

EQUITY PREMIUM PUZZLE

WHAT ARE YOU GOING TO LEARN?

- ▶ What is the equity premium puzzle?
- ▶ How does it relate to investor behavior?
 - ▶ Myopic loss aversion

WHAT IS THE EQUITY PREMIUM PUZZLE?

	Stocks (S&P 500) minus T-bills
1928-2015	7.92%
1966-2015	6.05%
2006-2015	7.87%

- ▶ Stocks have averaged a substantially higher rate of return relative to the risk-free rate.
- ▶ To justify such a large equity premium, investors would have to be very very very risk averse.
- ▶ Why is the equity premium so large?
- ▶ Why is anyone holding bonds?

EQUITY PREMIUM PUZZLE

- ▶ A behavioral explanation: Myopic loss aversion
 - ▶ Loss aversion
 - ▶ Mental accounting

EXAMPLE

- ▶ Samuelson asked a colleague whether he would be willing to accept the following bet:
 - ▶ 50% chance to win \$200 and a 50% chance to lose \$100.

EXAMPLE

- ▶ His colleague turned it down.
 - ▶ “I won’t bet because I would feel the \$100 loss more than the \$200 gain.”
- ▶ But said he would be happy to accept 100 such bets *as long as he did not have to watch the bet being played out.*

MYOPIC LOSS AVERSION

- ▶ This example illustrates that when decision-makers are loss averse, they will be more willing to take risks if they evaluate their performance infrequently.

MYOPIC LOSS AVERSION

- ▶ Equity premium is produced by a combination of
 - ▶ Loss aversion
 - ▶ Frequent evaluations

EQUITY PREMIUM PUZZLE

- ▶ How often would investors have to evaluate their portfolios to explain the equity premium ($\sim 6.5\%$)?
 - ▶ Neighborhood of one year

EQUITY PREMIUM PUZZLE

- ▶ If the evaluation period were two years, the equity premium would fall to 4.65%.
- ▶ Five-, ten-, and twenty-year evaluation periods
 - ▶ Equity premium of 3%, 2%, and 1.4%

DO ORGANIZATIONS DISPLAY MYOPIC LOSS AVERSION?

- ▶ Pension funds or endowments
 - ▶ For fund managers who must account for near-term losses, long-term results may have little significant.

SUMMARY

- ▶ Myopic loss aversion as a possible solution to the equity premium puzzle

VOLATILITY PUZZLE

WHAT ARE YOU GOING TO LEARN?

- ▶ What is the volatility puzzle?
 - ▶ Do stock prices move too much?
- ▶ Can behavioral finance explain the puzzle?

DO STOCK PRICES MOVE TOO MUCH?

- ▶ What should determine the stock price?
 - ▶ The value of the stock should be equal to the present value of all future dividend payments.
- ▶ Stock price is really just a forecast of the present value of all future dividend payments.

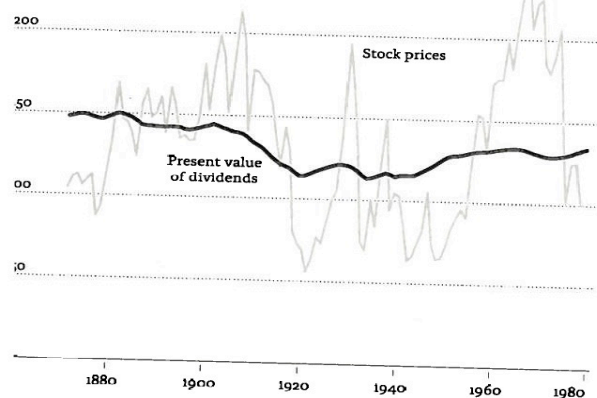
DO STOCK PRICES MOVE TOO MUCH?

- ▶ A rational forecast should not vary more than the thing being forecast.

DO STOCK PRICES MOVE TOO MUCH?

► Shiller's striking findings

Do stock prices move too much?

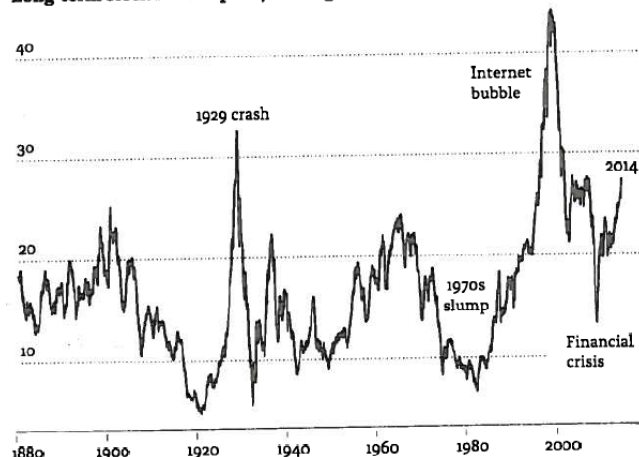


DO STOCK PRICES MOVE TOO MUCH?

- Stock prices move away from fundamental for long periods, but eventually revert.
 - Alan Greenspan's "irrational exuberance"

PREDICATIBILITY: LONG-TERM P/E RATIO

Long-term stock market price/earnings ratios



WHAT EXPLAINS THESE PATTERNS?

- ▶ Beliefs
 - ▶ Law of small numbers
 - ▶ Overconfidence
- ▶ House-money effect

SUMMARY

- ▶ Volatility puzzle
- ▶ Long-term P/E ratio as a predictor of future returns

CLOSED-END FUND PUZZLE

WHAT ARE YOU GOING TO LEARN?

- ▶ What is a closed-end fund?
- ▶ What is the closed-end fund puzzle?
 - ▶ How do behavioral theories explain the puzzle?

WHAT'S A CLOSED-END FUND?

- ▶ Well, first of all, what is an open-end fund?
 - ▶ Investors can at any time put money into the fund or take money out.
 - ▶ All transactions are conducted at the price that is determined by the value of the fund's underlying assets – the Net Asset Value (NAV).

WHAT'S A CLOSED-END FUND?

- ▶ How is a closed-end fund different from an open-end fund?
 - ▶ Managers of the fund raise an initial amount of money.
 - ▶ The number of shares is fixed after the initial offering.
 - ▶ The shares of the fund trade on the market.
 - ▶ If you want to buy shares, then you have to do so at the fund's market price from somebody other investor.

WHAT'S A CLOSED-END FUND?

PREMIUM AND DISCOUNTS ON CLOSED-END FUNDS

FUND	NAV	MARKET PRICE	PREMIUM OR DISCOUNT
Gabelli Utility Trust (GUT)	\$6.28	\$7.42	+18.2%
Blackrock Hlth Sciences (BME)	38.94	42.48	+9.1%
First Tr Spec Fin & Finl (FBG)	7.34	7.62	+3.8%
DNP Select Income Fund (DNP)	10.50	10.55	0.4%
First Tr Energy Inc & Gr (FEN)	37.91	35.83	-5.5%
ASA Gold & Prec Met Ltd (ASA)	11.24	10.19	-9.3%
Blackrock Res & Comm Str (BCX)	11.78	9.93	-15.7%
Firsthand Technology Val (SVVC)	29.70	18.59	-37.4%
As of Dec. 31, 2014			

FOUR-PART CLOSED-END FUND PUZZLE

- ▶ The average fund is initially priced at a premium of 10 percent.
- ▶ Within 120 days of being bought, the average fund now is trading at a discount of 10 percent.
- ▶ The magnitude of the discount (or premium) varies quite a bit – both over time and across funds.
- ▶ When a closed-end fund liquidates or is converted into an open-end fund, the share price tends to rise and the discount disappears.

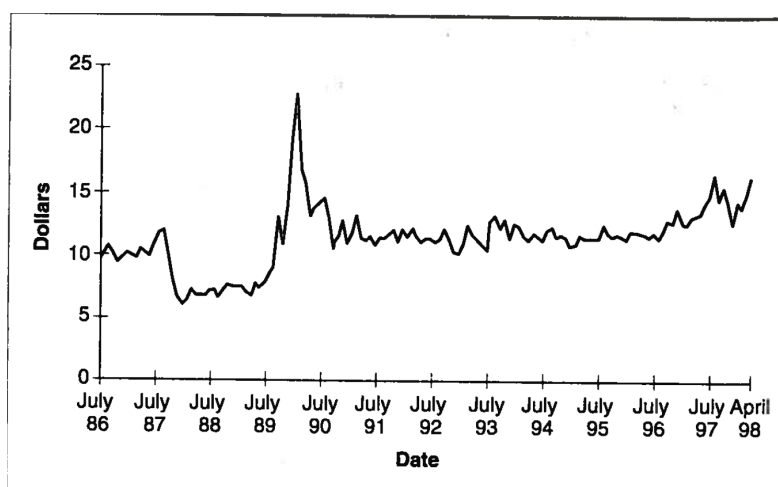
ANIMAL SPIRITS: INVESTOR SENTIMENT

- ▶ Individual investors – as opposed to institutions – are the primary owners of these funds.
- ▶ Individual investors are more likely to be subject to shifting moods of optimism or pessimism – which we'll call investor sentiment.
 - ▶ When individual investors are feeling perky, discounts on closed-end funds shrink.
 - ▶ When they are feeling scared, the discounts get bigger.

ANIMAL SPIRITS: INVESTOR SENTIMENT

- ▶ Small stocks too are largely held by individuals rather than institutions.
- ▶ The return to small stocks should go up, on average, as investors become more optimistic.
- ▶ If closed-end fund discounts are a measure of investor sentiment, a narrowing of these discount should occur together with an increase in return to small stocks.
- ▶ Indeed, this is the case!

EXAMPLE: GERMANY FUND



SALIENCY OF EVENTS

- ▶ Are premiums and discounts affected by the saliency of events?
- ▶ Are investors who trade closed-end country funds subject to availability bias?
- ▶ Indeed, discounts on closed-end country funds traded on U.S. exchanges seem to be affected by the saliency of news events in the U.S. press.

EXAMPLE: FIRST ISRAEL FUND

- ▶ December 18, 1992 – a three-column *New York Times* headline
 - ▶ “Israel Expels 400 from Occupied Lands; Lebanese Deploy to Bar Entry of Palestinians”
 - ▶ The discount on the fund widened from 14.87% to 15.55%.

EXAMPLE: FIRST ISRAEL FUND

- ▶ September 14, 1993 – a six-column *New York Times* headline
 - ▶ “Mideast Accord: The Overview; Rabin and Arafat Seal Their Accord as Clinton Applauds ‘Brave Gamble’”
 - ▶ The premium jumped from 1.7% to 7.7%.

EXAMPLE: FIRST ISRAEL FUND

- ▶ In the absence of salient news, country fund prices are sticky.
 - ▶ Investors underreact to news that is salient – news that does not appear on the front page of the *New York Times*.
 - ▶ Indeed, prior to the story on Israel’s expulsion, the fund’s NAV declined from \$14 to \$13.95, but the price of the fund stayed unchanged at \$11.88

SUMMARY

- ▶ Closed-end fund puzzle
- ▶ Investor sentiment appears to be behind the volatile discount.
- ▶ Particularly evident in country funds in the presence of salient news