Multilevel price determination

Multilevel price determination: how it works in 10 steps

1. Using the actual quantity structure, the system knows what materials and activity types were used for the production of which higher-level products.
2. This quantity structure, which can be thought of as a type of actual BOM (Bill of Material), tells the system which materials were used to manufacture which higher-level products.
3. The prices of finished products can then be calculated accordingly on the basis of the historical costs.
4. As a result, price differences (such as for raw materials) can be rolled up to the semi-finished products and then to the finished products.
5. When you complete multilevel material price determination step in CKMLCP, you can see the actual prices of the materials (raw materials, semi-finished products, and finished products) at the end of the period. These actual prices reflect the prices actually incurred for the output actually produced or procured during the period.
6. To be able to roll up the price variances, the system must record all material movements and create an actual bill of material: this is called an **actual quantity structure**. A process can consume several materials (withdrawals). It can also produce several materials (receipts). There can be several procurement or consumption alternatives for one material.
7. Depending on the production process, the actual quantity structure can have different forms:

![Diagram of multilevel price determination](image)

8. At period end, you can use the multi-level step to distribute those variances which, during single-level settlement, were posted to the price difference account for the consumed materials. During this distribution, the material stock account is debited or credited with the corresponding amounts.

9. The produced goods can be revaluated accordingly. As a result, price differences of input materials are rolled up to output products. For example, price differences of raw materials can be rolled up to semi-finished goods and, in a next step, to the finished goods.

10. Only inventory and material as output of production orders are revaluated. Production
orders and material consumption for cost centers are not revaluated.

**Concerning *Not distributed* and *Not allocated* price differences after the Multi-level step has been run, please refer to the Troubleshooting Guide in the Material Ledger landing page.

Example:

1. Input material before multilevel:

   ![Material Price Analysis](image1)

   - **Material**: ACT-LCD
   - **Plant**: 60000, Mexico City
   - **Valuation Type**: 
   - **Sales Order Stock/Project Stock**
   - **Period/Year**: 10 2015
   - **Currency/Valuation**: Company code currency
   - **View**: Price Determination Structure

<table>
<thead>
<tr>
<th>Category</th>
<th>Quantity</th>
<th>Unit</th>
<th>PrelimVal</th>
<th>Diff.</th>
<th>S-L diff.</th>
<th>L-M diff.</th>
<th>Price</th>
<th>Currency</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Beginning Inventory</strong></td>
<td>2.575 ST</td>
<td>25.750,00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>10.00</td>
<td>MXN</td>
</tr>
<tr>
<td><strong>Receipts</strong></td>
<td>200 ST</td>
<td>2.000,00</td>
<td>150.00-</td>
<td>150.00</td>
<td>0.00</td>
<td>0.00</td>
<td>9,25</td>
<td>MXN</td>
</tr>
<tr>
<td><strong>Other Receipts/Consumption</strong></td>
<td>0 ST</td>
<td>0.00</td>
<td>20.00</td>
<td>20.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>MXN</td>
</tr>
<tr>
<td><strong>Cumulative Inventory</strong></td>
<td>2.775 ST</td>
<td>27.750,00</td>
<td>130.00-</td>
<td>130.00</td>
<td>0.00</td>
<td>0.00</td>
<td>9,95</td>
<td>MXN</td>
</tr>
<tr>
<td><strong>Consumption</strong></td>
<td>5 ST</td>
<td>50,00</td>
<td>0.23</td>
<td>0.23</td>
<td>0.00</td>
<td>0.00</td>
<td>9,95</td>
<td>MXN</td>
</tr>
<tr>
<td><strong>Ending Inventory</strong></td>
<td>2.770 ST</td>
<td>27.700,00</td>
<td>129.77-</td>
<td>129.77</td>
<td>0.00</td>
<td>0.00</td>
<td>9,95</td>
<td>MXN</td>
</tr>
</tbody>
</table>

2. Input material after multilevel:
Output material after multilevel:
If price differences are not allocated as expected after the multilevel step:

These are the possible causes:

- Multilevel price determination was not carried out yet.

- Not all subsequent materials were processed by multilevel price determination. If multilevel step has not been carried out (or resulted in an error etc.) the price differences remain on the input material in the 'not allocated' line. You can verify the Actual BOM for all consumption processes to find all output materials. You should check the status for multilevel in all output materials.

- The multi level document of one subsequent material is obsolete, because it is older than the single level or multi level document of the input material.

You can check this by comparing the time stamps in the documents' header data. This situation occurs when the input material was reprocessed by single level and/or multi level price
determination, but not all depending subsequent materials were reprocessed. To avoid such error SAP recommends to run multi level price determination generally with the option: 'materials already processed: process again'.

- For some consumption processes there was no goods receipt of the output material in the period. In this case the price differences can not be rolled up by multi level price determination. They remain as 'not included' ('not allocated') at the input material.

- For some consumption processes, that have different output aterials (joint production) for one of the joint products (the materials that receive costs according to the apportionment structure) the goods receipt has not been posted yet. In this case the differences to be allocated to this joint product remain as 'not included' ('not allocated') at the input material.

- One output was calculated with reduced BOM. Typically this happens if input and output material are part of a cycle, an this cycle was cut off because it didn't converge. In this case the price differences of the input were not rolled-up along the cycle connections and therefore remain on the input material. To verify if this case applies check the multi level document of the output material. There must be a red light in the item line of the input material to indicate that no price differences have been rolled up. In the header data of the multi level document. You can see the cycle number. Furthermore in the log of multi-level price determination there may be a message 'Cycle * cut off after * iterations'.

For details, check the note:

908776 Not included/not allocated and not distributed

If price differences are not allocated as expected in the multilevel step to co-products:

1802424 Price differences are not allocated as expected to co-products in the multilevel price determination
1844420 Example Implementation for BADI COST_SPLIT
1891997 Not allocated price differences in production processes
2097606 Not allocated price differences in production processes

If price differences are not allocated as expected in the multilevel step for materials with different valuation types:

1051224 Valuation type as characteristic in procurement process
1755018 Price differences allocation after multilevel step for materials with split valuation
Cycles: termination of iteration or incorrect cutting iteration strategy: check if all these notes are implemented in the system

1349395 Unjustified termination of iteration
1421936 Incorrect cutting strategy for the iteration of a cycle
1459783 No convergence during iteration with joint production
1587816 Iteration of a cycle terminates (ii)
1866357 Actual BOM was Adjusted: not allocated price differences because multilevel price determination was calculated with reduced BOM. Report ZNEW_CYCLE_ANALYSER.
2550035 Small not allocated differences for materials involved in cycles
2210121 Cycles are falsely recognized as diverging

Cycles: performance and iteration

1431823 Long runtime for iteration of large cycles
1523995 Long runtime during iteration of large cycles (ii)
1866357 Actual BOM was Adjusted: not allocated price differences because multilevel price determination was calculated with reduced BOM. Report ZNEW_CYCLE_ANALYSER.

Cycles: negative prices during iteration

1522959 Negative price during iteration: Error handling
892873 CKMLCP: Analysis of negative usages in cycles
536893 Composite SAP Note Stock transfers in material ledger
2031136 CKM3: Correction tool for negative consumptions and single-material cycles
2059061 INFO: CKM3 Correction Tool for Negative Consumption & Single-material Cycles
1866357 Actual BOM was Adjusted: not allocated price differences because multilevel price determination was calculated with reduced BOM. Report ZNEW_CYCLE_ANALYSER.

Which information provides the transaction CKMLQS Actual Quantity Structure (multilevel)

1004597 CKMLQS: Valuated quantity structure (multilevel)

If you are getting errors with activity types in the multilevel step:

361379 Error CKMLLA102 for multi-level price determination
1606106 Do not display error msg CKMLLA 102 for actual price zero
1237741 Control the occurrence of messages CKMLLA 207 and CKMLLA 208
1089482 Modification: Tolerance of the consistency check for activities

**If the performance of the multi-level step needs to be improved:**

1148442 Performance improvement of multilevel price determination
2066349 Optimization of the ML period-end closing
2061868 Low performance in transaction CKMLCP Material Ledger period closing

**Multilevel and profit center valuation:**

1663609 Multilevel calculation does not consider price differences in Profit Center Valuation