

“Current increasing interest rates and increasing share prices – a paradigm shift? What are the implied financial aspects for corporations?”

Heilbronn, 2006-01-26

1. Introduction

Dear Ladies and Gentlemen,

during the next 20 minutes I would like to talk about the subject “Current increasing interest rates and increasing share prices – a paradigm shift? What are the implied financial aspects for corporations?”

The structure of my lecture is as follows: Firstly, I will give you a survey of the traditional theoretical background in this field. It suggests that high short-term interest rates cause high long-term interest rates and in a further consequence decreasing share prices. In this context we will discuss plausible mechanisms of transmission. After this I will present some empirical findings especially for Germany in order to obtain an impression whether the former stated causal connection is confirmed by facts or not. In the next step I will discuss theoretical consequences which result from the empirical facts. This includes a consideration of alternative causal connections for the relationship between interest rates and share prices in the meaning which I have given to understand at the beginning of my lecture. Last but not least I will have a few concluding remarks.

2. Theoretical background: The traditional theory

The traditional theoretical background implies no significant positive correlation between interest rates and share prices but – in the opposite – a negative correlation between these two variables. E. g., on the stock exchange it is a dictum that increasing interest rates are a “poison” for the traded shares and therefore for their prices.

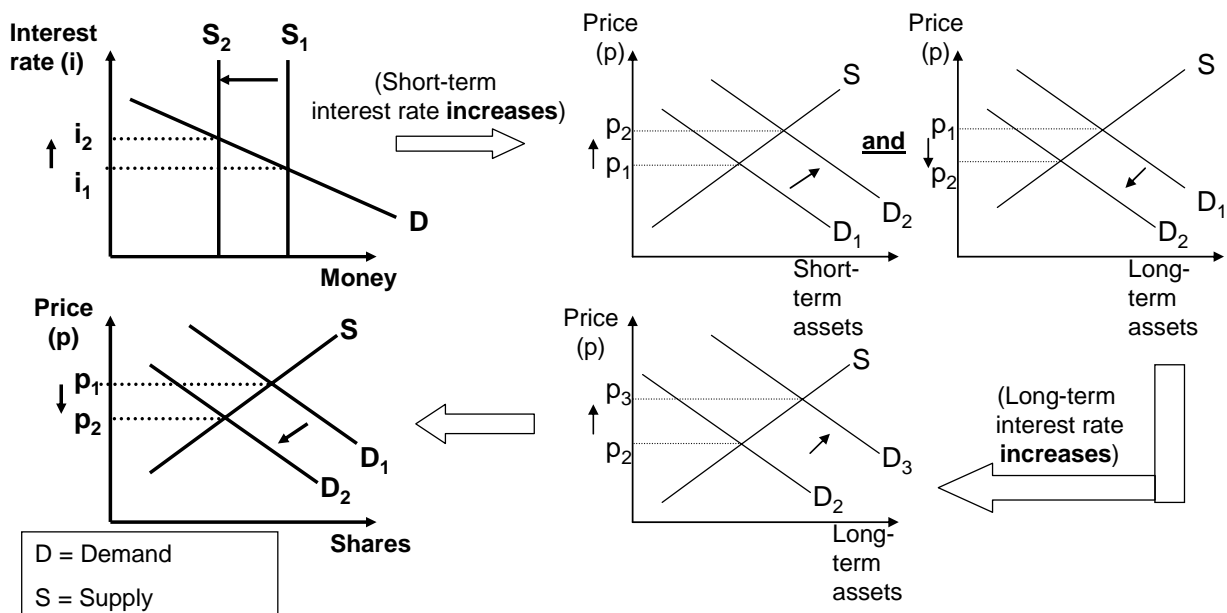
Usually such theoretical considerations are – at least partly – based on the theory of portfolio selection. It is argued that changes of the short-term interest rates, which are influenced mainly by the monetary policy of the central bank, lead to parallel

changes of the long-term interest rates on the capital market. In that case increasing short-term interest rates would result in more investments in short-term assets and – parallel to this – in fewer investments in long-term assets like bonds, debt securities, etc. The decreasing demand of such assets corresponds with a reduction of their prices and thereby inversely with an increase of their yields, i. e. an increase of the long-term interest rates.

In the next step the risen yields of such long-term, mostly fixed-interest securities tend to an increasing demand of these assets.

Shares are typically substitutes to the considered assets. This substitutional relationship is along with financial budget restrictions of the private households and causes a decrease in the demand for shares. Based on Adam Smith's "invisible hand" the price of shares will decrease. Therefore the sketched portfolio approach gives support to the hypothesis of a negative correlation between interest rates and share prices. High interest rates should cause decreasing share prices, and low interest rates should cause increasing share prices (see figure 1).

**Figure 1: The traditional (portfolio-)approach
in the field of assets and shares**



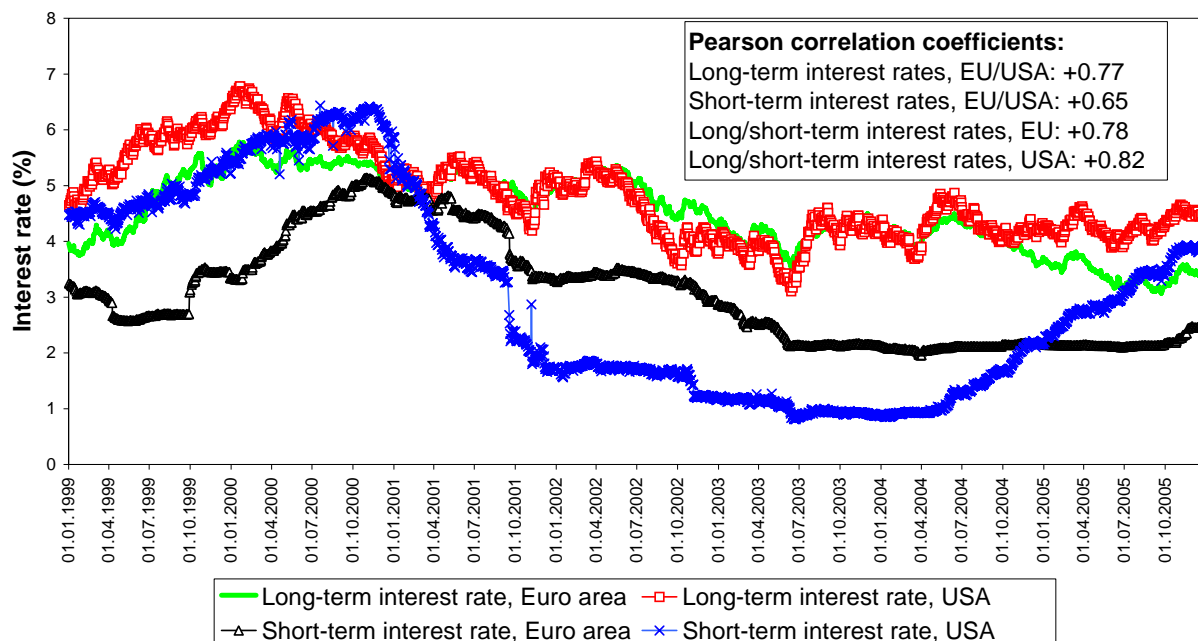
Source: Own presentation

A further argument for a negative correlation between interest rates and share prices belongs to the aggregate demand: In the case of high interest rates typically the costs for consumer credits are high too which weakens the consumers demand. In addition high interest rates burden firms in the context of the provisioning of outside capital. That means that they increase the costs for investments, and so they weaken the aggregate demand in an economy too. If we accept the view that fundamental economic developments such as economic growth are reflected in the share prices, the prementioned aspects will lead to dropping share prices. In the case of low interest rates it is argued normally that the opposite mechanisms are at work.

3. Empirical findings

In his Ph. D. thesis Christoph Lattemann has shown that for his considered time period from 1973 up to 1995 a change of the discount rates set by the German central bank has caused inverse changes in share prices in the most cases. This result is obviously in accordance with the statements of the traditional approach. It also means that the facts reveal a positive correlation with discount rates, short-term interest rates and long-term interest rates. So the above sketched transmission process seems to be plausible.

Figure 2: Short-term* and long-term interest rates, Euro area and USA, 1999-2005**
 (*: Ninety days' loan; **: Bonds)

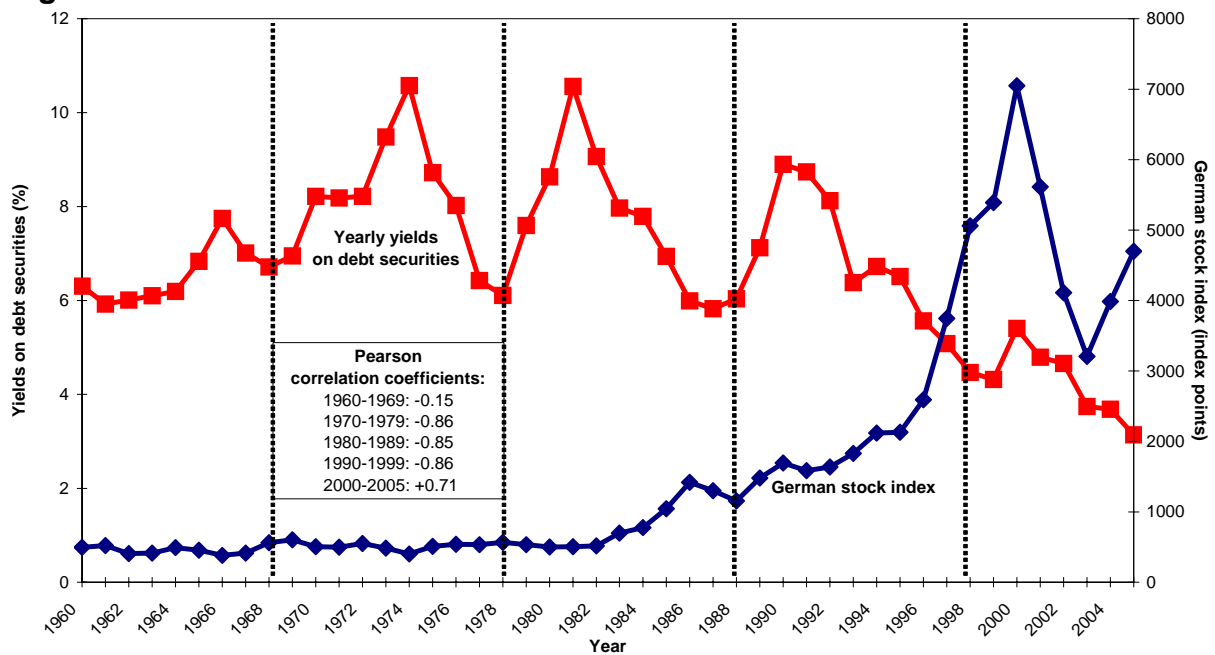


Source: Own computations based on data presented by the German Council of Economic Experts

Figure 2 confirms the high degree of correlation between short-term and long-term interest rates in the Euro area and in the United States for 1999 up to 2005.

In order to clarify whether Mr. Lattemann's findings – especially between long-term interest rates and share prices – are still being valid figure 3 reveals the relation between long-term interest rates and share prices for (Western) Germany from 1960 up to now.

Figure 3: The relationship between yields and share prices in (Western) Germany 1960-2005



For the several time periods which are presented by figure 3 I have estimated Pearson correlation coefficients. As a result, for the 1960s there has been a slight negative correlation between the two variables considered here. Compared with this, the negative correlations in the 1970s, the 1980s and the 1990s were very strong and amounted to approximately -0.85 in every of these decades. In contrast to these findings the correlation coefficient for the years 2000 up to 2005 is positive with a value of +0.71.

So we can conclude that there has been some confirmation for the abovementioned traditional theory in the 1960s up to the end of the 1990s. After that there seems to be a contradiction to the traditional theory as it is indicated by the positive value of the correlation coefficient. When we look on figure 3 more precisely, first of all we can

detect a synchronism between interest rates and share prices between 1999 and 2000: Both variables increased. Between 2000 and 2003 both variables declined.

However we have to denote the accosted period from 1999 up to 2003 as an inter-mezzo because since 2003 the traditional theory seems to be valid again.

On figure 4 and on figure 5 I present monthly values for the relationship between long-term interest rates and share prices. Both figures confirm figure 3.

Figure 4:

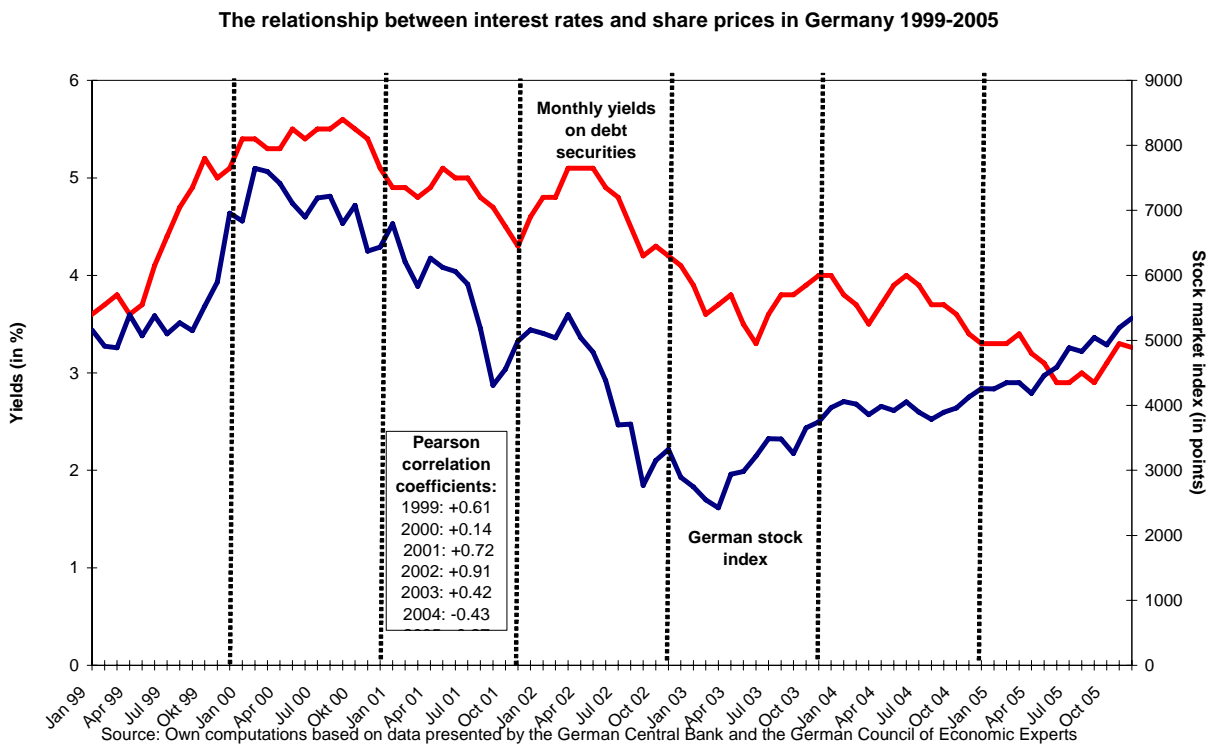
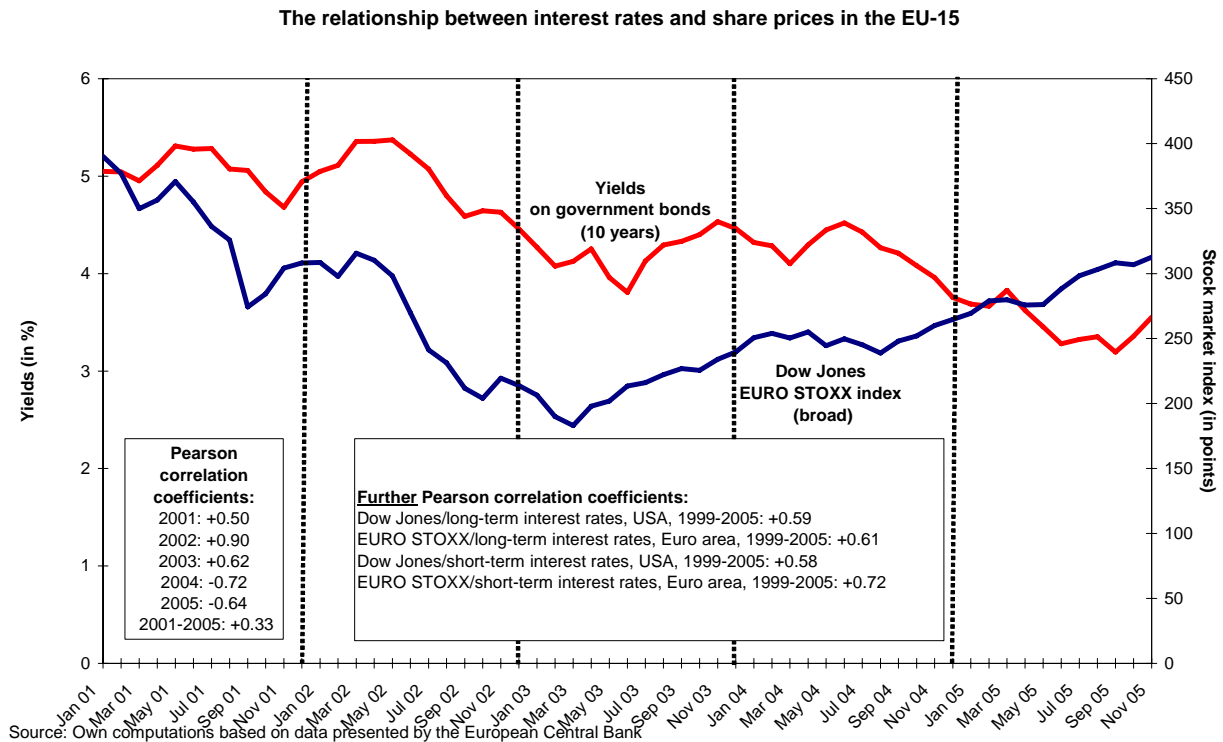


Figure 5:

4. A new theoretical framework?

The period between 1999 and 2003 and the associated findings for a positive correlation between interest rates and share prices in Germany pose the question how they can be explained: What can be the reasons for this new development?

Firstly, it seems to be the case that the economically declining effects of more expensive investment and consumer credits, caused by increasing interest rates, are counteracted by factors like a higher safety and stability of the economic development. These arguments reveal a monetaristic view in accordance with the theory of rational expectations or – less ambitious – according to autoregressive expectations or something like this.

I would like to give an example for the role of expectations in our context. So decreasing discount rates – and in a consequence decreasing short-term interest rates – can be interpreted as indicators for increasing inflation rates. According to this it could be that in the eyes of the participants on the capital market a reduction of the real long-term interest rates will occur. Expressed in other words, this requires higher

nominal long-term interest rates and therefore implies lower prices of securities. It is the so-called "Fisher effect".

Increasing (expected) inflation rates can influence share prices if the assumption is nearly to be valid that share prices reflect fundamental economic facts. In this sense it could be principally assumed that the stock price is an accurate valuation of a company and that it reflects further economically fundamental facts. So it could be argued that increasing goods prices will strengthen the sales and profits of firms. These real developments could result in increasing share prices, and as a result we obtain a positive correlation between long-term interest rates and share prices.

Furthermore, I guess that the experienced relationship between our two considered variables from 1999 up to 2003 depends on the underlying level of the interest rates. Let us e. g. consider the case when the level is relatively low despite its increase. In that case it seems to be probable that positive expectations with respect to the future profits are not influenced in a strongly negative manner by increases of the interest rates. In our context between 1999 and 2003 the interest rates in Germany had a value range between 3.7 percent and 5.4 percent. These levels are relatively low compared with levels in the area of 8 up to 10 percent which have been recorded at the beginning of the 1980s or at the beginning of the 1990s in Germany.

If these new causal connections appear to be valid they have consequences for the financing structure of corporations. When the interest rate is high and the share price too, then there are incentives for regrouping a firm's internal structure of finances. In this case a corporation will regroup (stepwise) its finance base from outside capital to equity capital. This means a greater degree of independence by the restrictions and regulations of the capital market. On the other hand, the intentions of the stockholders will gain a greater importance.

In the case, when interest rates are low and share prices too, there is an incentive for receiving financial means by the capital market. It strengthens the share of outside capital in a corporation's internal structure of financing at the expense of the share of equity capital.

On balance, high interest rates mean that firms have to pay more for credits but this effect can be overcompensated – at least for the stock corporations – by higher financial means caused by higher share prices and by higher expected profits. As a consequence entrepreneurs could invest and produce more than in the opposite

case of a negative correlation between interest rates and share prices where – in my eyes – a financial trade-off between capital and stock markets exists.

5. Concluding remarks

Dear Ladies and Gentlemen, please let me summarize my lecture. We have seen that usually there is a negative relationship between interest rates and share prices. Only in one period – between 1999 and 2003 – we have concluded that the mentioned relationship has been positive in Germany. In my opinion these findings do not seem to be a very high degree of significance for an alternative theory in this field. On balance, in my opinion the traditional effects are still working. Nevertheless I have to notice that the mechanisms which are at work in the real world are more complicated than the traditional approaches assume. E. g., there could be disturbing influences by irrational behaviour of the market participants or by foreign currency impacts. Also in my opinion it is important to consider the role of expectations to a greater extent than the traditional approach has done up to now.

Dear Ladies and Gentlemen, now I am at the end of my lecture and I would like to open the floor to your questions.

I thank you very much for your attention!

Literature:

Lattemann, Christoph: Zum Zusammenhang zwischen der Kursentwicklung der Aktien am Kapitalmarkt und der Geldpolitik der Deutschen Bundesbank. Transmissions-theoretische und empirische Analysen der Wechselbeziehungen zwischen Geldmarktpolitik und den Kapitalmärkten, Ph. D. thesis, University of Bremen 1997.

Pattersen, Ben/Lygnerud, Kristina: Die Bestimmung der Zinssätze, Arbeitsdokument der Generaldirektion Wissenschaft, hrsg. vom Europäischen Parlament, Reihe Wirtschaftsfragen: ECON 116 DE, Luxembourg 1999.

Perridon, Louis/Steiner, Manfred: Finanzwirtschaft der Unternehmung, 13th edition, Munich 2004.