



Calculating Financing Account Interest

OMB Annual Training
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CSC2@omb.eop.gov



What we'll cover

Executive Office of the President • Office of Management and Budget

- Why do I need to calculate financing account interest?
- What are the mechanics underlying the calculations?
- Example calculations using the CSC2



Review

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- Subsidy cost of a direct loan or loan guarantee program is the net present value of cash flows between the Government and the public
- Net present value calculation requires Treasury interest rates (discount rates)
- These rates determine the cohort interest rate (disbursement weighted average or single effective rate)



Discounting to the present value

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The future value of money invested in the present.

Compounding interest example - Savings account in a bank

Amount deposited \$100 Interest rate 5%

Year 1..... $(1+0.05) \times \$100 = \105

Year 2..... $(1+0.05) \times \$105 = \110.25

Year 3..... $(1+0.05) \times \$110.25 = \115.76

Year 4..... $(1+0.05) \times \$115.76 = \121.55

Year 5..... $(1+0.05) \times \$121.55 = \127.63

The present value of money to be received or paid in the future.

Discounting example - Buying a bond

Face value of bond \$127.63 Discount rate 5%

Year 5..... $\$127.63/(1+0.05) = \121.55

Year 4..... $\$121.55/(1+0.05) = \115.76

Year 3..... $\$115.76/(1+0.05) = \110.25

Year 2..... $\$110.25/(1+0.05) = \105

Year 1..... $\$105/(1+0.05) = \100



Why financing accounts must earn and pay interest

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- Net present value is the sum of expected future transactions expressed in current dollars.
 - “\$100 today is better than \$100 tomorrow”
- Present value methodology requires that future amounts are “discounted” and balances earn interest.
 - Without interest earnings, the cash reserves for a loan guarantee program would not be sufficient to pay estimated future default claims.



Interest earnings and costs

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- Credit financing accounts earn interest on balances
 - Interest earnings are received from the Treasury Financial Management Service
- Credit financing accounts pay interest on outstanding borrowings from Treasury
 - Interest payments are made to the Treasury Bureau of the Public Debt
- Interest earnings and costs affect the deficit



Cohort interest rate

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- Financing accounts **must** earn and pay interest at the same rate used to discount the credit subsidy cash flows for each cohort
 - For FY 1992-2000 cohorts, this is the disbursement-weighted average discount rate
 - For FY 2001 and subsequent cohorts, this is the single effective rate, generated by the Credit Subsidy Calculator 2 (in most cases, either budget formulation rate or final rate from the first technical reestimate after 90% disbursement)



CSC2: Cohort interest rate

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- Cohorts that have established actual DWADR/SER continue to use established rate—
No need to recalculate
- Cohorts substantially disbursed in 2008—use CSC2 to calculate the permanent cohort interest rate



Interest calculations

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- Agencies calculate financing account interest costs and earnings at year-end
- Agencies must use the CSC2 to calculate financing account interest
- Calculations are required to be submitted to Treasury (BPD and/or FMS)



CSC2: Financing account interest

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- Consistent with discounting
 - Compound interest
 - Actual cash flows
- Aligned with reestimate cashflows



CSC2: Compound interest

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- PV factor used to calculate compound interest is $(1+rate)^{\wedge} \text{time}$
 - For a cohort with a 3.60% reestimate discount rate, the “compound” interest rate for one half year would be 1.784%, $(1+0.036)^{\wedge}0.5=1.01784$
 - The simple interest for one half year would be 1.80%, or one half of 3.60%
 - For a \$500,000 middle of the year transaction, the difference between compound and simple interest is \$80:

$$\$500,000 * 1.784\% = \$8,920$$

$$\$500,000 * 1.80\% = \$9,000$$

$$\text{Difference} = \$80$$



CSC2: Interest owed

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- ***Compute interest owed to the Treasury:***
- Debt to Treasury at the beginning of the year includes all borrowing outstanding at the beginning of the year. A full year of interest is paid on such debt (adjusted for middle of year repayment of debt).
- Transactions with BPD include all borrowings and repayments during the year.
 - Borrowings made during the year are back-dated to the beginning of the year and a full year of interest is paid on the borrowing.
 - Debt repayment and end of year borrowing to pay interest take place at year-end and does not impact the interest calculation.
 - Interest owed is adjusted for repayments that occur at the middle of the year.



CSC2: Interest earned

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- ***Compute Interest due from the Treasury:***
- Cash balances include all cash on deposit with the Treasury at the beginning of the year.
- Intra-governmental transfers with the financing account
 - Reestimates, interest on reestimate and interest adjustments: occur start of the year.
 - Subsidy transfers and modifications: timing assigned by the user.
 - Financing account interest: paid at the end of the year.
- Transactions with the public include all loan disbursements, claim payments, loan payments, fees, defaults, and recoveries.
 - Interest is earned depending on the timing assumption indicated for the individual cash flow line.
 - Outflows reduce interest earned; inflows increase interest earned.



CSC2: Calculating Financing Account Interest

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- Can be calculated at the same time as reestimates
- Can be calculated separately from reestimates
- Requires an input cashflow formatted for the CSC2



CSC2: Required cashflow inputs

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- Latest completed fiscal year
 - Reference point--required for financing account interest and reestimate calculations
- Cohort Balances
 - Debt to Treasury/Cash Balance with Treasury
- Treasury Transactions
 - Borrowings and repayments
- Budgetary Transactions
 - Subsidy transfers, financing account interest, reestimates, and modifications—reconciling balances, financing account interest, and reestimates
- Historical cashflows with the public
 - Cashflows in latest completed fiscal year required for ALL cohorts



CSC2: Input cashflows

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- Reestimate discount rate is the cohort interest rate
- Latest completed fiscal year is a must!
- Required Keywords
 - Debt to Treasury EOY
 - Cash Held by Treasury EOY
 - Borrowing from Treasury SOY/EOY
 - Repayments of Treasury Debt MOY/EOY
 - Financing Account Interest
 - Financing Account Interest Adjustments
 - Reestimate SOY and Interest on Reestimate SOY
 - Modification and Modification Adjustment Transfer
 - Cashflows to and from the public



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CSC2 Input: Reestimate and Interest

	Name:	Direct Loan Example D-1			
	Description:	2008 Technical reestimate and interest			
	Program Type:	Direct			
	Purpose:	Reestimate			
	Budget Year:	2010			
	Latest completed fiscal year	2008			
	Cohort	2007			
Cohort Interest Rate	Reestimate Discount Rate	3.6			
	Original Subsidy Rate	6.23			
	Interest Rate Reestimated Sub Rate	6.99			
	Obligations (+)	1,000,000			
	Timing	Annual, Beginning			
	Disbursements (+)	1,000,000			
Treasury Cash and Debt Balances	*Balances with Treasury				
	Debt to Treasury EOY [Annual, End]	-971,457	-471,457		
	Cash balance EOY [Annual, End]	226,914	39,110		
Treasury Borrowings and Repayments	*Intragovernmental Transactions				
	Borrowings from Treasury SOY [Annual, Beginning]	-937,700	0		
	Borrowings from Treasury EOY [Annual, End]	-33,757	0		
	Repayments of Treasury Debt MOY [Annual, Middle]	0	500,000		
	Repayments of Treasury Debt EOY [Annual, End]	0	0		
Intra-governmental Additions or Subtractions	Financing Account Interest [Annual, End]	-33,757			
	Financing Account Interest Adjustments [Annual, Beginning]		0		
	Reestimate SOY [Annual, Beginning]		69,023		
	Interest on Reestimate SOY [Annual, Beginning]		2,485		
	Subsidy transfer [Annual, Beginning]	62,300	0		
	Modification	0	0		
	Modification Adjustment transfer	0	0		
Additions or Subtractions from Public	*Borrower Cashflows	Year 1	Year 2	Year 3	Year 4
	Timing	Annual, End			
	Scheduled Principal Payments (+)	232,012	243,612	255,793	268,583
	Scheduled Interest Payments (+)	50,000	38,399	26,219	13,429
	Defaults	-55,098	-41,324	-41,324	-41,324
	End				



CSC2: Compound interest

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- PV factor used to calculate compound interest is $(1+rate)^{-time}$
 - For a cohort with a 3.60% reestimate discount rate, the “compound” interest rate for one half year would be 1.784%, $(1+0.036)^{0.5}= 1.01784$
 - For a \$500,000 middle of the year transaction, the interest earnings would be \$8,920



CSC2: Interest Calculation

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	Cohort interest rate	
		3.60%
Interest Earned		
	Cash	Interest Earned
Start of Year Cash Balance	\$226,915	\$8,169
Reestimates	\$69,023	\$2,485
Interest on Reestimate	\$2,485	\$89
Repayment of Treasury Debt MOY (reduces cash balance)	-\$500,000	-\$8,920
Transaction with the public (end of year)	\$240,688	\$0
Total interest earned		\$1,823
Interest Owed		
	Cash	Interest Owed
Start of Year Debt Balance	-\$971,457	-\$34,972
Repayment of Treasury Debt MOY (reduces debt balance)	\$500,000	\$8,920
Total interest owed		-\$26,052



CSC2: Interest Output

Credit Subsidy Calculator 2 - [FAI_Examples]

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CFs SUB PVFs DDP NPV Calc CSC SUM Msg

2)Reported Balances Compared to Net Cashflows

2006 End of year debt (calculated).....	-471457.200
2006 End of year debt (reported).....	-471457.200
Difference	0.000
2006 End of year cash (calculated).....	39110.249
2006 End of year cash (reported).....	39110.249
Difference	0.000

3)Financing Account Interest Calculation (as calculated by CSC2)

Financing account interest owed.....	-26052.033
Financing account interest earned.....	1822.763
Net financing account interest.....	-24229.270

4)Balances Approach Reestimate, using computed balances with computed FA

	2005
	Beg
Total cash flows.....	
2007 Start of year PV factors.....	
NPV of remaining cash flows.....	456576.221
2006 Net EOY debt (-) or cash (+) with interest.....	-456576.221
Total reestimate.....	-0.000
Reestimate.....	-0.000
Interest on reestimate.....	-0.000
Financing account interest adjustment.....	0.000
Reestimated subsidy rate.....	13.132

Ready NUM



CSC2: Interest Output (Continued)

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Credit Subsidy Calculator 2 - [Copy of FAI_Examples]

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CFs SUB PVFs DDP NPV Calc CSC2 SUM Msg

Latest Completed Fiscal Year: 2008

1) Financing Account Interest Summary
(Dollars)
Financing account interest as calculated by the CSC2
Debt & Cash before financing account interest

Cohort	Interest earnings (current year)	Interest costs (current year)	Cash balances (end of year)	Debt to Treasury (end of year)	DWADR/SER
1992	0	0	0	0	0
1993	0	0	0	0	0
1994	0	0	0	0	0
1995	0	0	0	0	0
1996	0	0	0	0	0
1997	0	0	0	0	0
1998	0	0	0	0	0
1999	0	0	0	0	0
2000	0	0	0	0	0
2001	0	0	0	0	0
2002	0	0	0	0	0
2003	0	0	0	0	0
2004	0	0	0	0	0
2005	0	0	0	0	0
2006	0	0	0	0	0
2007	1822.76	-26052.03	39110.25	-471457.20	3.60
2008	0	0	0	0	0
Total	1822.76	-26052.03	39110.25	-471457.20	

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CSC2 Input: Required Data for Interest Only Calculation

Executive

Name:	Direct Loan Example D-1			
Description:	2008 Interest			
Program Type:	Direct			
Purpose:	Financing Account Interest			
Budget Year:	2010			
Latest completed fiscal year	2008			
Cohort	2007			
Reestimate Discount Rate	3.6			
Original Subsidy Rate	6.23			
Interest Rate Reestimated Sub Rate	6.99			
Obligations (+)	1,000,000			
Timing	Annual, Beginning			
Disbursements (+)	1,000,000			
*Balances with Treasury				
Debt to Treasury EOY [Annual, End]	-971,457	-471,457		
Cash balance EOY [Annual, End]	226,914	39,110		
*Intragovernmental Transactions				
Borrowings from Treasury SOY [Annual, Beginning]	-937,700	0		
Borrowings from Treasury EOY [Annual, End]	-33,757	0		
Repayments of Treasury Debt MOY [Annual, Middle]	0	500,000		
Repayments of Treasury Debt EOY [Annual, End]	0	0		
Financing Account Interest [Annual, End]	-33,757			
Financing Account Interest Adjustments [Annual, Beginning]		0		
Reestimate SOY [Annual, Beginning]		69,023		
Interest on Reestimate SOY [Annual, Beginning]		2,485		
Subsidy transfer [Annual, Beginning]	62,300	0		
Modification	0	0		
Modification Adjustment transfer	0	0		
*Borrower Cashflows	Year 1	Year 2	Year 3	Year 4
Timing	Annual, End			
Scheduled Principal Payments (+)	232,012	243,612	255,212	
Scheduled Interest Payments (+)	50,000	38,399	26,998	
Defaults	-55,098	-41,324	-41,324	
End				

Set purpose to "Financing Account Interest"

Include previous year and LCFY ending cash and debt balances

Include LCFY intragovernmental transactions

Include LCFY transactions with the public



CSC2 Output: Financing Account Interest Only

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Credit Subsidy Calculator 2 - [FAI_Examples]

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CFs SUB PVFs DDP NPV Calc CSC₂ SUM Msg

1) Present Value Calculation

	2005	
	Beg	
2005 Annual PV factor.....	1.000000	0.9
2007 Annual PV factor.....	1.073296	1.0
Converted cashflow.....	-1000000.000	

2) Reported Balances Compared to Net Cashflows

2006 End of year debt (calculated).....	N/A	
2006 End of year debt (reported).....	-471457.200	
Difference (explain).....	N/A	
2006 End of year cash (calculated).....	N/A	
2006 End of year cash (reported).....	39110.249	
Difference (explain).....	N/A	

3) Financing Account Interest Calculation (as calculated by CSC2)

Financing account interest owed.....	-26052.033	
Financing account interest earned.....	1822.763	
Net financing account interest.....	-24229.270	

*Balances approach reestimate, traditional reestimate check, and financing

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Financing Account Interest Adjustment: A Reestimate Calculation

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- Financing account interest adjustments are not included in the annual financing account interest calculations submitted to Treasury.
- The financing account interest adjustment corrects for interest that should have been executed over the life of the cohort to date.
- Financing account interest adjustments are calculated with the reestimate and executed as interest on reestimate for budget reporting purposes (not CSC2).



Summary

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- CSC2 calculates interest on the same basis that credit subsidy cash flows are discounted
- Requires a properly formatted input cash flow, including cash and debt balances and all LCFY transactions
- CSC2 interest calculations may be conducted with or before reestimates



For more information

Executive Office of the President • Office of Management and Budget

- **Guidance on Financing Account Interest:**
 - OMB Circular A-11, Sec. 185, especially 185.32-185.36
- **Federal Credit Support Page:**
 - <http://www.omb.gov/credit>
 - CSC2 application and user guide (CSC2 Page)
 - Calculator for projecting the future interest income or costs of credit financing accounts
- **TFM Reporting Requirements Instructions for Credit Reform Legislation:**
 - <http://www.fms.treas.gov/tfm/vol1/v1p2c460.html>