

Plan-Actual Stock Comparison: Deviation Analysis in Stock Management

The plan-actual stock comparison is the systematic reconciliation of planned stock levels with actually available inventory as at a key date. It is one of the central control instruments of stock management and shows whether material planning, procurement and production are running in line with planning targets. In practice, it reveals not only quantity deviations but also structural causes such as incorrect master data, wrong planning parameters or fluctuations in delivery reliability.

Key facts

- The plan-actual stock comparison juxtaposes target stock levels from material planning with actual inventory levels.
- Typical comparison figures are total stock, minimum stock, safety stock, stock value and coverage.
- Common causes of deviations are planning errors, shortages, blocked stock, shrinkage and outdated planning parameters.
- In practice, the comparison is typically carried out daily to monthly per material group.
- It links operational material planning with financial metrics such as tied-up capital and warehousing costs.
- Modern ERP and stock systems largely automate the reconciliation and thereby support automatic material planning.

Definition: plan-actual stock comparison

The plan-actual stock comparison describes the juxtaposition of planned (target) stock levels and actually existing inventory at item, material group or site level. It serves to measure planning accuracy, calibrate ordering and planning processes, and identify tied-up capital in the warehouse at an early stage.

Planned stock: origin of the target values

The planned stock results from demand planning, planning parameters and planned receipts, for example from open purchase orders, delivery schedules and production orders. It is not a static figure: any change in demand, lead time or lot size alters the target stock. In many ERP systems, the planned stock is available as a forecast stock profile over a time horizon, often at weekly or daily resolution.

Actual stock: which stock really counts

The actual stock encompasses more than the physical quantity at the storage location. Relevant are the available quantity, blocked stock, quality-inspection stock without material release, stock in transit and reservations for production orders. Only a clean separation of these stock types makes the comparison meaningful, because a pure book stock can considerably overstate actually available quantities.

Distinction from plan-actual comparison of costs and revenue

In controlling, plan-actual comparison also refers to the reconciliation of planned and actual costs, for example in purchasing cost centre reporting. The stock comparison must be distinguished from this, but uses the same methodology: key-date-based juxtaposition, deviation determination and cause analysis. The two perspectives complement each other, as stock deviations have a direct impact on goods value and tied-up capital.

Methods and procedure in the plan-actual stock comparison

A robust comparison follows a fixed sequence: secure the data basis, quantify deviations, assign causes and derive measures. The cycle is typically carried out daily for A-items and monthly for the overall assortment.

Selection of key date and data basis

Comparison periods are based on the material group and the material group hierarchy: raw material with high turnover requires daily monitoring, long-lived parts monthly or quarterly analysis. The basis is inventory-confirmed or at least plausibilised stock levels. Inventory discrepancies from stocktaking are incorporated into the analysis as a correction factor so that systematic planning errors are not conflated with data accuracy problems.

Deviation determination and metrics

Deviations are reported in absolute terms (units, value) and relative terms (percentage of planned stock). An ABC analysis of deviations is common: in practice, 70 to 80 per cent of the value-based deviation frequently arises from a small number of items. This concentration makes it possible to focus the correction team on the relevant positions instead of adjusting all planning parameters across the board.

Breakdown of causes

A coarse classification into five cause families has proven its worth: planning errors (demand forecast), planning parameter errors (parameters such as lot size or safety stock), procurement deviations (delivery date, quantity), production-related deviations (overages, scrap) and data-related deviations (master data, posting errors, shrinkage). Only with this assignment can it be determined whether purchasing, material planning, production or the warehouse needs to take corrective action.

Key KPIs in the plan-actual stock comparison

Metrics translate the comparison into controllable figures. They should be defined per material group, as a blanket target across the entire assortment says little.

Stock adherence and plan deviation rate

Stock adherence sets the actual stock in relation to the planned stock, often as the percentage of items whose deviation lies within a tolerance. Tolerance bands vary by item value and criticality: A-items often with tighter tolerances than C-parts. The plan deviation rate shows how stable the planning system works overall.

Coverage, stock level and tied-up capital

Stock coverage indicates for how many days or weeks the actual stock covers planned consumption.

Deviations from planned coverage are often more meaningful than absolute quantities, as they smooth out fluctuations in consumption. In addition, average stock value, warehousing interest rate and tied-up capital are considered – metrics that link the comparison directly to purchasing cost centre reporting.

Delivery adherence as an influencing factor

Stock deviations frequently arise not in material planning but in the supply side. For this reason, the comparison should be supplemented by supplier performance metrics, such as delivery adherence and delivery date deviations per supplier. Materials with a problematic supply base or a monopoly position in the procurement market generally carry higher safety stock levels and therefore different plan values – this correlation must remain visible in the comparison.

Risks and controls in the plan-actual stock comparison

The comparison itself harbours sources of error: inaccurate master data, missing stock revision processes and tolerances that conceal deviations. Without control mechanisms, it becomes a numbers ritual with no steering effect.

Typical sources of error

Common problems are outdated planning parameters, missing correction of returns and reusable containers, unclear treatment of blocked stock and discrepancies between book and physical stock. Interface errors between the ERP and the inventory management system or supplier portal can also distort stock records. Anyone analysing deviations should therefore always check data quality first.

Control processes and the four-eyes principle

Stock corrections above certain value or quantity thresholds should be subject to the four-eyes principle (P2P), i.e. be approved by a second person. Inventory spot checks and cycle counting secure the data basis between stocktakes. In addition, it has proven useful to escalate recurring deviation patterns to defined roles – for example, plan deviations on A-items to the head of material planning.

Interaction with buffer strategies

The comparison also reveals whether minimum stock and safety stock are actually appropriate. Persistent overcoverage indicates overly generous buffers or fallen demand, persistent undercoverage indicates overly tight parameters or supply problems. Buffer adjustments should be documented and justified, as they directly influence order proposals and automatic material planning.

Current developments: automation and integration

The plan-actual stock comparison is shifting from manual monthly analysis towards continuous, system-supported monitoring. The drivers are end-to-end ERP data models, supplier integration and data-driven material planning.

Automatic material planning and real-time data

Modern systems combine stock data with demand forecasts and recalculate planned stock continuously. Deviations trigger automatic re-planning or warning messages, for example when actual stock falls below minimum stock. The prerequisites are clean master data maintenance and a defined material group hierarchy so that exception criteria can apply on a rules basis.

Supplier integration and supply planning

Via delivery schedules and schedule lines, suppliers can align their production with actual consumption. Those who share stock and consumption data with suppliers obtain more realistic planned stock levels and detect deviations earlier. This shifts the plan-actual comparison partly into collaborative supply planning processes and reduces buffers on both sides.

Sustainability and reporting obligations

Stock levels also have a sustainability dimension: excess stock not only ties up capital but also causes overhead, spoilage of critical materials and wasted resources. In the context of regulatory requirements such as the PPWR (Packaging and Packaging Waste Regulation), packaging and material stocks are gaining additional reporting relevance. Stock data is therefore increasingly flowing into sustainability and compliance reports.

Typical metrics

Stock adherence: > 90 % of items within the tolerance band

typical guideline value; A-items often subject to tighter tolerances

Plan deviation rate: < 10 % by value

common target for the overall assortment, varies by material group

Stock coverage: Plan $\pm$ 20 %

tolerance-dependent based on lead time and material criticality

Inventory accuracy (cycle counting): > 98 %

a prerequisite for meaningful stock comparisons

Practical example

A medium-sized mechanical engineering company with around 20,000 active items found in its monthly plan-actual comparison that the value-based stock deviation had been in double digits for several quarters – despite a stable demand situation. The cause analysis showed that roughly three quarters of the value-based deviation stemmed from around 300 items, predominantly standard components with overly generous lot sizes and safety stock levels. At the same time, some A-items showed persistent undercoverage caused by delivery date deviations from a sole-source supplier.

- Introduction of a weekly plan-actual analysis for A- and B-items with tolerance bands per material group
- Adjustment of lot sizes and safety stock levels for around 300 items based on the deviation ABC
- Safety stock increases only for suppliers with documented delivery problems rather than across the board, with documented justification
- Approval of stock corrections above a threshold value by a second instance under the four-eyes principle

Conclusion

The plan-actual stock comparison is the central diagnostic instrument for identifying whether material planning, procurement and warehousing work together smoothly. Its value depends less on the calculation than on disciplined cause analysis and the measures derived from it. Companies that carry out the comparison regularly and with clear responsibilities typically reduce tied-up capital and material

shortage risks at the same time. With growing automation, the comparison is becoming an ongoing early-warning system rather than a monthly retrospective. In every case, the prerequisite remains a clean data basis and a clear separation of planned, blocked and available stock.

Frequently asked questions

What is a plan-actual stock comparison?

The plan-actual stock comparison is the systematic reconciliation of planned target stock levels with actual inventory levels on hand as at a key date. It reveals deviations in both quantity and value and makes their causes visible. It therefore serves as a control instrument for material planning, procurement and stock management.

How often should a plan-actual stock comparison be carried out?

A graduated frequency has become established in practice: daily or weekly for A-items and critical materials, monthly for the full assortment, quarterly for structural analyses. The frequency depends on stock turnover, item value and supply risk. With automated ERP reporting, continuous monitoring is also possible.

What causes deviations in the stock comparison?

Common causes include planning errors in demand forecasting, incorrect planning parameters such as lot size or safety stock, supplier deviations in delivery dates and quantities, production-related overages or shortages, and posting and master data errors. Blocked stock, shrinkage and inventory discrepancies also distort the comparison. A systematic breakdown of causes is a prerequisite for effective corrective action.

Which metrics belong to the plan-actual stock comparison?

Key metrics are stock adherence, plan deviation rate, stock coverage, average stock value and tied-up capital. In addition, service level, supplier adherence and inventory accuracy are considered. It is important to define target values per material group rather than setting a blanket rate across the entire assortment.

What is the difference between planned stock and actual stock?

The planned stock is the forecast target stock derived from demand planning, planning parameters and planned receipts such as open purchase orders. The actual stock is the quantity physically on hand, whereby a distinction must be made between physical, book (accounting) and available stock. Only the available stock, after deduction of blocked and quality-inspection stock, is decisive for material planning.

How can stock deviations be reduced permanently?

Proven approaches include regular deviation analyses with an ABC focus on the items that are relevant in value terms, calibrated planning parameters, cycle counting to ensure data quality, and clear assignment of causes to the responsible functions. In addition, supplier integration via delivery schedules and automated exception alerts help. Blanket stock reductions without cause analysis, by contrast, frequently lead to supply shortages.