

# Epic: Accurate Daily Expected NAV Generation (Oversight)



Being able to generate accurate daily expected NAVs, allows pControl to carry out an effective validation of the TPA provided NAV. If pControl generates inaccurate expected NAVs, the validation process becomes unreliable, leading to false positive exceptions when comparing actual versus expected values.

The expected NAV generation process is reliant upon receiving a complete and accurate set of market data inputs. Therefore, to be able to verify that the required market data is complete, non-stale, correctly formatted, and accurate increases the accuracy of the expected NAV and reduces the number of false-positive actual versus expected type exceptions.

In addition, to be able to validate the quality and completeness of the market data early in the process i.e., before the generation of expected NAVs, increases the likelihood that such data can be corrected and processed before SLA cut-off.

## User Story #1 – Reliable Expected Price Generation (Oversight)- Missing Security Prices (U175)

As a <person a>	As a valuation analyst working in the oversight team of an asset management firm
I want to <some task>	I want to be confident that a complete set of security prices is available to feed the Daily Expected NAV generation process
so that <some reason>	So that the Expected NAV is generated accurately and reduces the number of false-positive expectations when running actual versus expected type validations; allowing me to correctly validate the NAV provided by our third-party administrator.
I know its complete when  <accept ance criteria>	<ul style="list-style-type: none"><li>For Fund Entities using [ERM003] Holdings - Security Repricing as part of their Expected Pricing Methodology, pControl will highlight any missing security prices that are required, before the completion of the Expected NAV process. Where missing security prices are defined as:<ul style="list-style-type: none"><li>For each selected ERM003 Category Code, any Asset Codes that are present in the Previous Day validated U100: Investment Holdings records for the Fund Entity, that do not have a corresponding validated Current Day U175: Security Prices record, where U175 Price Run Type= Security Repricing Price Run Type (AP_PR_SEC_PRICE_RUN_TYPE)</li></ul></li><li>A new fund entity data load attribute is available to make all required U175 records mandatory. If all required security price records are not provided and the security prices data load is set to mandatory, then the Expected NAV process will wait.</li><li>Any missing security price records, which are required for the Expected NAV process, are highlighted by the fund level status from the Expected NAV section of the Fund Overview, before the completion of the Expected NAV process.</li><li>Drill down is provided into missing security price records.</li><li>User workflow is provided to manage missing security prices.</li><li>There are no exception messages generated during the expected pricing process related to missing security prices (shown from P606) that haven't already been highlighted before the completion of the Expected NAV process.</li><li>The number of actual versus expected validation false-positive exception results is low and not related to missing security prices not previously identified.</li></ul>
examples	<ul style="list-style-type: none"><li>n/a</li></ul>

### data analysis

- n/a

### notes

Sometimes the market data inputs required to generate an expected NAV are incomplete.

This causes exception messages during the expected price generation process and therefore inaccurate expected NAVs (P606 table).

An inaccurate Expected NAV results in numerous false-positive exceptions when running actual versus expected type validations, therefore increasing the chances of missed NAV errors.

Due to our tight SLAs, it's very difficult to fix the market data issues once pControl has carried out the NAV validation process.

Market Data Inputs to the expected price generation process include:

1. U175: Security Prices
2. U178: FX Rates
3. U180: Security Details
4. U200: Asset Transactions
5. U210: Corporate Actions
6. U109: Unitised Cash Flows
7. U107: Price Component Adjustments

Missing data checks would need to reference the previous days valuation provided by the TPA, as well as new transactions, etc.

#### Approach to Missing Data Analysis

In the main, the process for verifying that a complete set of data inputs are provided to generate an accurate Expected NAV will be carried out at both a Fund-Level and Data Take On level.

##### 1. Fund-Level Missing Market Data Analysis

The data inputs required at the fund level are determined by the following factors:

a) Fund level Expected Pricing Methodology (EPM) and the associated ERMs (Expected Return Methodologies) i.e. selected to calculate the NAV impacts/ Expected NAV values across the various components of the fund valuation (holdings, transactions, income, expenses, etc.)

Examples:

- [ERM001] Holdings - Index by Key Benchmark

This return methodology uses the return of the key benchmark, (which is associated with the entity) to index the return of each holding associated with the EPM categories for the ERM.

The day over day return (Daily ROR) for the key benchmark is used to adjust the prior base market value of the associated pool's holdings to calculate today's market value for each holding. The return of the key benchmark will also be used to represent the holding's total return for the final expected NAV calculation.

Therefore, this ERM would require a benchmark record (U280) loaded for the same effective date, and the same price run type, as well as prior pricing point and same price run type. The benchmark is required to be assigned from the POV010- Price Movement vs Benchmark section of the Post-Calculation Validation phase of Oversight on the Fund entity.

The [DL080] - Load Benchmark Values attribute can be set to mandatory. This function will load the benchmark return values from the Market Data Validation (MDV) process for the 'Key Benchmark' for the same effective date, and the same price run type, as well as prior pricing point and same price run type. Where the Mandatory flag is selected, and the required benchmark values are not yet available, the Expected or Backup NAV process will wait until the benchmark values are available. This is an example of an existing PreRequisite Process that can highlight missing data before the Expected generation process completes.

However, similar PreRequisite processes are not available for all ERMs. For example:

- [ERM003] Holdings - Security Repricing

This calculation will reprice each asset holding based on current day U175 prices and if required, U107 Fair Value factors. The difference in value between the prior day actual value, and the calculated expected value, will be divided by the fund's last known NAV, to calculate the expected return. The day over day return for each asset holding will then be summed to calculate a total 'holding constituent return' which will be used in the Expected NAV calculation.

Any missing security level data will only be flagged after the expected NAV generation has been completed. For Example, if a validated security price record is not provided in the U175: Security Prices import buffer for a security that was held in the previous day's valuation, then an exception message is raised from the P606:constituent Returns table, and the expected NAV calculation (ERM003) stales the security price when calculating the NAV impact.

A solution to highlight any missing security level data would require an additional prerequisite data check or mandatory data attribute (similar to the above [DL080] attribute). This would require a process to select the previous day's holdings from the U100: Investment Holdings import buffer, and check that a corresponding validated U175:Security Price record is provided for each security. Missing security prices would need to be highlighted from the NAV Oversight Dashboard, allowing end-users to drill into the underlying detail. allowing missing security prices to be managed via user workflow.

A similar process could be introduced to highlighted missing data associated with other ERMS. For example, for [ERM011] Income- Interest Accrual, a similar process would highlight any missing U180: Security Detail records.

b) Previous Day Valuation Data. This is the data associated with the 'Last known Good NAV' and would include NAV, asset holdings, income and expenses accruals, etc

c) Current Day Transaction

d) Current Day Corporate Action

e) Exchange Rate Requirements. This is determined by the base currency of the fund, the base currency of the benchmark (if required), the local currency of the holdings, transactions, cash balances, etc., and the FX Rate Type chosen at the fund level.

f) Fund Level Attribute Data e.g. mandatory data such as fee rates for calculating [ERM006]: Expense- Fee Accrual impacts, and benchmark entity for calculating [ERM001] Holdings - Index by Key Benchmark

g) Price Run Types associated with each data input. E.g. Security Price Run Type related to the U175: Security Price file

h) Mandatory Data Requirements, as indicated from the Expected Pricing> Data Loads phase section of the fund entity template.

## User Story #2 – Reliable Expected Price Generation (Oversight)- Missing Security Details (U180)

<b>As a &lt;persona&gt;</b>	As a valuation analyst working in the oversight team of an asset management firm
<b>I want to &lt;some task&gt;</b>	I want to be confident that an accurate set of required data is available to feed the Daily Expected NAV generation
<b>so that &lt;some reason&gt;</b>	So that the Expected NAV is generated accurately and reduces the number of false positive expectations when running actual versus expected type validations; allowing me to correctly validate the NAV provided from out third-party administrator.
<b>I know its complete when &lt;acceptance criteria&gt;</b>	<div>Ø There are no exception messages generated during the expected pricing process</div> <div>o Exception messages (shown from P606) examples include:</div> <div>§ Missing Security Price</div> <div>§ Missing FX Rate</div> <div>§ Missing security static to generate accrued interest</div> <div>Ø The market data inputs to the expected pricing process are accurate, and therefore the number of actual versus expected validation false positive exception results is low.</div>
<b>examples</b>	<ul style="list-style-type: none"><li>• n/a</li></ul>

### data analysis

- n/a

### notes

Sometimes the market data inputs required to generate an expected NAV are inaccurate.

This causes exception messages during the expected price generation process and therefore inaccurate expected NAVs (P606 table).

An inaccurate Expected NAV results in numerous false positive exceptions when running actual versus expected type validations, therefore increasing the chances of missed NAV errors.

Due to our tight SLAs, it's very difficult to fix the market data issues once pControl has carried out the NAV validation process.

Market Data Inputs to the expected price generation process include:

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5. U210: Corporate Actions
6. U109: Unitised Cash Flows

## User Story #3 – Reliable Expected Price Generation (Oversight)- Missing FX Rates (U178)

<b>As a &lt;persona&gt;</b>	As a valuation analyst working in the oversight team of an asset management firm
<b>I want to &lt;some task&gt;</b>	I want to be confident that an accurate set of required data is available to feed the Daily Expected NAV generation
<b>so that &lt;some reason&gt;</b>	So that the Expected NAV is generated accurately and reduces the number of false positive expectations when running actual versus expected type validations; allowing me to correctly validate the NAV provided from out third-party administrator.
<b>I know its complete when &lt;acceptance criteria&gt;</b>	<p>Ø There are no exception messages generated during the expected pricing process</p> <ul style="list-style-type: none"> <li>o Exception messages (shown from P606) examples include: <ul style="list-style-type: none"> <li>§ Missing Security Price</li> <li>§ Missing FX Rate</li> <li>§ Missing security static to generate accrued interest</li> </ul> </li> </ul> <p>Ø The market data inputs to the expected pricing process are accurate, and therefore the number of actual versus expected validation false positive exception results is low.</p>
<b>examples</b>	<ul style="list-style-type: none"> <li>• n/a</li> </ul>

data analysis

## User Story #4 – Reliable Expected Price Generation (Oversight)- Non-Stale Data Input

<b>As a &lt;persona&gt;</b>	As a valuation analyst working in the oversight team of an asset management firm
<b>I want to &lt;some task&gt;</b>	I want to be confident that the data input to the Daily Expected NAV generation process is not stale
<b>so that &lt;some reason&gt;</b>	So that the Expected NAV is generated accurately and reduces the number of false positive expectations when running actual versus expected type validations; allowing me to correctly validate the NAV provided from out third-party administrator.
<b>I know its complete when &lt;acceptance criteria&gt;</b>	<p>Ø The market data inputs to the expected pricing process are accurate, and therefore the number of actual versus expected validation false positive exception results is low.</p>
<b>examples</b>	<ul style="list-style-type: none"> <li>• n/a</li> </ul>

data analysis

- n/a

notes

Sometimes the market data inputs required to generate an expected NAV are stale.

This causes inaccurate expected NAVs to be generated.

An inaccurate Excepted NAV results in numerous false positive exceptions when running actual versus expected type validations, therefore increasing the chances of missed NAV errors.

Due to our tight SLAs, it's very difficult to fix the market data issues once pControl has carried out the NAV validation process.

Market Data Inputs to the expected price generation process include:

1. U175: Security Prices
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3. U180: Security Details
4. U200: Asset Transactions
5. U210: Corporate Actions
6. U109: Unitised Cash Flows
7. U107: Price Component Adjustments