

# DISCOUNT RATE FOR GOVERNMENT INVESTMENT

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# INTRODUCTION

- ❖ We often use a discounted-cash-flow construct to evaluate the Economic Viability of an investment.
- ❖ The Office of Management and Budget (OMB) provides a discount rate policy that varies depending on whether the investment is
  - ❖ Internal (OMB describes as taking “the form of increased Federal revenues or decreased Federal costs”)
  - ❖ Public investment/regulatory program.
- ❖ For internal investments, the OMB indicates that the treasury rates (with a corresponding maturity to the investment) should be used, whereas for public investments and regulatory programs they recommend a real discount rate of 7% (which is an approximation of the marginal pretax rate of return on an average investment in the private sector).
- ❖ The OMB acknowledges that “public investments and regulations displace both private investment and consumption” and provide the 7% guidance to promote efficient investment.
- ❖ We add that this line of thought should also extend to internal investment, and that an appropriate benchmark should use private investment as a reference for opportunity cost.
- ❖ The current policy overvalues internal investment.

# AGENDA

- ❖ Example
- ❖ Relevance and Importance
- ❖ Providing Perspective
- ❖ Schools of Thought
- ❖ Extending from the Descriptive Approach
- ❖ Benefits and Limitations
- ❖ Conclusion

# EXAMPLE

Considering implementing Commercial-Off-The-Shelf business system to lower sustainment costs from:

- ❖ Less development and more configurability
- ❖ Large software vendor with extensive support that continually upgrades product
- ❖ Reduced complexity in integration and interoperability

Current estimate suggests

- ❖ Investment \$40M over 4 years
- ❖ Savings \$60M over 10 years

Do the economics of this project suggest a valuable investment?

Discount Rate	2.5%	4.5%	6.5%	8.5%	10.5%
NPV (\$M)	10	4	(4)	(11)	(14)

Economics of a project are sensitive to the discount rate

# RELEVANCE AND IMPORTANCE

Economic viability is dependent on the discount rate

What's the value of money over time?

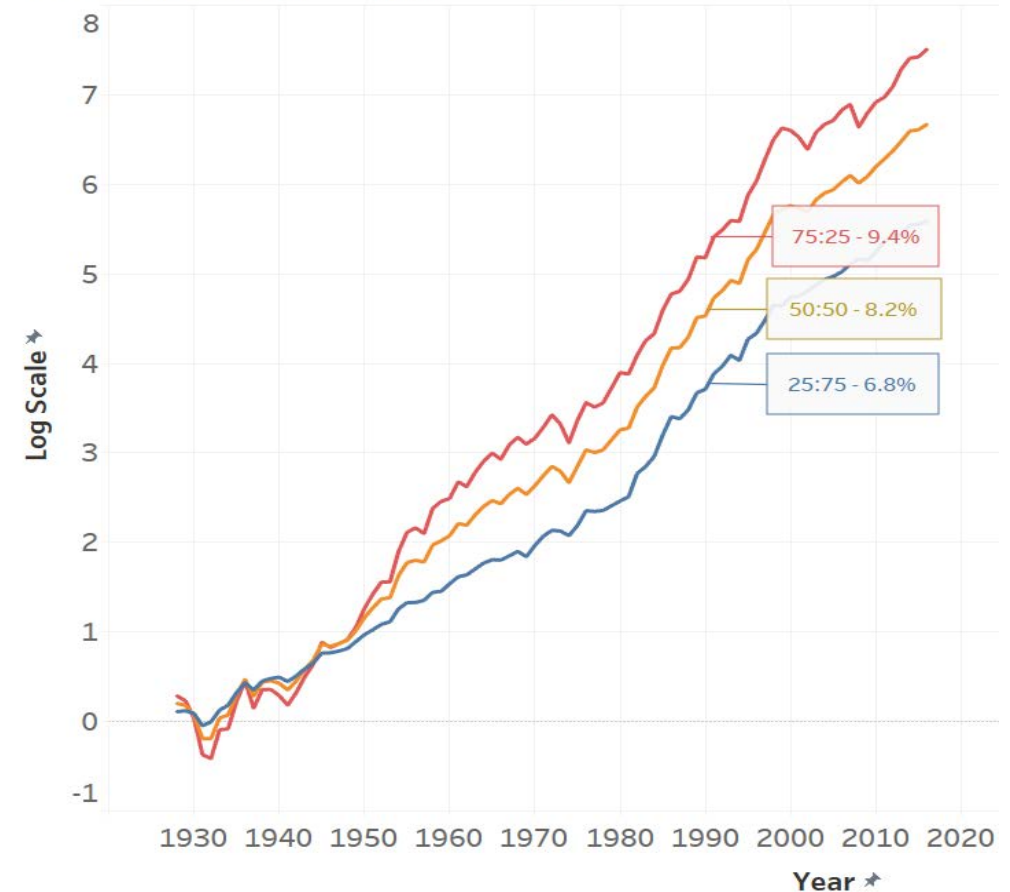
OMB provides guidance:

- ❖ Regulatory Program – Real discount rate of 7% + 2% Inflation = ~9%
- ❖ Internal Investment – Treasury rates with similar maturity
  - ❖ 10-30-year maturity ranges between 2.1-2.8% (real rate between .01-.07%)

# PROVIDING PERSPECTIVE (RETROSPECTIVE)

- ❖ What's the proper benchmark to judge the opportunity cost of resources for internal investment?
- ❖ Using rates of return on investments we can get a perspective of how treasury rates compare
- ❖ Annual rates of return for equity/bond portfolios average historically between 6.5-9.5%
- ❖ Treasury rates 10-30-year maturity currently ranges between 2.1-2.8%

Cumulative Returns [Stocks:Bonds - CAGR]

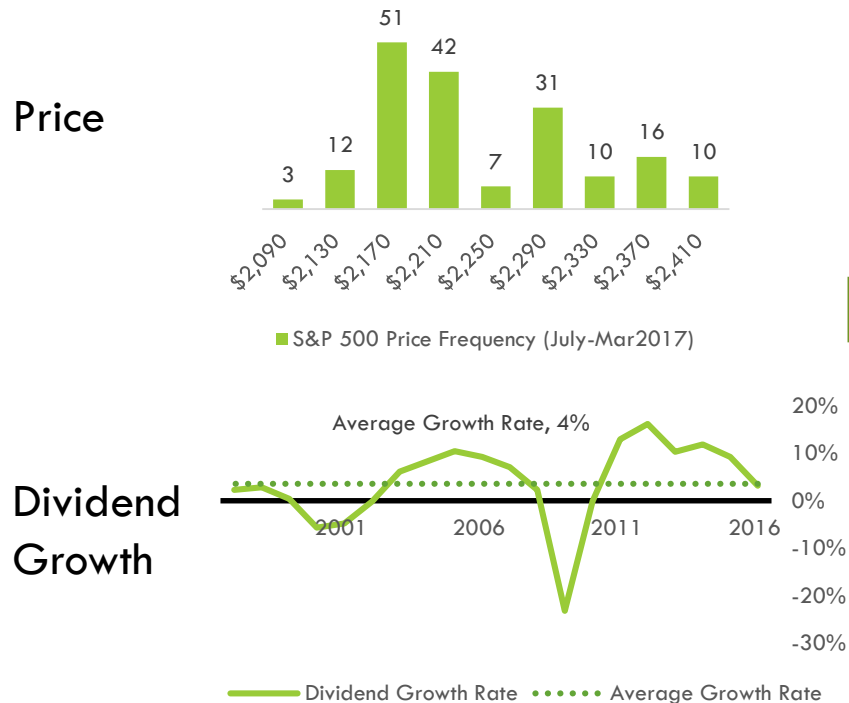


Are treasury rates the proper benchmark for the opportunity cost of resources for internal investment?

# PROVIDING PERSPECTIVE (PROSPECTIVE)

What if the past isn't a good predictor of the future?

If the value of an investment is just the sum of the discounted cash flows, then using the Gordon Growth Model, we can estimate the implied rate of return of the S&P 500 with the following:



$$\frac{\text{Current Dividend} * (1 + \text{Dividend Growth})}{\text{Price}} + \text{Dividend Growth} = \text{Rate of Return}$$

Rates of Return				
Stocks	Treasury Rate	25:75	50:50	75:25
4.0%	2.1%	2.6%	3.1%	3.5%
6.0%	2.8%	3.6%	4.4%	5.2%

# SCHOOLS OF THOUGHT

In exploring proper discount rates, our perspective aligns more closely with the Social Opportunity Cost school of thought

## Social Opportunity Cost

- ❖ Descriptive
- ❖ Practical Observation
- ❖ Positive approach

## Social Time Preference

- ❖ Prescriptive
- ❖ Treats the utility of future generations equally with our own
- ❖ Normative approach



# EXTENDING FROM THE DESCRIPTIVE APPROACH

Should consideration be taken for the historical riskiness of the what and the who?

- ❖ Scope (Ships, Planes, Information Technology, etc.)
- ❖ Organizations (DoD, DHS, etc.)

We do see discount rates in corporate capital investment adjusted based on the risk of the cash flows.

- ❖ Appears reasonable and applicable in the public sector

Tyler Cowen, economist at George Mason University and blogger at Marginal Revolution.com, advocates a discount rate  $>20\%$ , based on

- ❖ Distortion of taxes – debt-financed spending must eventually be paid off
- ❖ Constrain over eagerness
- ❖ Covariance of public sector outputs with market portfolio

# BENEFITS

What does this do for us?

- ❖ Provides perspective
- ❖ Provides a more prudent standard for capital investment
- ❖ Uses the private market as a benchmark for opportunity cost
- ❖ Possibly pushes the needle on the thought process of the people involved in the capital investment/budgeting process

# LIMITATIONS

Extending these ideas into policy doesn't guarantee results.

- ❖ Agents will respond to incentives - Passing a seatbelt law doesn't mean that everyone will drive the same as before

This perspective favors accepting Type II errors (lost opportunities) by limiting Type I Errors (accepting duds)

Any proposal will likely be met with resistance as it would likely be viewed as limiting by agents.

# CONCLUSION AND WAY FORWARD

Considering the consumption/investment of resources by the government displaces the use of resources in the private sector, we consider the OMB discount rate policy to be inconsistent, because it does not view the opportunity cost of internal investment as the private market.

We consider the historical rates of return for a mixed portfolio, along with adjustments for riskiness of scope, organization, distortion of taxes, etc. to be a more appropriate benchmark for valuing internal government investment.

Given recent trends in the magnitude of deficit spending, we advocate a view that is more constraining.

# REFERENCES

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