Post-mortem report on T2S Incident 200525-T2SO-270812

Introduction

This presentation aims at providing an overview of the incident occurred during the NTS phase of 25th May 2020, which has caused negative positions and balances as well as missing and incorrect settlement confirmations for some instructions subject to partial settlement.

A description of the root cause of the incident and its main impacts, as well as the actions taken to solve the issue is provided.

A recap of the ongoing actions, including the follow-up measures to prevent reoccurrence and to improve the existing operational procedures, completes the presentation.

Root cause

- **C1S4 abnormal termination→** exceptional volumes requiring the allotment of additional memory to the Mathematical Optimisation Module (MOM) algorithm;

- **C2SX long duration and requested termination→** abnormal volumes to be processed by the MOM algorithm in combination with an exceptionally high concentration of transactions on a few positions (almost 70,000 transactions debiting the same CMB) contributed to the long duration occurred in the algorithms. For this reason the MOM algorithm was stopped and the NTS Gross algorithm was launched;

- **NTS Gross algorithms abnormal termination→** Gross algorithm abended due to number of "Indirect Use of Restrictions" > 250 generating a memory breach;

Main impacts of the incident

Negative positions

- Settlement attempts in NTS and in RTS took place based on cash balances and securities positions that were not up to date, resulting in instructions settling based on outdated cash balances/security positions.

- Following the correction of the inconsistencies detected between posting and positions/balances, this led in a number of cases to a negative value.

Non-generated or incorrect settlement notification messages - 1

As a consequence of the non-updated securities positions, instructions were not updated to reflect the partial settlement occurred, and outgoing sese.025 messages related to partially settled Settlement Instructions were either not generated or incorrect.

Non-generated sese.025 messages

- Intermediate partial settlements occurring during C2SX were not notified to customers through the subscribed sese.025 messages.

Sese.025s featuring incorrect information

- As a consequence of the missing information in the system on the impacted business cases, any further A2A messages sent for these instructions afterwards contained incorrect information in some specific fields.
  - *PreviouslySettledQuantity*
  - *PreviouslySettledAmount*
  - *RemainingToBeSettledQuantity*
  - *RemainingToBeSettledAmount*

ACTIONS AND FOLLOW-UP MEASURES

Follow-up

Correction of the root cause

- PBI000000209310: Excessive duration of the first algorithm during C2SX sequence (loop condition)
- PBI000000209312: 2nd algorithm during C2SX to correctly handle more than 250 Indirect Use of Restriction (origin of the abend)

    Deployment in EAC/UTEST : 26/06   Deployment in PROD : 03/07

- PBI000000209311: management of the Algorithm time limit which did not stop during the incident

    Deployment date not yet available.

    A workaround in case of reoccurrence is already in place

Improve the communication provided during the crisis and in the aftermath of the incident

Enhancement of the tools to detect potential consequences of the interventions necessary to solve the incident (i.e. negative positions)