THC Financial Engineering
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Risk Modeling Bulletin Issue 20

Financial Statements

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The Feature Article introduces risk accounting to monitor risks on the balance sheet in a way consistent with the book and fair value financial statements. It also describes a graphical representation of these statements.

Feature Article: Financial Statements

Financial statements, such as Generally Accepted Accounting Principles (GAAP), that are based on accounting principles have broad implications to financial management. They provide a standardized framework to identify the values on the balance sheet, the sources of revenues and expenses of a period, and the uses of funds.

Initiatives using the fair value approach have begun to capture the market realities on the balance sheet. At the same time, recently there has been a heightened awareness of the importance of identifying risks, not just values, on the balance sheet by financial institutions. Despite the prevalent use of risk measures, such as value-at-risk (VaR), stress tests, and scenarios tests, financial statements remain separated from risk analysis. Risks are presented as attributes separate from values on the balance sheet and the funds flows of a bank. This dichotomy of risk and value in financial statements has led to many pitfalls in managing a financial institution.

THC provides three financial statements to solve these problems:
1. Book Accounting presents the book value and income/expense statements.
2. Fair Value Accounting presents the fair value and return attribution statements
3. Risk Accounting presents the VaR decomposition and flow of risks statements.

Figures 1, 2, 3 below show a graphical representation of the three financial statements. 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 “flow” is represented by the inflows or outflows of values through the “pipes”. The inflows and the outflows of value are represented by the horizontal pipes on the left and the right sides of the main pipe respectively. The red color represents the negative flow.

FIGURE 1

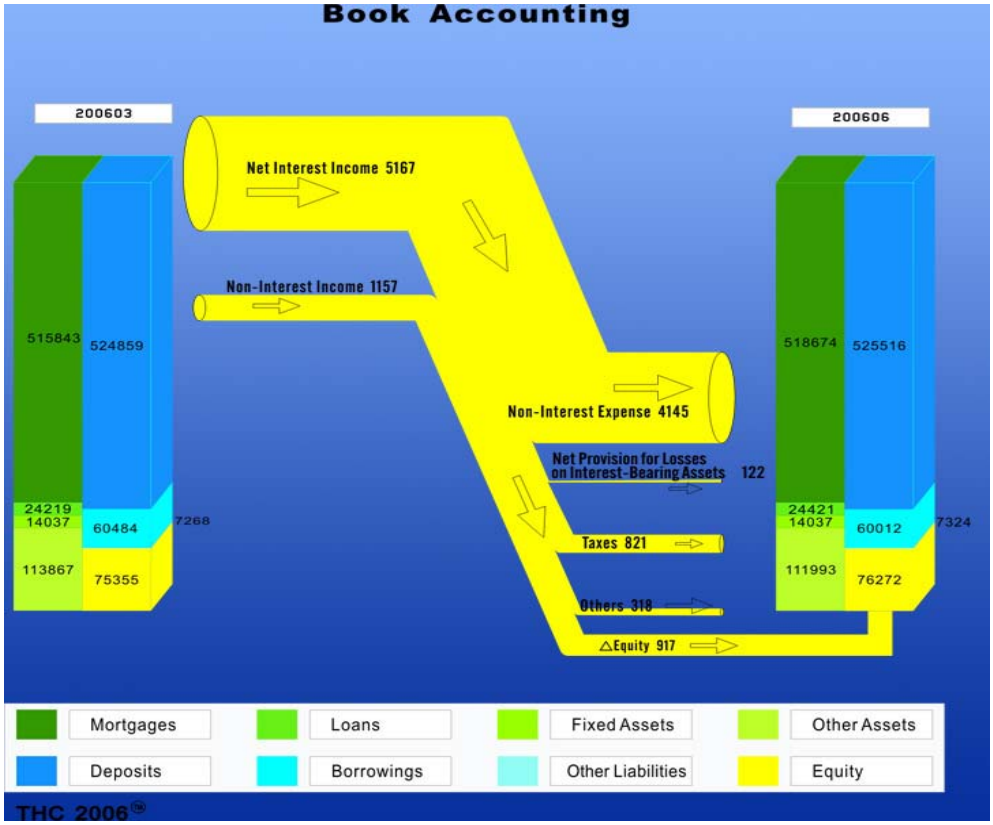

FIGURE 2

FIGURE 3

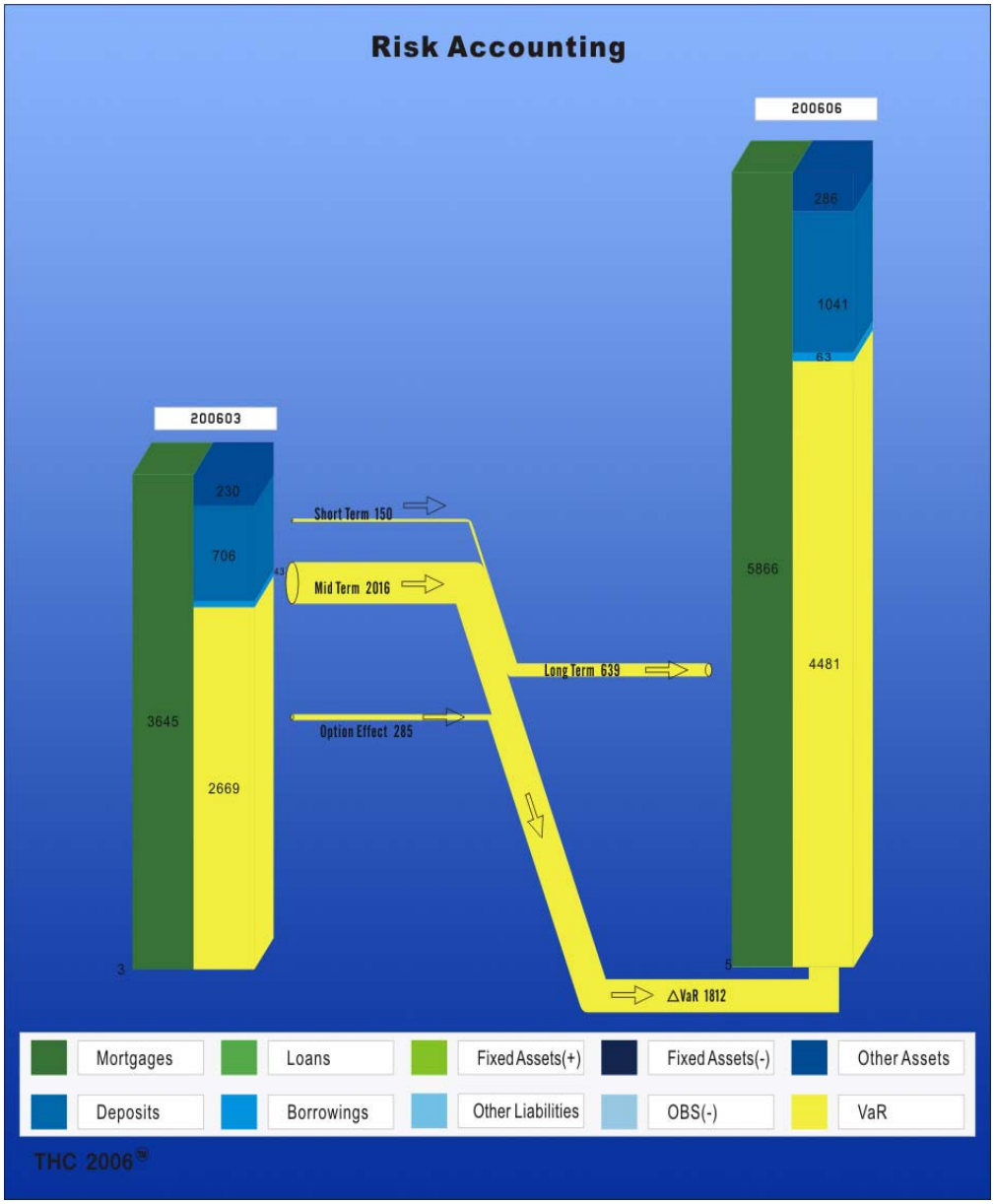

Figure 3 shows that the risks have increased significantly in the last cycle. The mortgage portfolio contributed nearly all the risks. The liability positions provide the natural hedge but are quite inadequate to offset the risks from the asset positions. The increase in the risk comes mostly from the mid section of the yield curve. If the bank seeks to lower the risk exposure, it should control the five and seven year key rate durations.

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Contact us if you have any questions, suggestions or comments

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