

Review of Internal Controls at Investment Managers

Aviva Investors

“Report on Internal Controls” for the period 1 October 2015 to 30 September 2016.

Auditors: PricewaterhouseCoopers LLP

In the auditor’s opinion, in all material respects:

- a) the description in sections D to G fairly presents the Service Organisation’s and the included Subservice Organisation’s investment management activities for institutional clients and pooled funds as designed and implemented throughout the period from 1 October 2015 to 30 September 2016;
- b) the controls related to the control objectives stated in the description were suitably designed to provide reasonable assurance that the specified control objectives would be achieved if the described controls operated effectively throughout the period from 1 October 2015 to 30 September 2016 and customers applied the complementary user entity controls referred to in the scope paragraph of this assurance report; and
- c) the controls tested which, together with the complementary user entity controls referred to in the scope paragraph of this assurance report, if operating effectively, were those necessary to provide reasonable assurance that the control objectives stated in the description were achieved, operated effectively throughout the period from 1 October 2015 to 30 September 2016.

Of the 262 controls tested by the auditor, 7 exceptions were identified.

These exceptions and the management responses are included at the end of this appendix.

BlackRock Inc

“Report on Controls at BlackRock Placed in Operation and Tests of Operating Effectiveness for Asset Management Services” for the period October 1, 2015 to September 30, 2016.

Auditors: Deloitte and Touche LLP

In the auditor’s opinion, in all material respects:

- a.) the description fairly presents the System that was designed and implemented throughout the period October 1, 2015 to September 30, 2016;
- b.) the controls related to the control objectives stated in the Description of the System were suitably designed to provide reasonable assurance that the control objectives would be achieved if the controls operated effectively throughout the period October 1, 2015 to September 30, 2016, and user entities applied the complementary user entity controls contemplated in the design of BlackRock’s controls throughout the period October 1, 2015 to September 30, 2016;
- c.) the controls tested, which together with the complementary user entity controls referred to in the scope paragraph of this report, if operating effectively, were those necessary to provide reasonable assurance that the control objectives stated in the Description of the System were achieved, operated effectively throughout the period October 1, 2015 to September 30, 2016.

Of the 140 controls tested by the auditor, 5 exceptions were identified:

- 1) **Page 76 – Control F.1.3** – For 1 of 40 securities selected for testing from a selection of Aladdin’s Surveillance Reports, DIG was unable to provide evidence of research and monitoring of missing data.

Management Response: Management confirmed that the exception related to delayed confirmation of an expected rating for a newly issued security. While evidence of continuous monitoring prior to resolution could not be provided for testing, the expected rating was correctly updated to Not Rated. Management noted that the exception identified had no impact to BlackRock-managed client accounts.

- 2) **Page 95 – P.1.2** – For 1 of 54 users with administrative access to the AutosysP job scheduler, D and T found that access was no longer authorised at the time of testing. Upon investigation, noted the administrative privileges were not updated upon the user’s transfer. Per inspection of the user’s account activity, D and T noted the user did not perform any administrative actions while the access was retained and further noted access for this user was remedied upon identification.

Management Response: Management confirmed that administrative access to the AutosysP job scheduler was retained following this user's transfer to a new team. Management confirmed that the user did not perform any actions with this administrative access and removed access upon identification of the issue.

- 3) **Page 98 – Q.1.3** – For 1 of 56 individuals across transfers and terminations selected for testing, noted the transfer notification was not sent timely. Additionally, as per the testing performed for control Q.1.10, for 1 of 52 users with administrative access to an in-scope database server and 1 of 314 users with administrative access to the BlackRock network, D and T found that transfer notifications were not sent timely.

Management Response: Management has re-emphasised the importance of the quality and timeliness of HR notifications and are pursuing further automation of the transfer notification process to avoid similar issues in the future.

- 4) **Page 99 – Q.1.6** – As per the testing performed for control Q.1.10, of 182 users with administrative access to an in-scope database server, D and T found that for 2 users who transferred during the audit period, access was not updated in accordance with policy.

Management Response: Management confirmed that administrative access was retained following the users' transfer. Management confirmed that the users did not perform any actions with this access, and removed access upon identification of the issue.

- 5) **Page 100 – Q.1.10** – For 5 separate users with access to IT systems (1 of 52 users with administrative access to an in-scope database server; 1 of 314 users with administrative access to the BlackRock network; and 3 of 182 users with administrative access to another in-scope database server), D and T found user access was no longer authorised at the time of testing. Upon investigation, noted in each instance the administrative privileges were not updated after the users' transfer. Per inspection of the users' activity, noted the users did not perform any administrative actions while the access was retained and further noted access for each of the users was remediated upon identification.

Management Response: Management confirmed that administrative access was retained following the users' transfer. The users did not perform any actions with this access, which was removed upon identification of the issue. In addition, Management has re-emphasised the importance of the quality and timeliness of HR notifications and are pursuing further automation of the transfer notification process to avoid similar issues in the future.

GMO

“Report On GMO’s Description of its Advisory Services System and on the Suitability of the Design and Operating Effectiveness of Controls” for the period October 1, 2015 to September 30, 2016

Auditors: PricewaterhouseCoopers LLP

In the auditor’s opinion, in all material respects:

- a.) the description fairly presents the Advisory Services System that was designed and implemented throughout the period October 1 2015 to September 30 2016;
- b.) the controls related to the control objectives of GMO stated in the description were suitably designed to provide reasonable assurance that the control objectives would be achieved if the controls operated effectively throughout the period October 1 2015 to September 30 2016 and user entities applied the complementary user entity controls contemplated in the design of GMO’s controls throughout the period October 1 2015 to September 30 2016;
- c.) the controls of GMO tested, which together with the complementary user entity controls referred to in the scope section of this report, if operating effectively, were those necessary to provide reasonable assurance that the control objectives stated in the description were achieved, operated effectively throughout the period October 1 2015 to September 30 2016.

Of the 147 controls tested by the auditor, 1 exception was identified:

- 1) **Page 58 – Control 2a** – Re US and UK operational controls for 1 of 40 client account update requests selected for testing, the client’s request was not processed timely. PwC selected 24 additional client account update requests and noted no additional exceptions.

Management Response: Management acknowledges the finding. Management has reinforced the importance of timely communication of client account changes to the Client Operations team for processing and performed additional training.

Oldfield Partners LLP

“AAF 01/06 Assurance Report on Internal Controls” for the period 1 July 2015 to 30 June 2016

Auditors: Deloitte LLP

In the auditor’s opinion, in all material respects:

- a.) the description on pages 10 to 38 fairly presents the control procedures of Oldfield Partners LLP’s investment management services that were designed and implemented throughout the period 1 July 2015 to 30 June 2016;
- b.) the controls related to the control objectives stated in the description on pages 10 to 38 were suitably designed to provide reasonable assurance that the specified control objectives would be achieved if the described controls operated effectively throughout the period 1 July 2015 to 30 June 2016; and
- c.) the controls that we tested were operating with sufficient effectiveness to provide reasonable assurance, that the related control objectives stated in the description were achieved throughout the period 1 July 2015 to 30 June 2016.

Of the 154 controls tested by the auditor, 1 exception was identified.

- 1) Page 31 – Control 7.2.4** – For a sample of 1 out of 2 new joiners there was no documented approval from Head of Operations for access to Eagle IAS.

Further investigation with Head of Operations revealed that it was appropriate for the new joiner to have access.

Pantheon

“Type II Report on Controls Placed in Operation Relating to Investment Advisory and Management Activities” for the period from 1 October, 2015 to 30 September, 2016

Auditors: KPMG LLP

In the auditor’s opinion, in all material respects:

- a.) the Description fairly presents the Investment Advisory and Management Activities system as designed and implemented throughout the period from 1 October 2015 to 30 September 2016;
- b.) the controls related to the control objectives stated in the Description were suitably designed throughout the period from 1 October 2015 to 30 September 2016; and

- c.) the controls tested, which were those necessary to provide reasonable assurance that the control objectives stated in the Description were achieved, operated effectively throughout the period from 1 October 2015 to 30 September 2016.

Of the 112 control objectives tested by the auditor, 1 exception was identified:

- 1) Page 50 – Control MF21** – For 1 of 25 samples selected, it was noted that the client fee calculation was not consistent with the relevant legal documentation.

Management Response: An error was discovered internally identifying an incorrect fee rebate calculation for a Client. Immediately on discovery the Client was contacted and the amount owing to them was repaid. A detailed review of our revenue processes, controls and calculations was carried out as a result. A report covering the issue and remedial actions was circulated by the CFO to the PB and to AMG. Management are comfortable with the investigation and remedial actions which include a higher level of review.

Record Currency Management Ltd

“Report on Internal Controls (AAF 01/06)” for the period 1 April, 2015 to 31 March, 2016.

Auditors: Grant Thornton UK LLP

The auditors confirmed that in all material aspects:

- a.) the accompanying report by the directors describes fairly the control procedures that relate to the control objectives referred to above which were in place as at 31 March 2016;
- b.) the control procedures described on pages 11 to 70 are suitably designed such that there is reasonable, but not absolute, assurance that the specified control objectives would have been achieved if the described control procedures were complied with satisfactorily; and
- c.) the control procedures that were tested, as set out in the body of this report, were operating with sufficient effectiveness for us to obtain reasonable, but not absolute, assurance that the related control objectives were achieved in the period 1 April 2015 to 31 March 2016.

Of the 146 controls tested by the auditor, 1 exception was identified.

- 1) **Page 65 – Control 3.1.6** – It was noted that in one instance write access was granted to more users than had a business need for such access and the spreadsheet formulae were not locked.

Corrective action has been taken by Management. Subsequent observation of user access confirmed that the relevant spreadsheet had been moved to a restricted area on the network and password protected.

Standard Life Investments

“Internal Controls Report” for 1 October 2014 to 30 September 2015

Auditors: PricewaterhouseCoopers LLP

In the Auditor’s opinion, in all material respects:

- a.) the description on pages 23 to 117 fairly presents the in-scope investment management services that were designed and implemented throughout the period from 1 October 2015 to 30 September 2016;
- b.) the controls related to the control objectives stated in the description were suitably designed to provide reasonable assurance that the specified control objectives would be achieved if the described controls operated effectively throughout the period from 1 October 2015 to 30 September 2016 and clients applied the complementary client controls referred to in the scope paragraph of this report; and
- c.) the controls tested which, together with the complementary client controls referred to in the scope paragraph of this report, if operating effectively, were those necessary to provide reasonable assurance that the control objectives stated in the description were achieved, operated effectively throughout the period from 1 October 2015 to 30 September 2016.

Of the 326 controls tested by the auditor, 11 exceptions were identified:

These exceptions and the management responses are included at the end of this appendix.

State Street Global Advisors

“Service Organisation Control Report” July 1, 2015 – June 30, 2016

Auditors: Ernst & Young LLP

In the auditor’s opinion, in all material respects:

- a.) the Description fairly presents SSGA’s Investment Advisory System Applicable to the Processing of Client Transactions that was designed and implemented throughout the period July 1, 2015 to June 30, 2016;
- b.) the controls related to the control objectives stated in the Description were suitably designed to provide reasonable assurance that the control objectives would be achieved if the controls operated effectively throughout the period July 1, 2015 to June 30,2016 and if user entities applied the complementary user entity controls contemplated in the design of SSGA’s controls and if State Street’s Information Technology and Global Security divisions applied the controls contemplated in the design of State Street’s controls throughout the period July 1, 2015 to June 30, 2016;
- c.) the controls of SSGA tested, which, together with the complementary user entity controls and States Street’s Information Technology and Global Security divisions’ controls referred to in the scope paragraph of this report if operating effectively, were those necessary to provide reasonable assurance that the control objectives stated in the Description were achieved, operated effectively throughout the period July 1, 2015 to June 30, 2016.

Of the 160 controls tested by the auditor, 3 exceptions were identified:

- 1) **Control 1.2** – Out of a combined sample of 88 new or amended funds/accounts, for 1 of 26 new or amended funds/accounts selected for testing in the UK, the English version of the contract used to update extraction forms included a reference to an incorrect regulatory requirement due to an inaccurate translation from the original contract which was identified and corrected by SSGA in advance of trading implementation.

Management Response: Management acknowledges that for 1 out of 26 new or amended fund/accounts serviced in the UK selected for testing included a reference to an incorrect regulatory requirement due to an inaccurate translation from the original contract which was identified and corrected in advance of trading implementation. Management has enhanced the process whereby translations of all non-English client account contracts will be outsourced to a third party firm.

- 2) **Control 12.1** – For 1 out of 40 new fee schedules selected for testing, the Fee Extraction Form was not prepared and therefore the new account was not set up on RMS.

Management Response: Management acknowledges that for 1 of 40 new fee schedules selected for testing, the Fee Extraction Form was not prepared and therefore the account was not set up on RMS. Management notes that the fee schedule for the new account was subsequently set up and reflected accurately in the RMS application. Management has reinforced with the appropriate personnel the requirement to review the mailbox at the end of each day to make sure that all new/amended accounts have been identified and processed by the billing team. The Fund Not Set Up compensating review control is in place to prevent significant errors and omissions (refer to control 12.2).

- 3) **Control 12.1** – For 2 out of 36 amended fee schedules selected for testing, the Fee Extraction Form was not prepared and reviewed and the amendment was not made on RMS.

Management Response: Management acknowledges that for 2 out of 36 amended fee schedules selected for testing, the Fee Extraction Form was not prepared and therefore the amended fee rates reflected on RMS were not updated. A further review of contract amendments back to the beginning of the year was performed to ensure no further executed amended contracts were missed. Through this review 1 additional item was found. Management notes that the fee schedules for the amended accounts were subsequently set up and reflected accurately in the RMS application. Management has reinforced with the appropriate personnel the requirement to review the mailbox at the end of each day to make sure that all new/amended accounts have been identified and processed by the billing team.

Aviva Investors

SECTION H: MANAGEMENT RESPONSES TO EXCEPTIONS NOTED

Control Reference	Control Description	Test of Control Procedures and exceptions noted
1.1.1.1	For new and amended IMAs, which includes the establishment and documentation of proxy voting responsibilities, the Client Services team co-ordinates the completion and approval of a checklist by all relevant departments, including reviews and approval by Legal and Compliance; and a regulatory sign-off by Client Services senior management prior to commencement of investing activity	<p>Reliance on Controls Assurance team For a sample of new and amended client accounts, inspected IMA execution sign-off checklists for evidence of approval by Client Services, Legal, and Compliance prior to commencement of investing activity.</p> <p>Exception noted For 1 out of 40 new IMAs and IMA amendments sampled, relevant department approval of the amendment occurred subsequent to execution.</p>
Management response	The importance of record keeping in respect of amendments to the IMA approvals process has been reinforced to the business. In addition, the Client Services team are working closely with colleagues around the business (including IT) to automate this process which will prevent any future process omissions. We expect this automated process to go-live in the first half of 2017.	
1.1.2.1	New and amended IMAs are signed by the client and Aviva Investors prior to initiating or implementing investment activity.	<p>Reliance on Controls Assurance team For a sample of new and amended client accounts, inspected IMA or IMA amendments for evidence that they were signed by individuals authorised on the client's authorised signatories listing prior to the commencement of investment activity.</p> <p>Exception noted For 1 out of 16 new IMAs and IMA amendments sampled, the client signatory was not on the authorised signatory list maintained by Aviva Investors.</p>
Management response	A follow-up investigation established this was an isolated incident which has since been fully remediated. The control procedure has been reviewed, deemed satisfactory and re-communicated to the business.	
4.1.1.3	Access to Aviva Investors offices Access Removal - When an employee is marked as a leaver within Workday by People Function, an automated notification is sent to the Property and Facilities team. On receipt of this notification the Property and Facilities team set the individual's physical access card to expire on the specified leave date.	<p>For the full population of terminated employees in the period, inspected evidence that each individual's physical access card had been disabled on the specified leave date.</p> <p>Exception noted For 6 out of the total population of 371 leavers in the period, access cards to the Aviva Investors offices were not disabled on the specified leave date.</p>
Management response	After further investigation, it was confirmed that the 6 identified leavers had not used their access cards after their leave date. Upon identification, the identified leavers' cards were subsequently disabled. A daily leaver notification is received from People Function and an expiry date is added. There is also a weekly report from People Function which is checked against the database to ensure leavers have been disabled and access removed, which detected the 6 leavers above.	
4.1.1.4	Access to Aviva Investors offices Automated Disabling - The Granta system is configured to disable physical access passes that have not been used for 30 days.	<p>Inspected evidence that the Granta system has been configured to automatically disable physical access passes which have not been used for 30 days.</p> <p>For the full population of physical access passes that had not been used for 30 or more days, inspected evidence in the Granta system that these had been automatically disabled.</p> <p>Exception noted Although the Granta application was configured to disable access cards to the Aviva Investors building if they were not used for 30 days, 60 out of 205 cards were found to still be active after they had not been used for more than 30 days.</p>
Management response	Auto disabling is set up on the system. This has been checked with the vendor and the application housekeeping time has been amended. The system in Poultry will be decommissioned in January 2017 when Aviva Investors relocate to St Helens. Access will then be managed on the UK wide system.	

Control Reference	Control Description	Test of Control Procedures and exceptions noted
4.1.2.3	<p>People Function raises leaver requests for permanent, fixed term contract and temporary staff within Teamworks. IT Security Administration is notified of the leaver request via an automated email and set the Windows AD account to expire within 24 hours of the specified leave date. Depending on the authentication mechanism in place for each application, either IT Security Administration or the application support team then revoke application access within 30 days post the specified leave date.</p> <p>Note: For the Aladdin application 3rd party Blackrock remove the application account on receipt of an approved request from IT Security Administration.</p>	<p>Inspected evidence that leavers' access to the Windows AD network had been revoked within 24 hours of the specified leave date and that access to the applications had been revoked 30 days post the specified leave date.</p> <p>Exception noted For 9 out of the total population of 371 leavers in the period, access to the network had not been revoked within 24 hours of the specified leave date. For 2 out of 371 leavers, access to the systems and applications was not revoked 30 days post the leave date.</p>
Management response	<p>Identified gaps have been remediated. The existing monthly Active Directory login inactivity detect control has been enhanced from reviewing inactivity of 90 days to 28 days to aid in identifying potential leavers. An awareness campaign is being developed to educate line managers on the importance of timely notification of leavers which is due for release in January 2017. An additional security administration resource has been on-boarded to enhance removal of leavers from all in scope applications beyond Active Directory, and develop additional detect controls where a leaver notification is not received.</p>	
4.1.2.4	<p>On a bi-annual basis, the Access Governance Team (AGT) re-certifies application, database and network accounts belonging to Aviva Investors users, including the re-certification of privileged access rights. Line managers are asked to approve each user's current level of access rights and system owners are asked to approve the appropriateness of system accounts. Requests for access revocations as a result of the review are sent to the Security Administration team and are actioned within 30 days.</p>	<p>For a sample of standard and privileged Aviva Investors users accounts on the in scope applications, databases and network domain, inspected that access had been reviewed bi-annually within the period.</p> <p>For a sample of resultant access revocation requests, inspected further evidence that users' access had been revoked within 30 days.</p> <p>Exception noted For one of the bi-annual reviews performed, the following exceptions were noted: - Members of the Windows Domain Administrators group were not reviewed; and - A user was not included within B-One recertification review.</p>
Management response	<p>Gaps identified have been remediated. Tactical enhancement has been made to logic and associated scripts used to extract users accounts for recertification to include groups identified through testing. Work is in progress to further enhance recertification including completeness testing and is due to be delivered in Q1 2017.</p>	
4.1.2.6	<p>An automated Splunk report is sent daily via email which identifies any laptop without the Safeguard encryption package. An Assyst ticket is raised to resolve the issue and ensure that the device is subject to Safeguard encryption.</p>	<p>Reliance on Controls Assurance team For a sample of days in the period, inspected evidence that the automated Splunk report showing laptops without the Safeguard encryption package had been generated and reviewed, and that Assyst tickets were raised to resolve issues.</p> <p>Exception noted For a sample of 5 out of 45 laptops identified without the Safeguard encryption package, Assyst tickets had not been raised to resolve the issue.</p>
Management response	<p>The laptops identified in the sample have been encrypted. Recent upgrades to our inventory reporting infrastructure have allowed us to automate the raising of the Assyst ticket, removing the manual and human effort, and also eradicate a number of false positives. This is planned to automate changes which will be fully implemented in December 2016.</p>	

Standard Life

The Service Auditor's tests have identified eleven exceptions. Responses from management in respect of exceptions noted by the Service Auditor in performing testing of Standard Life Investments Limited's controls are presented below to provide additional information to users of this report.

Management Responses to Exceptions Noted

Investment Management

1. Standard Life Investments Descriptions of Controls	Service Auditor's Tests specific to the exceptions noted
<p>3.5 & 14.3 Amendments, additions or deletions to investment restrictions that require a coding change to Thinkfolio are instructed by Fund Governance to the IRC (Investment Restrictions Control) Onboarding and Coding team to be actioned. Once complete, the IRC Onboarding and Coding team confirm with Fund Governance that all Thinkfolio coding changes have been processed.</p>	<p>Inspection For a sample of coding changes during the period, inspected evidence to demonstrate instruction of coding changes from Fund Governance to the IRC Onboarding and Coding team, with the IRC Onboarding and Coding team then confirming the changes had been applied.</p> <p>Exception Noted: For one out of 16 coding restriction changes sampled, no confirmation from the IRC Onboarding and Coding team was available to demonstrate that the coding change had been applied to Thinkfolio.</p>
Management response	
<p>Management note that this restriction change process is only relevant to one client and can confirm that the coding change was completed accurately at the time of the instruction. An email has been sent by IRC confirming this retrospectively, and there is system-based evidence which demonstrates the timeliness of the change. Management have also issued a communication to the Fund Governance team in November 2016 to reinforce the importance of obtaining email confirmation from IRC.</p>	

2. Standard Life Investments Descriptions of Controls	Service Auditor's Tests specific to the exceptions noted
<p>9.1 Corporate actions with decisions due within 3 days on eTRAN are monitored to ensure elections for that day are responded to within the system. An extract from eTRAN containing all Corporate Actions events is saved down and monitored on a daily basis with all Corporate Actions having both a maker and checker to ensure all events have been assessed, notifications have been sent to the front office and all comments are valid.</p>	<p>Inspections Observed that Corporate Actions, in relation to SLI funds, are monitored via the eTRAN system by the Global Investment Operation Services (GIOS) team.</p> <p>Inspection For a sample of corporate actions, inspected the evidence that the T+3 Due Today queue is monitored and signed off by separate individuals to ensure elections due for that day are responded to within the system and all comments are valid.</p> <p>Exception Noted: For three out of 20 days sampled, there was no evidence to demonstrate that all Corporate Action events from eTRAN had been subject to maker and checker review.</p>
Management response	
<p>Management can confirm that all checks were undertaken for the three days noted. eTRAN uses a system-enforced maker-checker process before notifications can be communicated. Management will ensure a reminder is issued to all team members of the requirement to evidence maker-checker review within the spreadsheet for audit trail purposes.</p>	
3. Standard Life Investments Descriptions of Controls	Service Auditor's Tests specific to the exceptions noted
<p>11.2 For pooled portfolio clients, all client instructions, for subscriptions and withdrawals, are received into the Global Dealing team to be processed in an accurate and timely manner. A processing checklist is used to evidence that appropriate process steps were carried out and that the instruction was reviewed in accordance with financial limits prior to processing on TAP.</p>	<p>Inspection For a sample of pooled fund client subscriptions and withdrawal transactions during the period, inspected evidence of completion of the processing checklist by the Global Dealing team and that the instruction was reviewed in accordance with financial limits prior to processing on TAP.</p> <p>Exception Noted: For one out of 25 client instructions for subscriptions and withdrawals sampled, there was no evidence of additional manager sign-off, as required per the financial limits.</p>
Management response	
<p>Management will ensure that a communication is delivered to the Global Dealing team, reinforcing the importance of complying with the internal transaction sign off authority procedures.</p>	

4. Standard Life Investments Descriptions of Controls	Service Auditor's Tests specific to the exceptions noted
<p>11.4 Twice a day, an automated reconciliation is run between STP and TAP systems, ensuring that all trades from the STP platform have been appropriately processed. Where exceptions occur, appropriate action is taken to ensure the trade is placed in a timely manner.</p>	<p>Inspection For a sample of days, inspected evidence that automated reconciliations were performed twice a day by the Global Dealing team to ensure that all STP trades had been correctly processed and any exceptions were followed up.</p> <p>Exception Noted: For one out of 20 daily reconciliations sampled, it was noted that the same member of the team prepared and subsequently reviewed the reconciliation.</p>
<p>Management response</p>	
<p>Management can confirm that additional automated controls are in place which ensure appropriate processing of STP trades.</p> <p>Management will ensure a communication is issued to the Global Dealing team, reinforcing the requirement for segregation of duties within the sign-off process for the daily reconciliation.</p>	

5. Standard Life Investments Descriptions of Controls	Service Auditor's Tests specific to the exceptions noted
<p>3.3 The outcome of lease events or variations to existing lease terms already in place are recorded on Tenancy Information forms prepared by the Portfolio Manager or Fund Manager. Where the fund's solicitors draft new leases, they prepare lease summary forms and send these to SLI. These forms are reviewed and signed off by the Portfolio Managers prior to the Property Management System being updated.</p> <p>10.2 Tenancy information forms are completed in relation to each rent review and these are authorised by Portfolio Managers prior to entry onto the Property Management System. Updated rent review details are entered by the System Admin team onto the Property Management System from rent review Tenancy Information forms in a timely manner. This data entry is reviewed by a second person within the team to ensure accuracy.</p>	<p>Inspection For a sample of new leases and lease amendments made during the period, inspected evidence of review and sign-off of tenancy information forms or lease summary forms by Portfolio Managers prior to entry onto the Property Management System.</p> <p>Inspections For a sample of rent reviews conducted during the period, inspected evidence that a Tenancy Information form or Lease Summary form was completed and authorised by Portfolio Managers, prior to entry onto the Property Management System.</p> <p>For the same sample, inspected evidence that the data entry was reviewed by a second person within the team to ensure accuracy.</p> <p>Exception Noted: For two out of 25 new leases and lease amendments sampled, there was no evidence of Portfolio Manager review and authorisation.</p>
<p>Management response</p>	
<p>Management can confirm that for the two instances highlighted, the Property Management System had been updated in a timely manner.</p> <p>Management will ensure a reminder is sent to the System Administration team of the importance of retaining evidence of Portfolio Manager review and authorisation.</p>	

6. Standard Life Investments Descriptions of Controls	Service Auditor's Tests specific to the exceptions noted
<p>14.1 On a monthly basis, the Real Estate Operations team produce the Fund Constraints reports for each fund and pass these to IRC in a timely manner. IRC then issue these to Fund Managers for review and feedback on any breaches of investment restrictions. Breaches are included in the Daily Activity log to ensure oversight by senior personnel.</p> <p>The IRC report is attached to all transactional approval memos and commentary included where there is an existing breach of an investment constraint or where the transaction would cause a breach.</p>	<p>Inspection</p> <p>For a sample of months, inspected evidence that the Fund Constraints reports were produced by Real Estate Operations team and passed to the IRC team in a timely manner.</p> <p>For the same sample, inspected evidence that IRC sent these to the relevant Fund Manager for review and that the Fund Manager commented on any breaches of investment restrictions.</p> <p>In addition, inspected that any breaches were added to the Daily Activity log and attached to any transactional approval memos.</p> <p>Exception Noted:</p> <p>For three of 17 in scope UK funds and months sampled, no evidence could be obtained to confirm that IRC had reviewed the Fund Constraints report and sent it to the relevant manager for review.</p>
<p>Management response</p>	
<p>Management can confirm that none of the three funds were in breach for the months highlighted and also that there were no property purchases or sales undertaken by those funds during those months.</p> <p>Management will ensure that a communication is issued to the Investment Restrictions Controls team, reinforcing the importance of ensuring emails of Fund Constraints reports to Fund Managers are issued from the team mailbox.</p>	

7. Standard Life Investments Descriptions of Controls	Service Auditor's Tests specific to the exceptions noted
<p>1.4 Emergency Access is granted via the Critical IT Sites process to the DC and Newbridge DC Machine Hall in instances when the access control system is down. Emergency badges are issued by Datacentre Security (DC), or Pulsant Security (NDC), where there is a valid change or incident record or where there is an emergency situation, which satisfies the Critical IT Sites process.</p>	<p>Enquiry Confirmed through enquiry of management that there were no instances of emergency access granted to the DC, George Street Communications Rooms or NDC during the period.</p> <p>Exception Noted: For one instance of emergency card use in December 2015, there was no documentation supporting the reason for emergency badge use or the access granted, normally demonstrated by a Service Now ticket.</p>
<p>Management response</p>	
<p>Management can confirm that this exception related to a card test and not to an authentic instance of Emergency Access. Management will ensure that, for future emergency badge tests, the Security Operations Manager will provide a documented reason for the test.</p>	

8. Standard Life Investments Descriptions of Controls

Service Auditor's Tests specific to the exceptions noted

2.6 On a weekly basis, privileged access to CRIMS is reviewed for appropriateness by the Global Investment Management Services (GIMS) team. Any inappropriate access is removed on a timely basis.

From 1 Oct 15 to 30 Jun 16

For Heritage Ignis, users' account level access to the network and key applications is recertified on at least an annual basis by line managers. Any inappropriate access is removed on a timely basis.

From 1 Jul 16 to 30 Sept 16

On a weekly basis, privileged access to ThinkFolio is reviewed for appropriateness by the GIMS team. Any inappropriate access is removed on a timely basis.

Inspection

For a sample of weeks, inspected evidence that the privileged access to CRIMS was reviewed for appropriateness by the GIMS team and that any inappropriate access was removed on a timely basis.

Enquiry

From 1 Oct 15 to 30 Jun 16

Confirmed through enquiry of management that the annual recertification exercise for Heritage Ignis applications was scheduled for the latter half of the year, in line with historic timings.

Inspection

From 1 Jul 16 to 30 Sep 16

For a sample of weeks, inspected evidence that privileged access to Thinkfolio was reviewed for appropriateness by the GIMS team and that any inappropriate access was removed on a timely basis.

Exception Noted:

For six of the 20 weekly reviews sampled, there was no evidence that privileged access to CRIMS had been reviewed for appropriateness in a timely manner.

Management response

Management can confirm that changes to privileged access in CRIMS are rare (e.g. only four additions during 2016) and requires the authorisation of the Global Trading Systems Manager in each case. Management can also confirm that, for the periods covered by the six weeks in question, there were no changes to privileged access and there were also no instances of inappropriate access during the report period. Management will ensure that the GIMS team add an additional weekly check to ensure the report is logged and reviewed in a timely manner.

9. Standard Life Investments Descriptions of Controls	Service Auditor's Tests specific to the exceptions noted
<p>2.7 The access rights of leavers to the network are automatically disabled according to the leaving dates as recorded in the HR Management System. Accounts are then automatically deleted 42 days after disablement.</p> <p>For the network and key applications, leavers' access rights are disabled or removed by the Business Application Management Systems Administration teams in a timely manner following notification from HR or the business.</p>	<p>Observation Observed that access rights of leavers to the network are automatically disabled according to the leaving dates as recorded in the HR Management System.</p> <p>Enquiry Confirmed through enquiry of management that disabled accounts were automatically deleted 42 days after disablement.</p> <p>Inspection For a sample of leavers during the period, inspected evidence that the leaver's access to the network and key applications was disabled or deleted in a timely manner..</p> <p>Exception Noted: For two out of the 25 leavers sampled, there was no confirmation received from the relevant business area that user access rights to the applicable systems either did not exist or had been removed from the systems.</p>
<p>Management response</p>	
<p>Management can confirm that network access has been revoked as required in both cases. A communication was issued in October 2016 to the relevant business area to reinforce the importance of issuing a timely email response.</p>	

10. Standard Life Investments Descriptions of Controls	Service Auditor's Tests specific to the exceptions noted
<p>2.9 On a monthly basis Operations IT (OIT) review Windows privileged user activities on a sample basis to detect any unauthorised additions, deletions and modifications of user accounts. In addition, on a daily basis, OIT also complete a review of activities in key business restricted drives.</p> <p>Database access rights are reviewed for appropriateness by the Investments Technology team on a biannual basis.</p>	<p>Inspections</p> <p>For a sample of months, inspected the privileged user activities review completed by OIT to detect any unauthorised additions, deletion and modifications of user accounts.</p> <p>For a sample of days, inspected evidence that daily activities in key business restricted drives were reviewed by OIT.</p> <p>For a sample of biannual reviews, inspected evidence that users with access to amend production data were reviewed for appropriateness by the Investments Technology team during the period, with any inappropriate access being removed on a timely basis.</p> <p>Exception Noted:</p> <p>For one of the 20 daily reports sampled, no report could be obtained to evidence that activities in key business restricted drives had been reviewed.</p>
<p>Management response</p>	
<p>Management can confirm that the exception was caused by an isolated incident which was immediately addressed. Management can also confirm that regular testing of privileged user access to restricted drive events has taken place over a number of years and there have been no instances of inappropriate access recorded. No further action is proposed.</p>	

11. Standard Life Investments Descriptions of Controls	Service Auditor's Tests specific to the exceptions noted
<p>1.2 All critical servers, network equipment (firewalls, routers, switches) and backup media are located in the primary DC.</p> <p>On a quarterly basis, permanent access granted (open access) to these areas is reviewed and updated as required by the Security and Data Centre teams.</p>	<p>Observation Observed that critical servers, network equipment (firewalls, routers, switches) and backup media were located in the Communications Room at Bothwell Street.</p> <p>Enquiry Confirmed through enquiry of management that the Security and Data Centre team reviewed the open access lists to ensure that only authorised individuals have access, with action taken to update as required.</p> <p>Exception Noted: For the one quarter sampled, no documentation could be provided to evidence that the review of permanent access had taken place.</p>
Management response	
<p>This facility ceased operation on 24 June 2016. Management can confirm that controls in respect of all Ignis-related applications moved into the SLI control environment from 07 December 2015 and that information is available to evidence the performance of these controls to date.</p>	

Table showing number of controls tested by each manager and the number of exceptions as reported to Committee in 2015, 2016 and 2017

Fund Manager	Control Objectives Tested	Number of Exceptions	Control Objectives Tested	Number of Exceptions	Control Objectives Tested	Number of Exceptions
	2015 Report	2015 Report	2016 Report	2016 Report	2017 Report	2017 Report
Aviva	177	7	171	8	262	7
BlackRock	138	2	137	4	140	5
GMO	200	1	159	2	147	1
Insight	133	5	133	5	n/a	n/a
Longview	92	0	92	0	n/a	n/a
Oldfields	149	3	153	0	154	1
Pantheon	103	1	107	0	112	1
Record	138	0	137	0	146	1
Standard Life	232	4	334	7	326	11
State Street	156	3	165	4	160	3