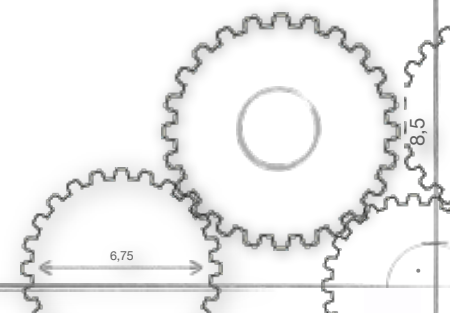


Understanding & Managing Risk

How Policy and Politics Affects Security Selection

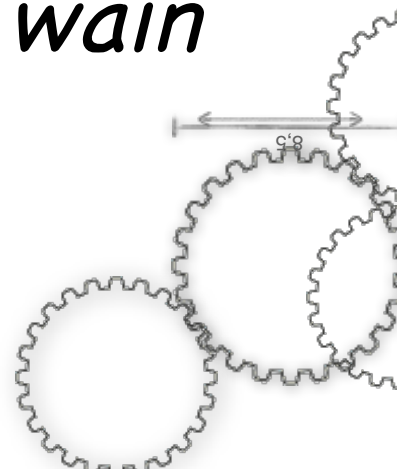
Advanced Public Funds Investing

Benjamin Finkelstein, CFA
befinkelstein@cantor.com
Cantor Fitzgerald



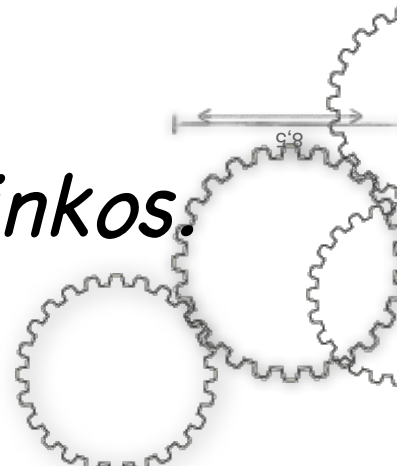
"It ain't what you don't know that gets you into trouble. It's what you know for sure that just ain't so."

Mark Twain



Session Objectives

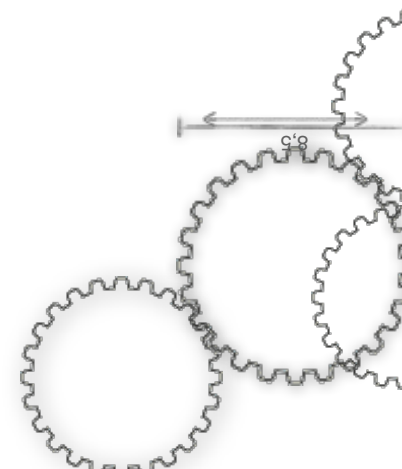
- *Become familiar with the different types of Political & Market risk premiums and how they influence investment strategy.*
- *Enhance your understanding of the political risk involved when budgeting investment income from portfolio.*
- *Discuss Three Investment Policy Thinkos.*



Bonds 101

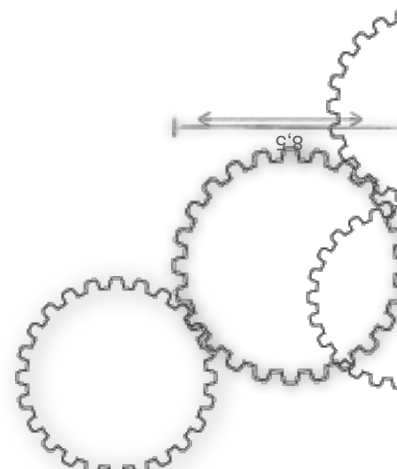
*The **easy** part of public fund investing is buying bonds.*

*The **hard** part of public fund investing is explaining why.*



Bonds 102

*The “**Politics**” of assuring a public fund’s principal is preserved, may require portfolio managers to make investment decisions contrary to traditional Wall Street money management.*

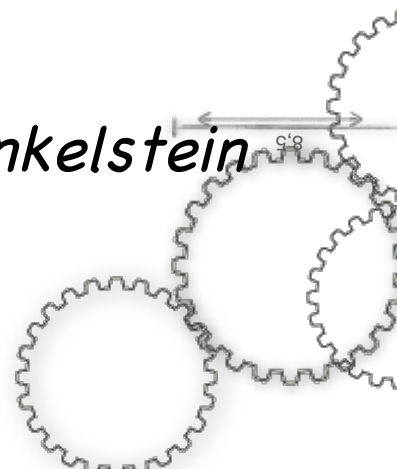


All men are created equal - it's just some men are more equal than others.

Benjamin Disraeli

*All bonds are created with risk - it's just some bonds have more **political** risk than others.*

Benjamin Finkelstein



How Policy Can Impact Strategy

Two Types of Risk

Political Risk

Principal Preservation

Objectives

#1 Safety

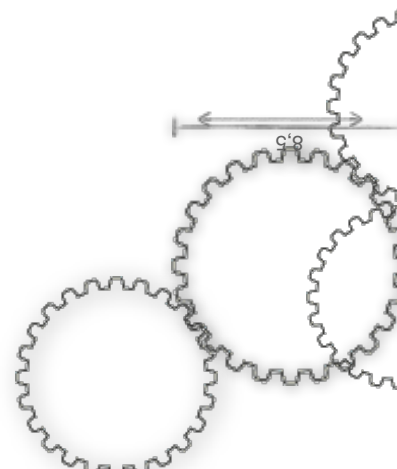
#2 Liquidity

Market Risk

Increase Income

Objective

#3 Yield



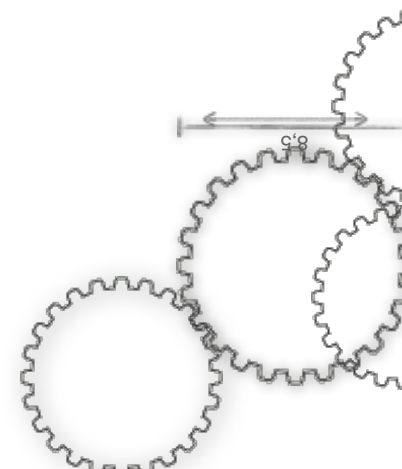
Types Of Political Risk

1. A situation where a public fund is forced to sell a security which results in a permanent loss on original investment.

- Orange County Bankruptcy - 1994*
- Lehman Brothers Bankruptcy - 2008*

2. A situation where a NRSRO like Moody, S&P or Fitch downgrade a issuer out of compliance.

- Bear Stearns Downgraded 2007*
- U.S. Debt Downgraded 2011*



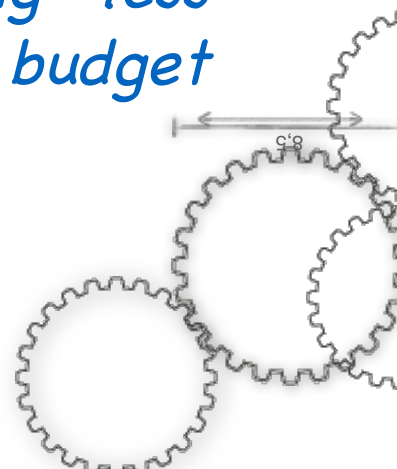
Types Of Political Risk

3. GASB 31

- *A public fund risk's reporting a loss on CAFR.*
- *A public fund keeps portfolio under 1yr to avoid reporting a paper loss.*

4. Budget

- *A public fund haircuts projected income from portfolio to avoid the risk of earning less revenue which may require a mid-year budget adjustment downward.*



Types Of Market Risk Premiums

◆ *Credit Risk*

◆ *Interest Rate Risk*

◆ *Reinvestment Risk*

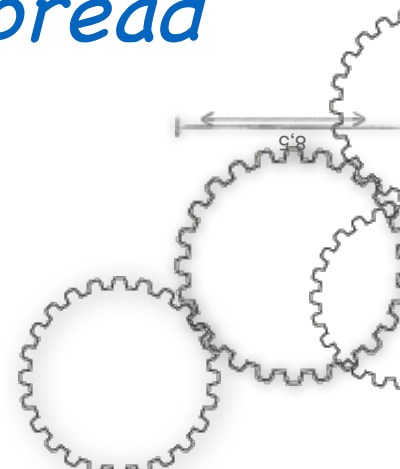
◆ *Liquidity*

✧ *Default*

✧ *Price Volatility*

✧ *Income Uncertainty*

✧ *Bid/Offer Spread*

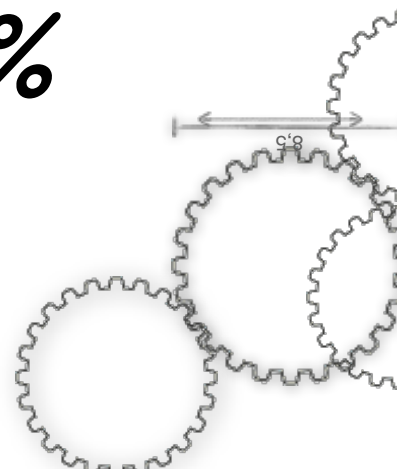


Which Bond Is Safest?

A 5 year UST Note yielding 3%

Or

A 3 year FNMA yielding 3%

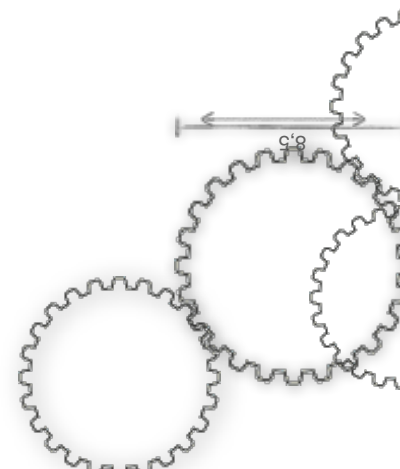


Policy Trade-Offs

*Safety from Main Street perspective is focused on **principal preservation***

*Safety from a Wall Street perspective is focused on **default risk***

***Credit risk and reinvestment risk** substituted for **interest rate risk**.*



Security Selection Strategy

Minimize impact on selling a security

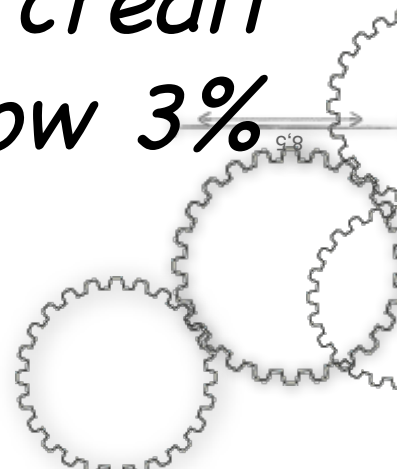
Advantages

FNMA 3yr has 39.9% less price risk

Disadvantages

Implicit backing not full faith and credit

At maturity 2yr rates may be below 3%

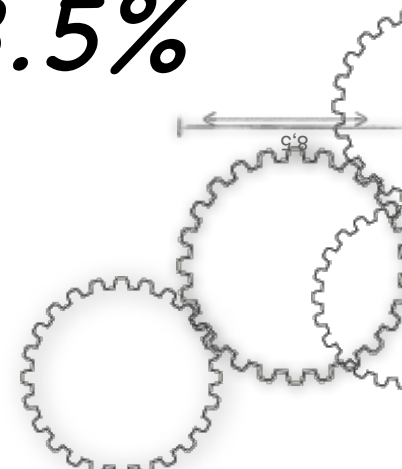


Which Bond Is Most Liquid?

A 5 year UST Note yielding 3%

Or

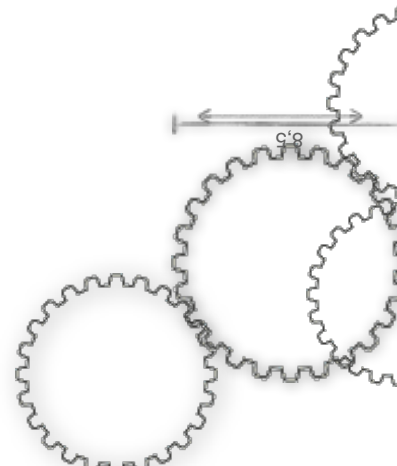
A 4 year Apple MTN yielding 3.5%



Policy Trade-Offs

Liquidity from Main Street perspective is focused on paying obligations without having to sell a security before maturity

Liquidity from a Wall Street perspective is focused on bid/offer spread.



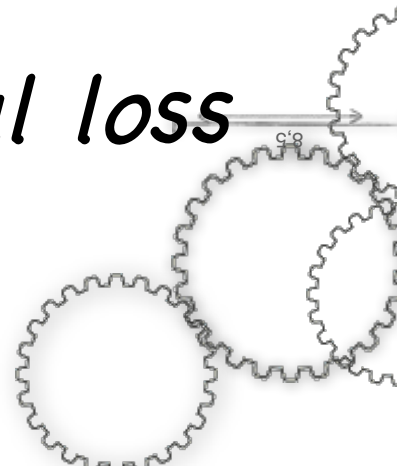
Security Selection Strategy

Principal preservation before income

5yr USTN yielding 3% has a bid price of 98.00 with a book price of par (100)

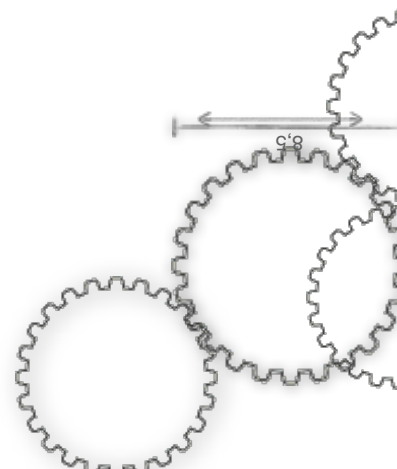
4yr Apple yielding 3.5% has a bid price of 99.50 with a book price of par (100).

*Apple is more **liquid** – less principal loss*



*Its not the return **on** the investment
But the return **of** the investment*

Will Rogers



Budgets and GASB 31

Understanding The Policy and Politics

Policy Question #1:

Why is "Return" or "Yield" an investment policy objective?

Policy Question #2:

What are the different types of principal loss?

Policy Question #3:

Is a budget a forecast or obligation?

Policy Question #4:

What investment strategy produces the most budget stability?

Budgets and GASB 31

Understanding The Policy and Politics

Policy Question #1:

Why is return on investment a policy objective?

- 1. Income from portfolio used toward reducing government operating expenses.*
- 2. More income means more dollars available for public services.*
- 3. Every dollar earned from taxpayer money is a dollar that helps mitigate tax burden on the citizens.*

Budgets and GASB 31

Understanding The Policy and Politics

Policy Question #2:

What are the different types of is principal loss?

- 1. Policy: Principal is not preserved when some portion of the original investment is a "realized" lost that cannot be recovered i.e. swapped.*
- 2. Opportunity Cost: Original investment remains intact but potential income for community is reduced.*
- 3. Accounting "Book Loss": Original investment is intact but the expected income is not realized.*

Budgets and GASB 31

Understanding The Policy and Politics

Policy Question #3:

Is a Budget a forecast or obligation?

- 1. Obligation*
- 2. Whatever amount provided to Budget is expected to be delivered without loss of principal.*

Budgets and GASB 31

Understanding The Policy and Politics

Policy Question #4:

What investment strategy produces the most budget stability?

- 1. Stability is defined as producing budgeted income regardless of change in market value of portfolio.*
- 2. Stability is an investment strategy that minimizes the portfolio's reinvestment risk.*

GASB 31

Sacrificed Taxpayer for Bondholder

Accounting Question #1:

Is GASB 31 a reporting standard or an investment strategy?

Accounting Question #2:

Does GASB 31 distort the purpose of an income statement.

Accounting Question #3:

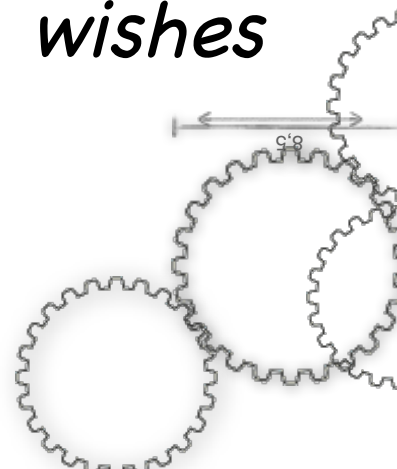
Does GASB 31 potentially create a policy conflict?

Investment Policy Typo's & Thinkos*

*An Investment Policy **Typo** is a statement originating at the brain that the fingers didn't communicate correctly. (unintentional)*

*An Investment Policy **Thinko** is a statement originating at the brain that one later wishes was a Typo. (intentional)*

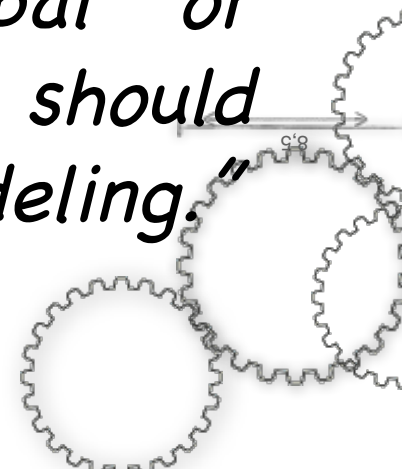
*Mark P. Kritzman. Puzzles of Finance: Six Practical Problems and Their Remarkable Solutions (Kindle Location 84). Kindle Edition.



Investment Policy “Thinkos”

Thinko #1: Investment policy mandates the sale of an issuer if downgraded out of compliance.

Thinko: "In order to evaluate and monitor these risks in relation to investments with higher credit risk, such as municipal or corporate debt, the portfolio manager should perform ongoing credit research and modeling."



MTN State Code

ALLOWABLE INVESTMENT INSTRUMENTS PER STATE GOVERNMENT CODE (AS OF JANUARY 1, 2017)^A APPLICABLE TO ALL LOCAL AGENCIES^B

See "Table of Notes for Figure 1" on the next page for footnotes related to this figure.

INVESTMENT TYPE	MAXIMUM MATURITY ^C	MAXIMUM SPECIFIED % OF PORTFOLIO ^D	MINIMUM QUALITY REQUIREMENTS
Medium-Term Notes ^N	5 years	30%	"A" rating category or its equivalent or better

CDIAC State Investment Guidelines 2017

Ratings

Moody's		S&P		Fitch	
Long-term	Short-term	Long-term	Short-term	Long-term	Short-term
Aaa	P-1	AAA	A-1+	AAA	F1+
Aa1		AA+		AA+	
Aa2		AA		AA	
Aa3		AA-	AA-		
A1		A+	A-1	A+	F1
A2	A	A			
A3	P-2	A-	A-2	A-	F2
Baa1		BBB+		BBB+	
Baa2	P-3	BBB	A-3	BBB	F3
Baa3		BBB-		BBB-	

Bond credit rating. (2016, January 15). In Wikipedia, The Free Encyclopedia. Retrieved 07:22, January 21, 2016, from https://en.wikipedia.org/w/index.php?title=Bond_credit_rating&oldid=691840556

"Group Think Disease"

If the analyst is right and the other analysts are right, the outcome for the analyst is good.

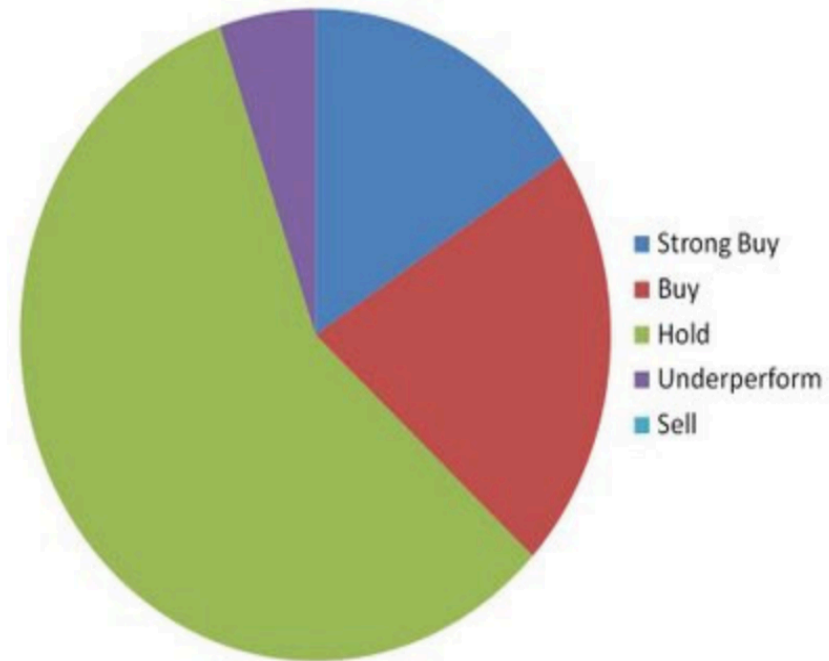
If the analyst is right and the other analysts are wrong, the outcome for the analyst is good.

If the analyst is wrong and the other analysts are wrong, the outcome for the analyst is good.

If the analyst is wrong and the other analysts are right, the outcome for the analyst is bad.

Here good means "you get to keep your job" and bad means "you're fired!". Consequently, following the herd results in job security. Being contrarian results in either instant fame or getting fired.

Corollary: More analysts are not more accurate.



There is not a single 'Sell' rating on this chart! So are the analysts just guessing? One would think that if they were, then surely at least one analyst out of nineteen would rate this a sell. Were some of these ratings made months ago? Perhaps, but they are nevertheless still current (and not listed as suspended). In fact, 3 days before the would-be bankruptcy was announced, both Citigroup and Argus downgraded [LEH](#) from 'Buy' to 'Hold'. *Hold?! Not 'Sell'?* Does this industry have *any* credibility?

Default Rates

Average Cumulative Default Rates For Corporates By Region (1981 - 2016) (%)

--Time horizon (years)--

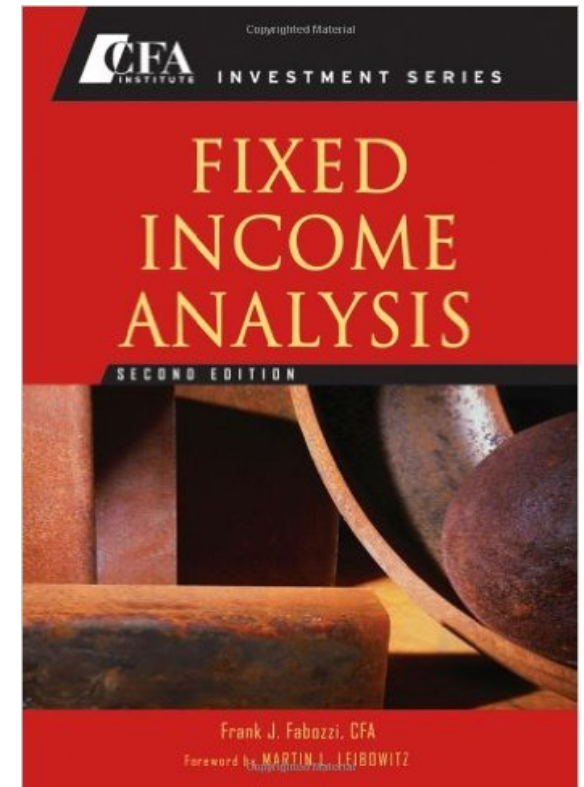
Rating	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
U.S.															
AAA	0.00	0.04	0.17	0.29	0.42	0.54	0.59	0.67	0.76	0.85	0.90	0.94	0.99	1.09	1.20
AA	0.03	0.08	0.18	0.31	0.45	0.60	0.74	0.86	0.96	1.07	1.17	1.25	1.34	1.42	1.51
A	0.07	0.20	0.36	0.54	0.73	0.95	1.19	1.41	1.65	1.89	2.11	2.32	2.52	2.69	2.89
BBB	0.22	0.58	0.99	1.50	2.05	2.60	3.09	3.58	4.07	4.55	5.02	5.37	5.71	6.06	6.42
BB	0.80	2.52	4.57	6.57	8.38	10.14	11.62	12.98	14.17	15.25	16.13	16.91	17.61	18.22	18.84
B	3.92	9.00	13.43	16.88	19.57	21.76	23.56	24.98	26.24	27.42	28.42	29.20	29.90	30.53	31.16
CCC/C	28.85	39.23	44.94	48.55	51.31	52.53	53.95	55.00	55.96	56.66	57.32	57.93	58.60	59.14	59.14
Investment grade	0.12	0.32	0.56	0.86	1.17	1.49	1.80	2.09	2.38	2.67	2.95	3.17	3.39	3.59	3.81
Speculative grade	4.18	8.25	11.81	14.68	17.00	18.95	20.59	21.95	23.16	24.26	25.18	25.95	26.64	27.24	27.83
All rated	1.80	3.59	5.16	6.48	7.57	8.52	9.32	10.01	10.63	11.21	11.71	12.12	12.49	12.82	13.16

Standard & Poor's "Default, Transition, and Recovery: 2016 Annual Global Default Study and Rating Transitions", Table 25 Page 62

Transition Matrix

What is it?

"A popular tool used by managers to gauge the prospects of an issue being downgraded or upgraded is a rating transition matrix. This is a table constructed by rating agencies that shows the percentage of issues that were downgraded or upgraded in a given time period. So, the table can be used to approximate downgrade risk and default risk."



Frank Fabozzi. Fixed Income Analysis

Transition Matrix

Average Multi-Year Global Corporate Transition Matrices (1981 - 2016) (%)

--Five-year transition rates (%)--

From/to	AAA	AA	A	BBB	BB	B	CCC/C	D	NR
AAA	49.58 (11.91)	28.37 (13.14)	4.86 (2.67)	0.81 (1.54)	0.24 (0.47)	0.16 (0.41)	0.08 (0.28)	0.35 (0.60)	15.53 (6.45)
AA	1.49 (0.93)	50.29 (7.74)	24.87 (4.69)	3.71 (1.65)	0.59 (0.63)	0.39 (0.59)	0.04 (0.10)	0.34 (0.38)	18.26 (4.55)
A	0.08 (0.10)	5.22 (2.31)	54.95 (6.65)	15.13 (2.21)	2.15 (1.11)	0.71 (0.88)	0.16 (0.18)	0.57 (0.42)	21.04 (4.05)
BBB	0.03 (0.07)	0.47 (0.54)	10.51 (3.25)	51.02 (7.46)	7.68 (1.74)	2.29 (1.46)	0.40 (0.40)	1.93 (1.46)	25.68 (4.32)
BB	0.01 (0.06)	0.08 (0.18)	1.06 (0.99)	12.72 (3.26)	30.83 (6.80)	11.08 (2.19)	1.32 (0.91)	7.84 (4.84)	35.06 (4.51)
B	0.01 (0.11)	0.03 (0.09)	0.28 (0.58)	1.63 (1.22)	10.55 (2.73)	24.83 (5.50)	2.99 (1.02)	19.25 (8.87)	40.42 (5.51)
CCC/C	0.00 (0.00)	0.00 (0.00)	0.12 (0.51)	0.74 (1.85)	2.98 (2.08)	12.18 (4.73)	2.53 (3.78)	46.96 (12.36)	34.49 (9.21)

Numbers in parentheses are weighted standard deviations, weighted by the issuer base. Sources: S&P Global Fixed Income Research and S&P CreditPro®.

Investment Policy “Thinkos”

Thinko #2: The investment portfolio will be passively managed, with an emphasis on holding investments to maturity.

“The investment policy shall be designed with the objective of attaining a market rate of return throughout budgetary and economic cycles, taking into account the investment risk constraints of safety and liquidity needs.”¹

“The investment policy shall have the objective of attaining a comparative performance measurement or an acceptable rate of return throughout budgetary and economic cycles. These measurements should be commensurate with the investment risk constraints identified in the Investment Policy and the cash flow characteristics of the portfolio needs.”²

¹CMTA Sample Investment Policy

²GFOA Sample Investment Policy

Investment Policy “Thinkos”

Thinko #3: The investment policy implicitly or explicitly limits individual issuers of MTN's to 5% of total portfolio.

A few words about investment policies that required competitive bidding?

*"Investments shall be made with judgment and care, under circumstances then prevailing, which persons of prudence, discretion and intelligence **exercise in the management of their own affairs,.....***

The great mistake made by the public is paying attention to prices instead of values

Charles H Dow

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