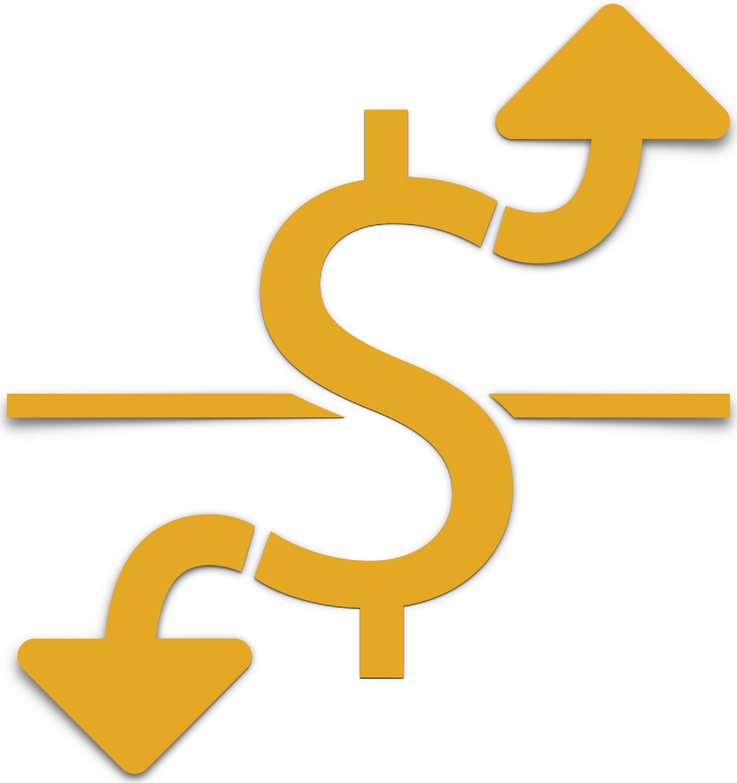


Discounted Cash Flow

Money Market Yields

1. Methods of Expressing Yields
2. Convert Between Different Yields

PREP nuggets

t=0

US T-bill

t=180 days

Discount **2%**

$98,000

$100,000 ***Face Value***

Bank Discount Yield

1. Find the Discount Factor ***2. Find daily rate*** ***3. Annualise It***

$$\frac{\text{Discount}}{\text{Face Value}} \times \frac{360}{t}$$

360 days is bank convention for 1 year

t *num of days to maturity*

t=0

$98,000

US T-bill

***Discount* 2%**

t=180 days

$100,000 ***Face Value***

Bank Discount Yield

$$\frac{\$2000}{\$100,000} \times \frac{360}{180} = 4\%$$

Bank Discount Yield

$$\frac{\text{Discount}}{\text{Face Value}} \times \frac{360}{t} \Rightarrow \frac{\$2000}{\$100{,}000} \times \frac{360}{180} = 4\%$$

	Bank Discount Yield	Holding Period Yield	Money Market Yield	Effective Annual Yield	Bond Equivalent Yield
Formula	D/F x 360/t	$(P_1 + D_1)/P_0 - 1$	HPY x (360/t)	$(1+HPY)^{365/t}$	2 x effective semi-annual yield
Days per Year	360	Arbitrary	360	365	365
Assumed Interest Type	Simple Zero coupon	N.A.	Simple	Compound	Compound
Answer	4.00%	2.04%	4.08%	4.18%	4.14%

PREP nuggets

Money Market Yields

1. Methods of Expressing Yields
2. Convert Between Different Yields

Holding Period Yield

Ending value *Cash flows* *Beginning value*

	Bank Discount Yield	Holding Period Yield	Money Market Yield	Effective Annual Yield	Bond Equivalent Yield
Formula	D/F x 360/t	$(P_1 + D_1)/P_0 - 1$	HPY x (360/t)	$(1+HPY)^{365/t}$	2 x effective semi-annual yield
Days per Year	360	Arbitrary	360	365	365
Assumed Interest Type	Simple Zero coupon	N.A.	Simple	Compound	Compound
Answer	**4.00%**	**2.04%**	**4.08%**	**4.18%**	**4.14%**

PREP nuggets

Money Market Yields

1. Methods of Expressing Yields
2. Convert Between Different Yields

t=0

$98,000

US T-bill

***Discount* 2%**

t=180 days

$100,000 ***Face Value***

Holding Period Yield

$$(P_1 + D_1)/P_0 - 1$$

$$= (100000 + 0)/98000 - 1$$

$$= 2.04\%$$ *(HPY does not need to be annualised figure)*

t=0

US T-bill

t=180 days

Discount 2%

$98,000

$100,000 ***Face Value***

Holding Period Yield = 2.04%

Annualise

Simple

Money Market Yield

HPY x (360/t)

= 2.04 x (360/180)

= 4.08%

Compound

Effective Annual Yield

$(1+HPY)^{365/t} - 1$

$= 1.0204^{365/180} - 1$

= 4.18%

PREP nuggets

Money Market Yields

1. Methods of Expressing Yields 2. Convert Between Different Yields

Simple

Compound

Money Market Yield

$$HPY \times (360/t)$$

$$= 2.04 \times (360/180)$$

$$= 4.08\%$$

Effective Annual Yield

$$(1+HPY)^{365/t} - 1$$

$$= 1.0204^{365/180} - 1$$

$$= 4.18\%$$

	Bank Discount Yield	Holding Period Yield	Money Market Yield	Effective Annual Yield	Bond Equivalent Yield
Formula	D/F x 360/t	$(P_1 + D_1)/P_0 - 1$	**HPY x (360/t)**	**$(1+HPY)^{365/t} - 1$**	2 x effective semi-annual yield
Days per Year	360	Arbitrary	360	365	365
Assumed Interest Type	Simple Zero coupon	N.A.	Simple	Compound	Compound
Answer	**4.00%**	**2.04%**	**4.08%**	**4.18%**	**4.14%**

PREP nuggets

Money Market Yields

1. Methods of Expressing Yields

2. Convert Between Different Yields

Effective Annual Yield

$$(1+HPY)^{365/t} - 1$$

$$= 1.0204^{365/180} - 1$$

$$= 4.18\%$$

	Bank Discount Yield	Holding Period Yield	Money Market Yield	Effective Annual Yield	Bond Equivalent Yield
Formula	**D/F x 360/t**	**$(P_1 + D_1)/P_0 - 1$**	**HPY x (360/t)**	**$(1+HPY)^{365/t} - 1$**	**2 x effective semi-annual yield**
Days per Year	360	Arbitrary	360	365	365
Assumed Interest Type	Simple Zero coupon	N.A.	Simple	Compound	Compound
Answer	**4.00%**	**2.04%**	**4.08%**	**4.18%**	**4.14%**

Closely related

PREP nuggets

Money Market Yields

1. Methods of Expressing Yields
2. Convert Between Different Yields

t=0

US T-bill

t=180 days

Discount 2%

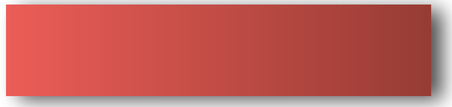
$98,000

$100,000 ***Face Value***

Compound 1 year

Effective Annual Yield = 4.18%

Compound ½ year



Effective Semi-Annual Yield = $1.0418^{1/2} - 1$

= 2.07%

2x ½ year

Bond Equivalent Yield = 2.07 x 2

= 4.14%

PREP nuggets

Money Market Yields

1. Methods of Expressing Yields

2. Convert Between Different Yields

t=0

$98,000

US T-bill

***Discount* 2%**

t=180 days

$100,000 ***Face Value***

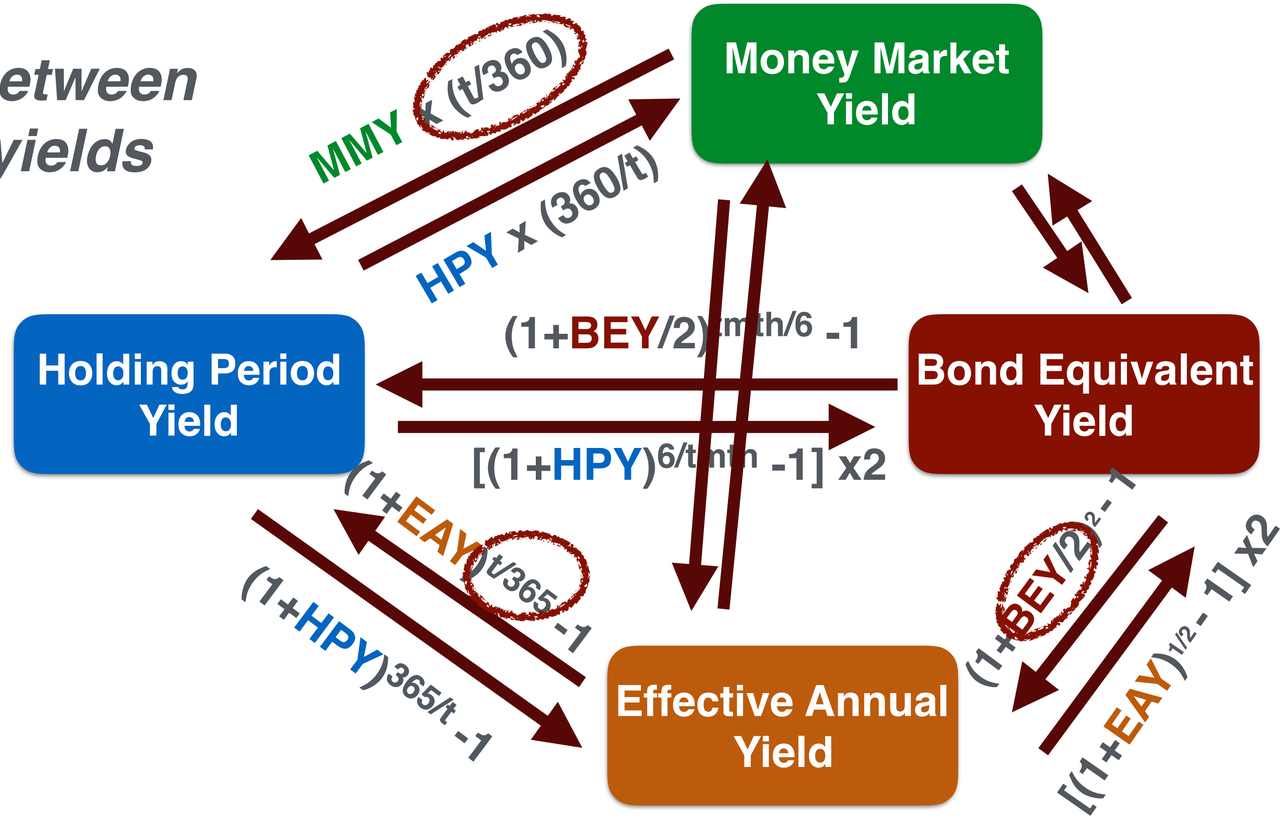
	Bank Discount Yield	Holding Period Yield	Money Market Yield	Effective Annual Yield	Bond Equivalent Yield
Formula	**D/F x 360/t**	**$(P_1 + D_1)/P_0 - 1$**	**HPY x (360/t)**	**$(1+HPY)^{365/t} - 1$**	**2 x effective semi-annual yield**
Days per Year	360	Arbitrary	360	365	365
Assumed Interest Type	Simple Zero coupon	N.A.	Simple	Compound	Compound
Answer	**4.00%**	**2.04%**	**4.08%**	**4.18%**	**4.14%**

PREP nuggets

Money Market Yields

1. Methods of Expressing Yields
2. Convert Between Different Yields

Convert between these 4 yields



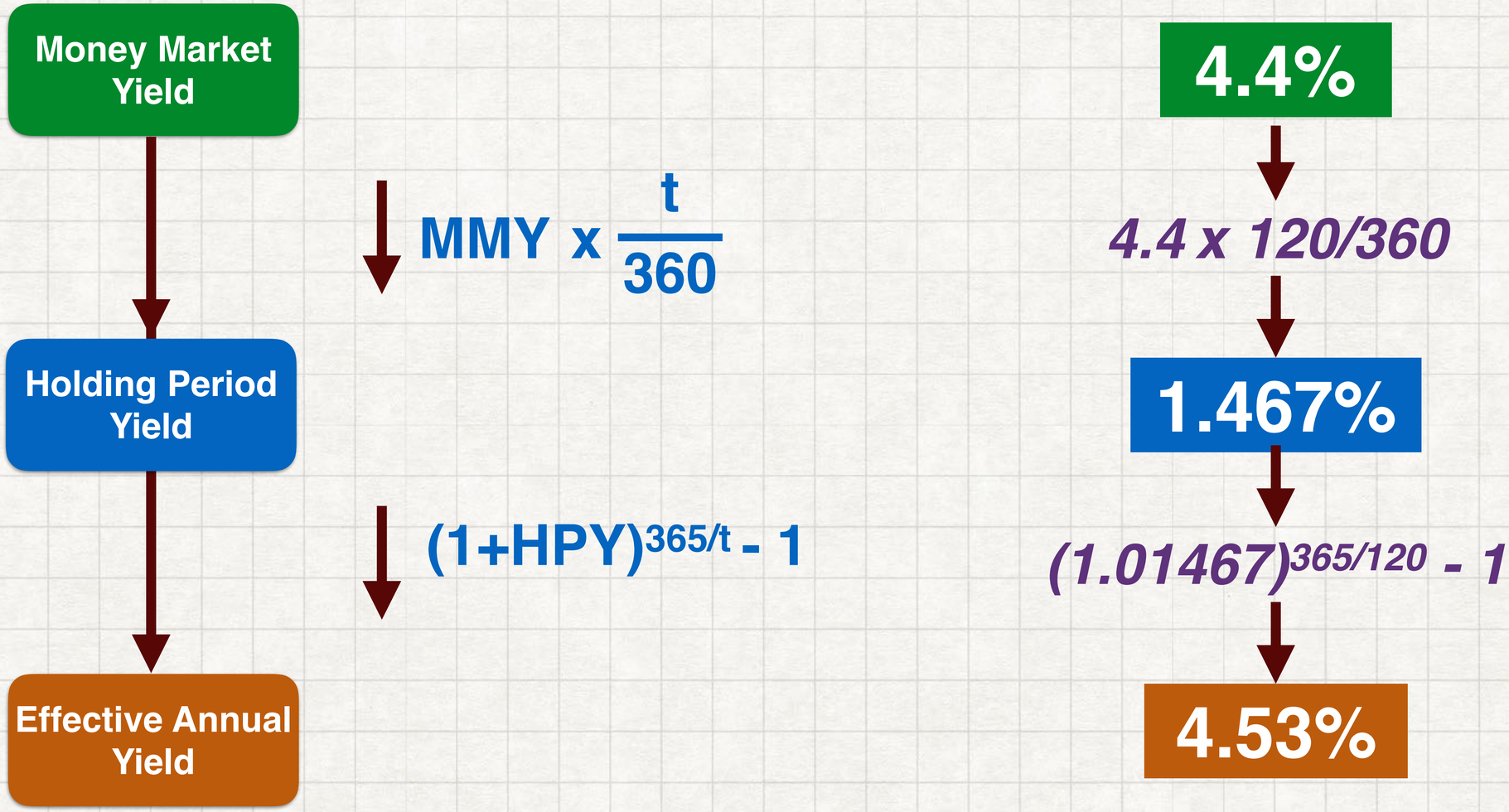
Bank Discount Yield	Holding Period Yield	Money Market Yield	Effective Annual Yield	Bond Equivalent Yield
D/F x 360/t	$(P_1 + D_1)/P_0 - 1$	HPY x (360/t)	$(1+HPY)^{365/t} - 1$	2 x effective semi-annual yield

PREP nuggets

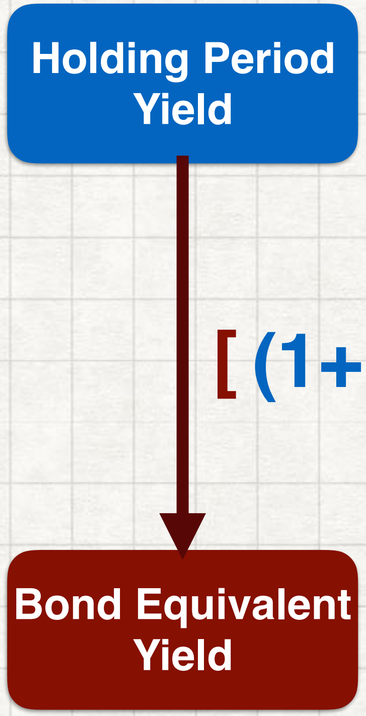
Money Market Yields

1. Methods of Expressing Yields
2. Convert Between Different Yields

Michelle purchased a T-bill that matures in 120 days with a quoted money market yield of 4.4%. Compute the effective annual yield of the T-bill.



A 9-month loan has a holding period yield of 4%. What is its bond equivalent yield?



6mths / 9mths

$$[\,(1+HPY)^{365/t} - 1\,] \times 2 = [(1.04)^{6/9} - 1] \times 2$$

$$= 5.3\%$$

	Bank Discount Yield	Holding Period Yield	Money Market Yield	Effective Annual Yield	Bond Equivalent Yield
Formula	**D/F x 360/t**	**$(P_1 + D_1)/P_0 - 1$**	**HPY x (360/t)**	**$(1+HPY)^{365/t} - 1$**	**2 x effective semi-annual yield**
Days per Year	360	Arbitrary	360	365	365
Assumed Interest Type	Simple Zero coupon	N.A.	Simple	Compound	Compound

PREP nuggets