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HighWire

Day 1 Testing

HighWire

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# Introduction

The purpose of this document is to outline the testing resources that are available to clients. There are a range of testing resources and approaches available for you to choose from, depending on your preferred approach.

Please also note that within the system, you will have access to the Wiki, which includes access to all guides and procedures.

# Review of “Funds-Axis Test Documentation”

As part of the HighWire implementation, Funds-Axis will perform and document a range of testing and provide the test documentation to the client. These checks are summarised below. Review of these should provide most clients with the required go-live confidence.

**Summary of documented testing**

1. Portfolios accuracy and completeness testing
2. Data Upload Testing

|  |  |
| --- | --- |
| **#** | **Check** |
| 1 | Check Data Upload History to see that all data is uploading successfully |
| 2 | That the official NAV uploaded is correct |
| 3 | Check that the Plugs are reasonable and correct  Ensure that this is complete for all portfolios and portfolio components |
| 4 | Check that NAV tolerances are reasonable and correct  Ensure that this is complete for all portfolios and portfolio components |

1. Data Quality Testing
2. Calculations testing – Leverage
3. Calculations testing – Liquidity
4. Rules application testing

|  |  |
| --- | --- |
| **#** | **Check** |
| 1 | Check that the correct Rule Groups are applied to each portfolio |
| 2 | Check that the Rule Groups contain all the correct rules |
| 3 | Check that the correct prospectus rules applied |
| 4 | Check that Rules are being processed |
| 5 | Check that Rules are accurate |
| 6 | Check the Eligible Markest and GOPS set up |
| 7 | Check the correct rules are applying as regards derivatives usage. |
| 8 | Check the correct rules are applied to the Umbrella and Manager Levels |
| 9 | Check other rules – Russia / crypto etc |

# HighWire Investment Compliance Standard Testing Excel

The “HighWire Investment Compliance Standard Testing Excel” is completed by Funds-Axis before system hand over. It can then be easily repeated by you. It is a step-by-step checklist of all the reports to be reviewed to give you complete assurance that everything is set up and operating correctly. This includes user permissions, portfolios set up, rules applied, data uploads, exposure calculations, results etc. This overlaps with the documentation produced in Part 1 but is more of an eye-ball check that everything is correct. This is also a great way of gaining system familiarity.

Time to complete: 1 day.

Pre-requisite: System set-up complete and handed over by Funds-Axis

Approach: Can be led by Funds-Axis or executed by client.

# Prospect

# General – Process and performance testing

Based on Sandbox portfolios and data, process testing can be performed in order to test data upload, calculations and rules processing. This can include testing with hundreds of portfolios and multiple batches throughout the day with multiple administrations, valuations etc. You will be able to monitor in real time the processes of data uploading, calculations and rules processing and results being produced, including data and other exceptions monitoring.

Time to complete: 2 hours. Can be reperformed for multiple dates, including with amended data to produce upload errors, exceptions etc.

Pre-requisite: Funds-Axis to provide data files

Approach: Can be led by Funds-Axis or executed by client.

# General - Exceptions Workflow Testing Case Study

This case study is designed to enable you to test the exceptions workflow functionality over a series of days. We will upload a set of portfolio holdings for consecutive days and process the rules. The positions have been designed so that the results will change day-by-day. You will be able to view and test the system behaviour as the results move between breach, warning, pass states each day, including the impact on Day counts for continuing exceptions. This will also enable you to test the review and approval capabilities.

Time to complete: ½ day

Pre-requisite: Funds-Axis to provide data files, plus case study documentation with expected results.

Approach: Can be led by Funds-Axis or executed by client.

# General – Permissions Testing

Testing and familiarisation can be performed in respect of all aspects of the system roles and the user-security entitlements, including testing differentiated access to rules and portfolios and functional modules.

Time to complete: 2 hours

Pre-requisite: None

Approach: Agree differentiated access for 2 or more users. Configure and test.

# Regulatory - Leveage calculations testing

This case study is designed to enable you to test the leverage calculations within HighWire.

A sandbox portfolio has been set up with holdings over a series of days, with the holdings designed to test all leverage calculations and all scenarios. This includes for AUM, Gross, Notional and Commitment method exposure (UCITS and AIFMD), plus absolute and incremental currency exposure.

The holdings include examples of borrowing, mortgages, cash, other risk free assets, sundry payables and receivables, netting, hedging, margin and collateral, including risk free margin. These are in a mixture of both base and non-base currency. For currency exposure, the Sandbox holdings cover all scenarios (long and short currency exposure, hedge, over-hedge etc).

Time to complete: 2 days

Pre-requisite: Funds-Axis to provide case study documentation summarising the holdings each day and explaining the expected results in accordance with the regulations.

Approach: Client should review all the scenarios and expected results and raise any queries. We can then review these holdings and results in the Demo Environment. Adjustments to the scenarios can also be made and the calculations reprocessed. This can be done “on the “fly”.

# Regulatory Exceptions Workflow Scenarios Functional testing

Here, the purpose is to test the exceptions workflow functionality particularly as regards the regulatory rules. This will enable you to give good consideration to the required operational procedures and controls to be implemented as regards exceptions management and related data activities.

To support this, we have Sandbox portfolios with a range of holdings and results.

We have a test script that allows you to go through and change key data elements, reprocess rules and calculations and see that regulatory breaches arise / close as you would expect. This includes for a range of data elements including the below data elements as relevant to UCITS. Changing these from True to False will cause exceptions across the various UCITS Rules:

* CIS is UCITS or equivalent
* CIS must restrict their investment in other CIS to max 10% NAV
* Deposit taker is approved deposit taker
* Counterparty is approved credit institution
* Counterparty – exposure limit (5% or 10%)
* Issuer is a GOPS issuer
* Bond is covered bond
* Index is diversified UCITS eligible
* Derivative has reliable valuation
* Overrides fields for Is Transferable,
* Approved Markets.

Time to complete: ½ day

Pre-requisite: Funds-Axis to provide draft test script, including details of proposals for which data elements to change on which securities and expected results.

Approach: The test script should be agreed. The Holdings can be uploaded and rules executed. The amendments can then all be made and the rules re-executed to witness the expected results being generated. The amendments can be reversed and the results re-executed.

# Regulatory – Regulatory Rules Detailed Testing

Following on from part 6, the Demo environment has been set up with Sandbox box funds which support testing of all Regulatory Rules are applied. The case studies have been created to test the set set-up of each rule, e.g. for the 5/10/40 rules the case study will involve long and short security and derivative positions in different securities, with the same underlying issuer.

The Sandbox portfolios have been designed to ensure coverage of the most complex aspects of each rule

Each Regulatory Rule is supported by:

* Rule set-up documentation, which explains all the regulations and how reflected in the rule set-up; and
* Documentation of the case study set-up and test results.

# Prospectus Rules testing

We do NOT provide Rule testing documentation for each prospectus rule and portfolio.

Instead, we will provide:

1. Syntax based outputs where the accuracy of rule construction can easily be reviewed across all rules;
2. Thematic review of all rules, e.g. grouping together of test documentation for different sets of rules based on for example:
   1. Prohibited assets
   2. Counts of securities
   3. Geographic diversification
   4. Asset class diversification
   5. Issuer diversification
   6. Ownership
   7. Counterparty exposure
   8. Leverage
3. Validation of all exceptions
4. Reconciliation with your current results.

This will be documented and all documentation provided to you.

**END**