THC Financial Engineering
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Risk Modeling Bulletin Issue 19

Flow of Risks

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This issue focuses on the flow of risks in the Feature Article.

Feature Article: Flow of Risks

Flow of risks statement provides the factors measuring increases and decreases of risks that affect the VaR of the equity. In particular, the flow of risks statement identifies the changes of the VaR of the equity over a period as a result of the changes in the yield curve risks from the movements of the short-term, mid-term, and long-term interest rates.

The short-term VaR change is attributed to the change of yield curve risk from the movements of the interest rates at the year ranging from zero to three; mid-term VaR change is attributed to that ranging from four to seven; long-term VaR change is attributed to that ranging from 8 to 30 year. Key rate durations are used as the measure of the risks. The difference between the VaRs generated by the Monte-Carlo and Delta-Normal methods is called the option effect.

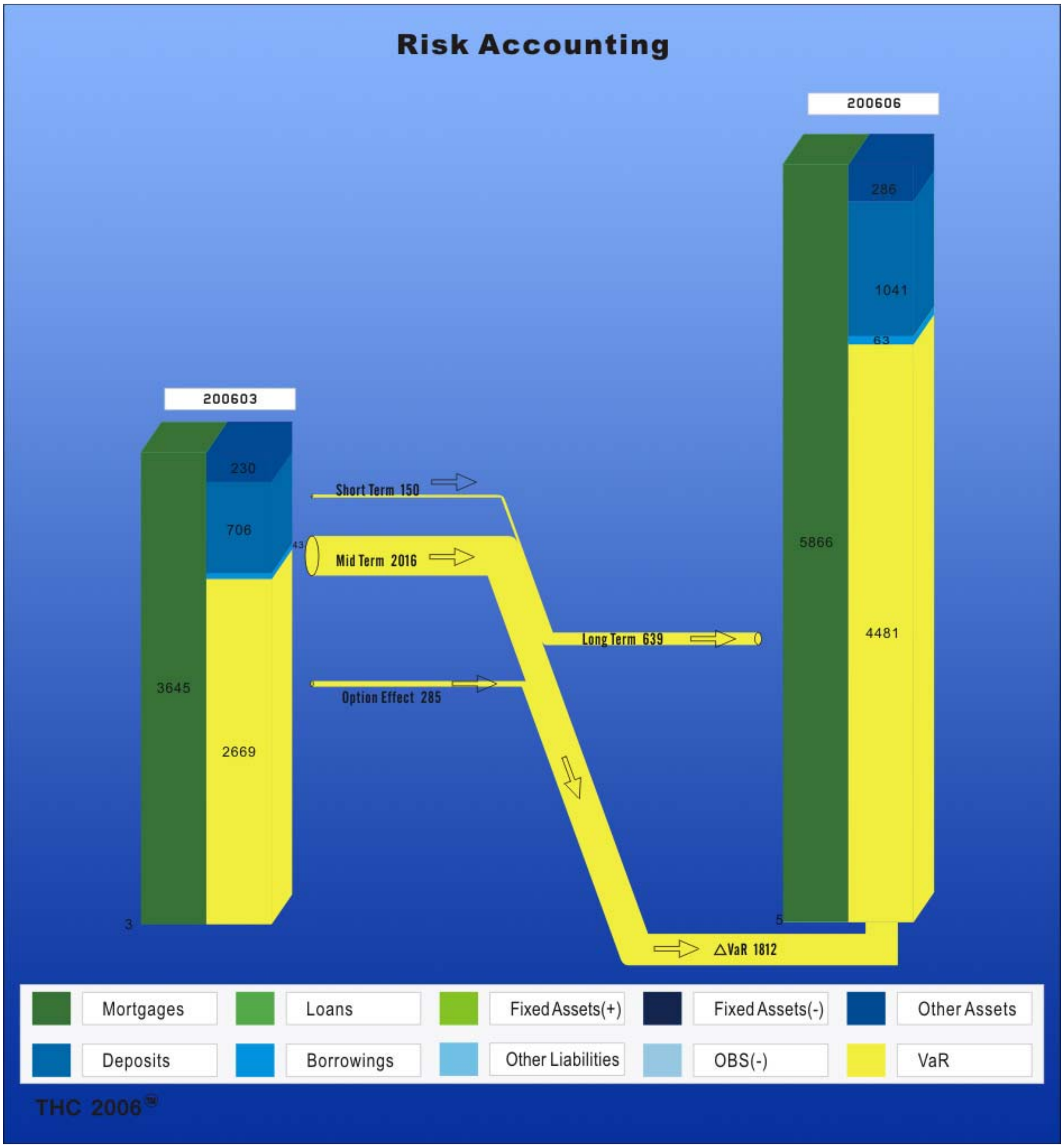
Table 1 presents the risk accounting statement of a THC sample bank. Risk decomposition attributes the VaR value to the sources of risks. The flow of risks accounts for the change of VaR between two cycles.

Table 1: Risk Accounting Statement

Risk Accounting		**200603**	**200606**	**200609**
Risk Decomposition				
	Mortgages	3,645	5,866	6,394
	Loans	3	5	6
	Fixed Assets	(0)	(0)	0
	Other Assets	(230)	(286)	(394)
	Deposit Accounts	(706)	(1,041)	(1,120)
	Borrowings	(43)	(63)	(67)
	Other Liabilities	(0)	(0)	(0)
	Off-Balance-Sheet Items	(0)	0	0
	VaR	2,669	4,481	4,819
Flow of Risk				
	Short Term	-	150	(129)
	Mid Term	-	2,016	(2,126)
	Long Term	-	(639)	2,900
	Option Effect	-	285	(306)
	ΔVaR	-	1,812	339

Consider March, 2006 and June, 2006 cycles. Figure 1 below depicts the risk accounting statement.

FIGURE 1



The "stock" statement is represented by a "tank", taking the inventory of values. The relative size of each item in the inventory is measured by the size of the representation of the item. The difference of the asset and the liability is the equity, and hence the right hand side and the left hand side of the tank have the same height.

The "flows" are presented by the "pipes" that may offer inflows or outflows of values. The inflows and the outflows are represented by the pipes on the left and the right of the main pipe respectively.

Interestingly, we can see that: (1) The VaR increases from March cycle to June cycle; (2) for both cycles, "mortgages" is the key contributor to the VaR of the balance sheet, and most of the other items provide the natural hedge; (3) mid-term interest rate movements are the main source of risk resulting in the increase of VaR.

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