

Session #7 - Notes

ASB Case Study

Constraint	Loan Type			RHS
	Home	Personal	Auto	
Sum Invested	1.00	1.00	1.00	1000000
Home Loan Condition	0.60	-0.40	-0.40	0
Personal Loan Condition	0.00	1.00	-0.60	0
Yield Rate by Type	0.07	0.12	0.09	

Model

Provides optimal allocation and maximum total annual return.

Decision Variables	Home Loan	Personal Loan	Auto Loan
	Amount Allocated	400000	225000

Maximize Yield 88750

Constraints	LHS		RHS
Sum	1000000	<=	1000000
Home Loan Condition	0	>=	0
Personal Loan Condition	0	<=	0

Column indicates each variable's value is positive in optimal allocation.

Indicates that an increase of 0.02 will not affect the optimal allocation

Dual (shadow) prices are applicable if RHS of this constraint is increased by 10,000 and the same constraints will be binding.

Microsoft Excel 10.0 Sensitivity Report
Worksheet: [Book1]Sheet1
Report Created: 9/15/2004 8:29:02 AM

Adjustable Cells

Cell	Name	Final Value	Reduced Cost	Objective Coefficient	Allowable Increase	Allowable Decrease
\$B\$14	Amount Allocated Home Loan	400000	0	0.07	0.03125	0.221875
\$C\$14	Amount Allocated Personal Loan	225000	0	0.12	1E+30	0.03
\$D\$14	Amount Allocated Auto Loan	375000	0	0.09	0.03	0.05

Constraints

Cell	Name	Final Value	Dual Price Shadow Price	Constraint R.H. Side	Allowable Increase	Allowable Decrease
\$B\$19	Sum LHS	1000000	0.08875	1000000	1E+30	1000000
\$B\$20	Home Loan Condition LHS	0	-0.03125	0	600000	400000
\$B\$21	Personal Loan Condition LHS	0	0.01875	0	600000	360000

with \$10,000 more funds, annual return increases by 0.08875×10^6 or \$887.50

Decreasing RHS by \$10,000 leaves dual (shadow) prices valid and same binding constraints.

Relaxing condition on home loans would yield $0.03125(10,000) = \$312.50$ more in annual return.