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## What Does the Equity Premium Mean?

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### Summary

Simon Grant and John Quiggin argue that taking the equity premium seriously—the well-known fact that the average annual historical return of stocks is seven times that of government bonds and other debt—has many implications, the most robust of which is that recessions are extremely costly even if they don't lower average consumption and that macroeconomic stabilization policies are more important than has been thought.

**KEYWORDS:** equity premium puzzle, resource allocation, welfare economics, public policy

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Over the long run, buying and holding the market portfolio of stocks has been a much better investment strategy than investing in government bonds (Mehra and Prescott, 1985). Since 1889, the real return on America's Cowles Commission and S&P Composite indices has averaged 7% per year, while the average real return on short-term government debt was less than 1% per year. This difference is the "equity premium."

The standard model of risk and return—the Consumption-based Capital Asset Pricing Model (CCAPM)—predicts an equity premium of less than half a percentage point per year, not six. In the CCAPM, the equity premium is the result of the representative investor's aversion to risk. Since average consumption is stable (its coefficient of variation is about 3 percent), risk aversion produces a small equity premium. The gap between the large historical equity premium and the small predicted value is the "equity premium puzzle."<sup>1</sup>

The huge literature on the equity premium puzzle<sup>2</sup> has spent little time on what the large equity premium means for resource allocation, social welfare, and economic policy. The price of risk is a crucial variable in resource allocation. The equity premium puzzle is that this price of risk is an order of magnitude larger than economists expect. This has important consequences. This Feature spells them out.

We take the equity premium seriously: as a fact about the world arising either from extraordinary aversion to risk or from serious market failure. We conclude:

- That the macroeconomic variability associated with recessions is very expensive.
- That risk to corporate profits robs the stock market of most of its value.
- That corporate executives are under irresistible pressure to make short-sighted, myopic decisions.
- That policies—disinflation, costly reform—that promise long-term gains at the expense of short-term pain are much less attractive if their benefits are risky.

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<sup>1</sup>A closely related puzzle is the "risk-free rate puzzle": the fact that the real yield on bonds is lower than the CCAPM prediction (Weil, 1992).

<sup>2</sup>The large theoretical and empirical literature has been surveyed by Mehra and Prescott (2003) and Grant and Quiggin (2004a).

- That social insurance programs might well benefit from investing their resources in risky portfolios in order to mobilize additional risk-bearing capacity.
- That there is a strong case for public investment in long-term projects and corporations, and for policies to reduce the cost of risky capital.

### **Implications for Resource Allocation and Welfare**

*The cost of risk:* A large equity risk premium means that the welfare cost of systematic stock market risk is very large if asset prices reflect representative agent preferences (see Atkeson and Phelan, 1994; Campbell and Cochrane, 1995). If the 6 percent equity premium drives a wedge between a real bond rate of 1 percent and an expected stock market return of 7 percent, then the stock market's value is only one-quarter that of a zero-risk portfolio with the same expected return. The stock market's value is derived from future corporate profits, and so the cost of the riskiness of profits is 3/4 of their total value, or roughly 10 percent of the flow of GDP.

*Short-termism:* Periodically there are vigorous debates over whether English-speaking stock markets suffer from a "short-term" bias that leads to myopic corporate decisions. Short-term bias is in large part the equity premium puzzle—the higher the market price of risk, the shorter the "payback period" used, and the smaller is the weight placed on the distant future in project evaluation. If the equity premium reflects not preferences but market failure, its existence proves the "short-termism" case.

### **Implications for Economic Policy**

*Recessions and stabilization policy:* A high cost of risk means that recessions are extremely destructive, even if the average level of aggregate consumption is not affected. Courting short-run recessions to establish credibility to keep inflation low is much less attractive if recessions are very costly.

*Social insurance:* The wide gap between rates of return to equity and to debt has influenced a number of contributors to the debate over reform of the Social Security system in the United States. The Clinton administration proposed investing some of the Social Security trust fund in stocks. The Bush administration proposed a privatized version of the same idea—with beneficiaries

diverting some of their contributions into private stock-market accounts. The Clinton scheme pooled the returns while the Bush scheme places more risk on individuals. If the equity premium exists because individuals overestimate risks of equity investments, such policies would produce a clear gain for Social Security beneficiaries and taxpayers. An increase in the expected return is a reduction in expected future taxes to fund the program. The same holds true if the equity premium exists because of problems like the illiquidity of stocks in emergencies, or corporate-control problems related to the difficulty in making sure managers are acting in individual shareholders' interests.

Theories like Mankiw (1986) and Weil (1992) that attribute the equity premium to large-scale market failure imply that welfare would be improved by a Clinton-style investment of the Social Security trust fund in equities (*see* Grant and Quiggin, 2002). But no such benefit arises in general from individualized accounts: the portfolio choices made by representative individuals for their Social Security accounts would be neutralized by reallocation of their privately held assets. By contrast, under CCAPM-based explanations of the equity premium puzzle (that assume investors are well informed) changes in the investment policy of the Social Security trust fund will be neutralized by changes in individual asset demands (*see* Geanakoplos, Mitchell, and Zeldes, 1998).

*Public investment and privatization:* The implications of risk for public and private investment was debated during the 1960s and 1970s, with Hirshleifer (1964) opposing and Arrow and Lind (1970) favoring the argument that the superior risk-bearing capacity of the public sector made the value of a risky project greater under public ownership than under private ownership. If the CCAPM holds, not much should be at stake here: the appropriate rate of discount for public projects will be near to the riskless rate, as claimed by Arrow and Lind, and equal to the discount rate for private projects with similar risk characteristics, as claimed by Hirshleifer (1964). But the equity premium implies that the CCAPM does not hold.

If information problems produce adverse selection and prevent insurance against systematic risk (as in Mankiw (1986)), then the appropriate rate of return

for public projects will be lower than the market rate as we have pointed out in *Economica*: Arrow and Lind are correct. Arrow and Lind are also correct if the equity premium arises from characteristics of equity not incorporated in the standard CCAPM model.<sup>3</sup>

When the equity premium arises from errors, there are difficulties in welfare analysis. As Shiller (1989) argues, if financial markets display excess volatility, then returns to equity holdings are riskier than the associated streams of corporate profits. If the equity premium and excess volatility arise from the mistaken beliefs of noise traders, then a program of privatization may reduce net worth: the government will be unable to sell off enterprises at prices that are worth their value to the government (Grant and Quiggin 2004b).

*Tobin taxes*: Tobin (1992) proposed a tax on international financial transactions to reduce the volatility of exchange rates and facilitate macroeconomic management (*see*, for example, ul Haq, Kaul and Grunberg, 1996). Stiglitz (1989) has presented similar arguments for taxes on domestic transactions. A model in which the equity premium arises from errors implies that taxes should reduce volatility and increase welfare (on average, given correct beliefs). By contrast, if the equity premium arises from illiquidity in emergencies, taxes on transactions will reduce welfare.

## Conclusion

The most robust implication of taking the equity premium puzzle seriously is that recessions are very costly to society. Macroeconomic stabilization is very valuable regardless of whether the premium results from market failures or from an extreme aversion to risk.

On the other hand, conclusions about the public cost of capital depend upon whether the premium results from market failure or extreme aversion to risk. If market failure is the cause, then the cost of capital ought to be close to the rate predicted by CCAPM, and therefore close to the real bond rate. Policies—subsidized insurance or public ownership—that bring the cost of risky capital down look very attractive.

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<sup>3</sup>Suppose, for example, that the equity premium arises from transactions costs. By virtue of its superior ability to issue a liquid security the government enjoys a cost advantage relative to issuers of private equity. Hence, the appropriate rate of discount for public projects is the bond rate.

On the other hand, if the equity premium arises (as it does in the CCAPM) from extreme aversion to risk, the public cost of capital will be the same as the corporate cost: there are no benefits from policies to reduce the cost of risky capital.

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