; Spain 7-8, Italy & Netherlands: 8-9; Switzerland: 5)

3: adequate (normally low risk; under extreme circumstances increased risk) (comparable in the United Kingdom: C grade; France: 12-14.9; Spain 6, Italy & Netherlands: 7; Switzerland: 4)

4: sufficient (normally increased risk; under extreme circumstances highly increased risk) (comparable in the United Kingdom: D grade; France: 10-11.9; Spain 5, Italy & Netherlands: 6; Switzerland: 4)

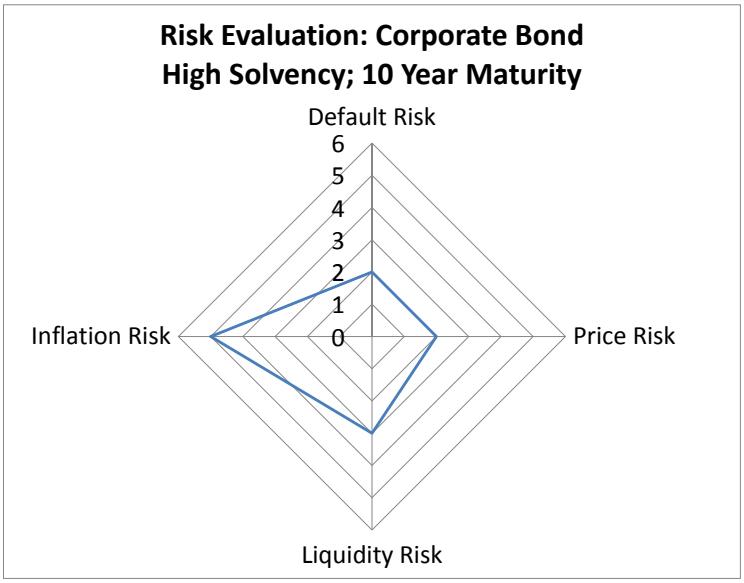
5: deficient (high risk) (comparable in the United Kingdom: E grade; France: 6-9.9; Spain 3-4, Italy & Netherlands: 3-5; Switzerland: 2)

6: insufficient (irresponsibly high risk) (comparable in the United Kingdom: F grade; France: 0-5.9; Spain & Italy 0-2; & Netherlands: 1-2; Switzerland: 1)

4) Examples

To explain our assessment based on school marks and our evaluation criteria it is described with the following two examples:

For a corporate bond with 10-year maturity and high solvency, this risk evaluation would arise:



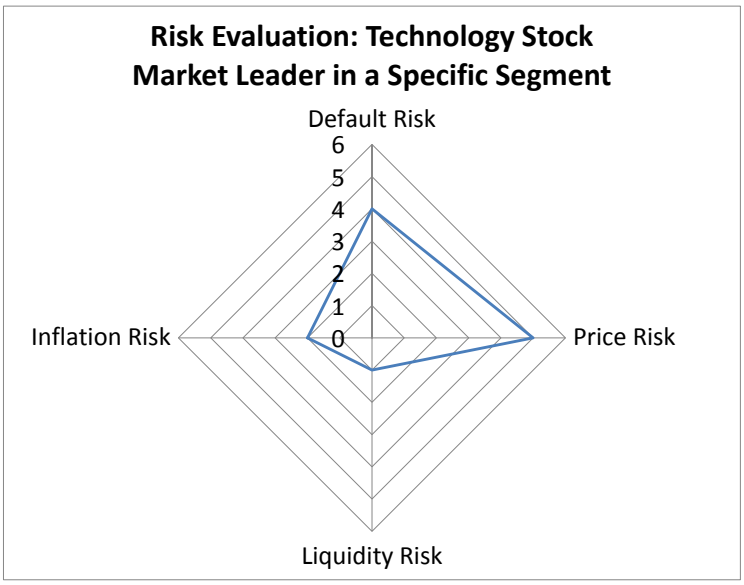
Default risk: Mark 2 => the payback of the bond is practically certain, under very extreme circumstances a low remaining risk exists

Price risk: Mark 2 => only low price fluctuations are to be feared

Liquidity risk: Mark 3 => in general there is a good trading volume, but not always

Inflation risk: Mark 5 => over the long term a real depreciation is likely with accelerating inflation rates

With the shares of a leading technology company another picture appears:



Default risk: Mark 4 => although the company is a market leader with a solid balance sheet, it could be endangered by a technological change

Price risk: Mark 5 => short-term movements of prices depend strongly on the market sentiment; therefore, very high stock price fluctuations are to be expected

Liquidity risk: Mark 1 => normally high stock market turnover

Inflation risk: Mark 2 => sales prices develop regardless of the general price levels; low capital intensity avoids negative balance sheet effects from inflation

Karl-Heinz Thielmann, May 2012