

earn a higher rate of return it will not be able to attract new capital and will decline or stagnate.

Mr. GORDON. You are not saying that because an industry earns a higher rate of return it is necessarily an indication that it is a riskier industry?

Dr. COOTNER. No, sir; I am not saying that.

Mr. GORDON. All right. I only wanted to get that clear.

Dr. COOTNER. This is only a hypothesis and it could only be tested if we quantify the "risks" I just outlined in words. Now it turns out that words are much less precise than mathematics, but much easier to understand. When we turn to implementing this verbal definition we find that there are a variety of precise formulations of the result. Some of these were used in my study with Professor Holland and others are described in detail in the Conrad-Plotkin paper you will soon hear about. No one of these acceptable measures is perfect or ideal, but what is encouraging is that the relationships which are observed are all very similar—that is, they are not affected by the particular definition used and all lead to similar conclusions.

This basic conclusion is that as risk rises so does the required rate of return. I should stress that this is an average relation—a statistical relation that is subject to chance variation. While we develop a mathematical expression which relates the two concepts, every industry is not described perfectly by the relation. But subjecting this relationship to all the normal statistical tests confirms the result. The indicated relationship is a real one; it is not spurious or accidental. Finally, I should stress that this is not a complete theory of corporate profit. There are other risks besides the ones I have investigated. Just to name one, the marketability of an investment in Government bonds is substantially greater than one in plant and equipment and this alone would require a greater return for industrial investment even if it was equally risky.

Furthermore, there are market imperfections which can influence particular observations. But none of these things affects the validity of the partial relation measured here.

Having stated these results, I would like to spell out their implications. First of all, the relationship is an "average" or "long-run" phenomenon. It is particularly true in risky enterprises that things may not turn out as one expects and this accounts for a good deal of the scatter of points about our line of best fit. Low returns which arise from the impact of such risks will not immediately affect investment any more than the outcome of any particular flip of a coin changes the outlook for future flips. However, if one were to decide, by administrative action, to reduce the average rate of return in a risky, competitive industry without at the same time reducing the risks, we would find an immediate impact on that industry's investment policy.

Mr. GORDON. You say on page 9 that if one were to decide by administrative action and so on and so forth. First of all, practically all the testimony before our Committee indicates there is very little price competition in the drug industry. Is that your understanding?

Dr. COOTNER. I am not qualified to comment on that.

Mr. CUTLER. Could that question be addressed to Professor Markham, Mr. Gordon, when he testifies as soon as we finish on this risk-return relationship?