

Portfolio & Performance Analysis with the Risk & Liquidity Management Tool

For all: Branch Managers, Credit Administrators, LO's Supervisors, HO & Branch Accountants, Customer Care Executives, and Risk Managers

Besides its functionality for forecasting liquidity, the **Risk & Liquidity Management Tool (RLMT)** allows to **systematically analysing the current loan and deposit portfolio** for each branch as well as its **changes and trends over time**.

This functionality is based on **tailor made reports of client transaction data per branch** to be set up in the accounting system (*RLMT reports*) so that with a click on a button they can be downloaded and read into the second component of this MS Excel based tool called **Liquidity Forecast Ladder Branch**.

Branch Accountants / customer care executives responsible for regularly reading the downloaded reports into the *Branch Liquidity Forecast Ladder*, should **share this weekly updated tool** with all their **colleagues listed under "for all"** above. In this way

- i) the necessary flow of information between the various departments for a **profound asset liability management process** is ensured,
- ii) all other colleagues can also **benefit from this invention for analysing the current branch portfolios** in a **convenient and time saving manner** according to their respective needs in the topics listed in the sections outlined below.

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1. Asset Management

1.1. All outstanding Loans

- a. In sheet <Loans> cells AM3 and AN3, read off the *total outstanding loan portfolio* and *average interest rate* as of the reporting date
 - i) The rate is quoted in the same way as for each individual transaction, e.g. flat, per annum
- b. If in sheet <Loans> you filter column *Product Code* for a specific product type, as for example “group loans” (code = GL01), and you select the entire column “Outstanding Principal”, you can read off the *number of loans* and *total outstanding amount* in this product on the status bar at the bottom of the screen customizing it to include functions COUNT and SUM, respectively.
 - i) Analyse in this way amongst others the degree of diversification in the branch’s loan portfolio

1.2. Loans in arrears & their recovery

- a. In sheet <ExpRepay> columns AD–AJ, read off for each of the official BOU arrears buckets the ***Portfolio at Risk (PAR)*** in absolute numbers as well as in percentage of the outstanding portfolio
 - i) In sheet <Loans> in cells AL24-AO41, for the 90+ arrears bucket (“Loss”) this information is further broken down by product type
- b. In sheet <Loans> drill down for each arrears bucket to find the names of loan officers and clients responsible for these loans in arrears as follows
 - i) Filter column *# of days in arrears* for the range of the respective arrears bucket using in the filter’s pop-up menu the option *Number Filters*, and then *Between*. In the next pop-up menu set criteria “*is greater than or equal to*” to the lower boundary of the arrears bucket AND criteria “*is less than or equal to*” to the upper boundary of the bucket.
 - ii) Browse through column *Principal Amount in arrears* outstanding
 - iii) Filter column *Loan Officer Name* for those names with the most and /or largest amounts in arrears or otherwise for *each LO name* appearing
 - iv) For each loan compare the *Principal Amount in arrears* with the *Original Principal*. Based on this information and the Loan officer’s knowledge of the client’s business discuss with him/her a strategy for recovery.

1.3. Loans disbursed

- a. In sheet <Loans> analyse the number and total amount of loans disbursed in any chosen period, e.g. the previous week, as follows
 - i) Filter column *Start Date* for the desired period using in the filter’s pop-up menu the option *Date Filters*, and then *Between*. In the next pop-up menu set criteria “*is after or equal to*” to the first date of your desired period AND criteria “*is before or equal to*” to the last day of this period.
 - ii) Select the entire column *Original Principal* and read off the *number of loans*, *total -*, *maximum-* and *minimum amount disbursed* on the status bar at the bottom of the screen customizing it to include functions COUNT, SUM, MAX and MIN, respectively.

- Filtering in addition by *Product Code* and /or *Loan Officer Name*, the result can be further broken down by these criteria.

1.4. Contractually expected repayments of loans

- a. In sheet <ForecastBranch> read off the *Contractually Expected Principal & Interest Repayments* for *all loans* and *all loans without (w/o) any arrears* in the first and the second forecasting period, respectively.
- b. In sheet <ExpRepay> columns S–AB read off the *Contractually Expected Principal & Interest Repayments per day* for *all loans* and *all loans without (w/o) any arrears* as well as *accumulated* over the next 1 - 33 days.

1.5. Loans maturing in a chosen period & cash needed for their replacement

- a. In sheet <ForecastBranch> read off the *Original Principal of loans maturing* in the first and the second forecasting period, respectively.
- b. In sheet <Loans> in columns Z and AA, respectively, read off the *Original Principal of loans maturing per day* as well as *accumulated* over the next 1 - 33 days.
- c. In sheet <Loans> determine the cash needed to replace loans maturing in any chosen period as follows
 - i) Filter column *Maturity Date* for the desired period using in the filter's pop-up menu the option *Date Filters*, and then *Between*. In the next pop-up menu set criteria "*is after or equal to*" to the first date of the chosen period AND criteria "*is before or equal to*" to the last day of this period.
 - ii) Select the entire column *Original Principal* and read off the *amount of loans maturing* at the bottom of the screen on the status bar under SUM.
 - iii) Add to this amount x % of it, whereby x stands for the anticipated growth rate typically experienced / requested for the principal amount of a replaced loan
 - Filtering in addition by *Product Code*, this analysis can be further fine-tuned.

1.6. Prepayments

- a. If you expect that customers prepay, e.g. due to an upcoming public holiday as this is e.g. typically experienced with group customers for which their regular meeting date falls onto this holiday, you can estimate the amount most likely to be prepaid as follows
 - i) In sheet <ExpRepay> filter column *Due Date Next Instalment* for the date /period for which you expect customers to prepay their obligations using in the filter's pop-up menu the option *Date Filters*, and then *Between*.
 - ii) Filter for additional criteria if necessary. For example, filter column *Product Code* for "GL01", i.e. group loans.
 - iii) Select the entire columns *Principal Due* and *Interest Due* and read off the amount at the bottom of the screen on the status bar under SUM.
 - iv) Calculate x% ($0 < x \leq 100$) of this amount, whereby x stands for the percentage of all loans fulfilling *your chosen criteria* that you typically experience to prepay.

2. Liability Management

2.1. Daily Due Deposits

- a. In sheet <DailyDueDepos> cells S3-V3, read off the *Total Amount of Daily Due Deposits* (V3) as of the reporting date as well as their break down into the three savings categories: *Daily Due Deposits for a Purpose*, *General Daily Due Deposits less or equal - and larger than the **threshold you have set*** in sheet <ForecastBranch> cell C16.
 - For each deposit category the *number of deposit clients* and the *average deposit balance* can be read of in cells S7-V7 and S12-V12, respectively.
- b. The **concentration risk in large deposits** can be best analysed as follows
 - i) Select columns A-P in the daily due deposit positions and paste them (values only!) into sheet <Hardcopy DailyDueDeposits>, i.e. select the entire column A, right mouse click, and chose in the first pop-up menu *Paste special*, and in the next pop-up menu *Values*.
 - ii) Select all rows with transaction data starting in row 3.
 - iii) In the menu bar under tab *Start /Home* click on icon *Sort & Filter*, and chose option *Custom Sort*. In the pop-up menu set option *Sort by* to column G (= Deposit Balance) and set option *Order* to *Largest to Smallest*.
 - iv) In column G and H, read off the largest deposits and the names of the respective customers.
 - v) Selecting in column G from the top down the first *x* largest deposit balances, and dividing this amount by the total outstanding deposits, the degree of concentration risk is determined, i.e. which percentages of the total deposits are held by these *x* deposit customers only.
- c. In sheet <DailyDueDepos> you can read off the *total deposit amount for a specific product* on the status bar under SUM when filtering column *Product Code* for this product, and then selecting the entire column *Deposit Balance*.
 - i) The amount of compulsory savings for group loans (Product code = GS01, GS02) can be analysed in this way, in particular

2.2. Time Deposits

- a. In sheet <TimeDepos>
 - i) cells Z3 and AA3, read off the *total outstanding Time Deposits* and *average interest rate* as of the reporting date
 - ii) columns R and S, respectively, read off the *Amount of Time Deposits maturing per day* and subsequently *per month* as well as *accumulated* over the next 1 - 33 days
 - iii) columns U and V, respectively, read off the *Amount of Interest to be paid per day* and subsequently *per month* as well as *accumulated* over the next 1 - 33 days.
- b. In case of large amounts maturing in a particular time interval, analyse which clients do own these deposits as follows
 - i) Filter column *Maturity Date* for the desired date / period using in the filter's pop-up menu the option *Date Filters*, and then *Between*. In the next pop-up menu set criteria "*is after or equal to*" to the first date of the chosen period AND criteria "*is before or equal to*" to the last day of this period.
 - ii) Read off the individual maturity dates and client names in column H (= payment date) and K, respectively

3. Cost Management & Analysis of Balance sheet

In sheet <OpExpenses> and sheet <Balance>, respectively, analyse the derived average monthly expenses and current positions in the balance sheet according to the provided classification of these accounts into categories relevant for liquidity management.

4. Advanced Risk Management

4.1. Expected Default Frequencies on Branch and HO level

- a. In sheet <HistoricalData> of the **Liquidity Forecast Ladder Branch**, cells AL5 & AM5 as well as BY-CM4 & CO-DC4, respectively, read off the current **3-months & 1-year Expected Default Frequency (EDF) across the branch's entire portfolio** as well as distinguished by **product code**.
 - i) The EDFs are automatically calculated based on time series of delinquencies if the *LMT reports* are downloaded from the accounting system and read into the tool on an at least monthly basis.
 - ii) Any data point can be excluded by setting the adjacent parameter in column AK to 0. In this way the time series can also be shortened.
- b. In sheet <ForecastBrAggregate> of the **Liquidity Forecast Ladder HO & Consolidated**, cells AI85 & AJ85 as well as BW-CK85 & CM-DA85, respectively, read off the current **3-months & 1-year EDF across the MFI's entire portfolio** as well as distinguished by **product code**.
 - You can derive the **MFI's 1-yr Expected Loss** using this 1-year EDF.

4.2. Value at Risk (VAR) in HO Tool

- a. In sheet <ForecastCons.> row 71 read off
 - per monthly time bucket over the next 4 years (cells F-BG71),
 - summed over all of these monthly time buckets (cell D71)

the **Present Value of the change in the discounted cash flows** - due to an x bps shift in the floating interest rates and /or y% in foreign exchange rates paid on external loans (sheet <BankLoans> cell E2 and row 8) and /or the average interest rate paid on the clients' deposits (cells AG137-167) -

 - Since all client loans are denominated in local currency and the rate is fixed, the foreign exchange and interest rate risk in these positions is zero.
 - The rate paid on a regular basis on the clients' deposits though might have to be raised if interest rates in the market have substantially increased and the MFI is exposed to competition.

Two technical advises:

- In case you wish to **sort** any **of the client position data**, make a **hard copy** of the columns carrying these data and paste them (values only!) into sheet <Hardcopy Loans>, <Hardcopy DailyDueDeposits>, respectively, or otherwise in an additional sheet you can insert at the right hand side of the existing sheets, see also section 2.1. b)
- Always **reset all filters by choosing criteria *Select All*** once you are done with your analysis.