



# Global Credit Products Technology SPV Reporting Tool

**A Major Qualifying Project Report**

Submitted to the Faculty of  
WORCESTER POLYTECHNIC INSTITUTE  
In partial fulfillment of the requirements for the  
Degree of Bachelor of Science

**Submitted on**  
Friday, December 18, 2009

Project Sponsor: **Bank of America – Merrill Lynch**

**Submitted to:**

On-Site Liaisons: **Scott Burton**, (*MANAGING DIR; EXEC-CAPMKT TECHNOLOGY TRANSITION*)  
**Chris Rice**, (*PRINCIPAL; SR ARCHITECT CAPMKT TECHNOLOGY TRANSITION*)  
**Shavara Srabian**, (*AVP; BUSINESS SUPPORT LEAD III TECHNOLOGY TRANSITION*)

Project Advisors: **Prof. Jon Abraham**, Department of Mathematics, WPI  
**Prof. Dan Dougherty**, Department of Computer Science, WPI  
**Prof. Arthur Gerstenfeld**, Department of Management, WPI

**Submitted by:**

**Jenny Encarnacion**, Actuarial Mathematics

**Ekaterina Ratcheva**, Computer Science

## **Abstract**

Bank of America is currently working with a type of exotic trade called a special purpose vehicle (SPV). In order to control and classify the SPV trades' data, the Credit traders have requested the creation of daily reports which are currently produced manually. The goal of this project was to improve the reporting of SPV trades by developing a SPV Reporting Tool to automate the current daily procedure. The development of a Visual Basic Application along with the creation of an internal SharePoint site allows each member of the Global Credit Products Technology team to be able to view and analyze the SPV trades' data more efficiently. In addition, this automated process enhances data views, optimizes data analysis, reduces chances of errors and improves overall performance.

## **Acknowledgements**

We would like to thank Chris Rice and Shavara Srabian at Bank of America for their help and support throughout the completion of the project. We would also like to thank Professors Jon Abraham, Dan Dougherty, and Arthur Gerstenfeld for comments and suggestions offered while we developed and completed this project. We are thankful to all members of the Global Credit Products Technology group who helped us in the process of developing the SPV Reporting Tool. Finally, we would like to thank Bank of America for the resources they have provided us to make this project a success.

## **Authorship**

The development of the SPV Reporting Tool and written work on the report were created with equal contributions from Jenny Encarnacion and Ekaterina Ratcheva.

## Table of Contents

Abstract .....	ii
Acknowledgements.....	iii
Authorship .....	iv
List of Figures .....	vii
List of Tables .....	viii
Executive Summary.....	ix
1. Introduction .....	11
2. Background .....	13
2.1. Special Purpose Vehicle (SPV) .....	13
2.2. Bank of America and SPVs.....	15
2.3. SPV Reporting.....	15
2.3.1. Golden Copy .....	16
2.3.2. Trigger Reports.....	17
2.3.3. Error Reports .....	19
2.4. Collateral Trigger Database Application.....	20
2.4.1. Technical Infrastructure .....	20
2.4.2. Applications of the Collateral Trigger Database.....	22
2.4.3. Use of the Collateral Trigger Database .....	23
3. Business Problem .....	24
4. Methodology/Technical Design .....	25
<i>Infrastructure of the SPV Reporting Tool .....</i>	<i>25</i>
<i>Export to Microsoft Excel .....</i>	<i>26</i>
<i>Golden Copy Data Mappings .....</i>	<i>27</i>
<i>Trigger and Error reports data mappings using the SPV Reporting Tool .....</i>	<i>28</i>
<i>HTML output of the Trigger and Error reports using the backend of the SPV Collateral Database Application .....</i>	<i>30</i>
<i>Button for generating the SPV Reporting Tool from SharePoint site .....</i>	<i>30</i>
<i>Compatibility with Internet Explorer versions.....</i>	<i>31</i>
<i>Compatibility with Microsoft Excel versions .....</i>	<i>32</i>
<i>Additional Enhancements to the SPV Reporting Tool .....</i>	<i>34</i>
5. Results.....	38

<i>Export to Microsoft Excel</i> .....	38
<i>Golden Copy Data Mappings</i> .....	41
<i>Dashboard for Trigger and Error reports using the Excel reporting tool</i> .....	44
<i>HTML output of the Trigger and Error reports using the backend of the SPV Collateral Database Application</i> .....	46
<i>Button for generating the SPV Reporting Tool from the SharePoint site</i> .....	47
<i>Additional Enhancements to the SPV Reporting Tool</i> .....	51
6. Recommendations .....	55
6.1. Maintenance of the SPV reporting tools.....	55
6.2. Implementation of a higher performance tool .....	55
6.3. Dashboard on an internal Wiki Page for Trigger and Error summary reports .....	56
7. Conclusion.....	58
References .....	59
Appendix A. Technical Design Requirements .....	61
Appendix B. Visual Basic Code Supplement.....	66
Appendix C. Expansion of the financial transactions with an SPV .....	138
Appendix D. SPV Reporting Tool – User Guide .....	142

## List of Figures

Figure 1: Collateral Trigger Database Application .....	21
Figure 2: SPV Reporting Tool infrastructure. ....	25
Figure 3: Export to Microsoft Excel procedure. ....	27
Figure 4: Golden Copy report data mappings procedure. ....	28
Figure 5: Trigger and Error reports data mappings procedure.....	29
Figure 6: SPV Reporting Tool SharePoint site infrastructure.....	31
Figure 7: SPV Reporting Tool compatibility with MS Excel 2003 .....	33
Figure 8: Golden Copy report content. ....	35
Figure 9: Trigger and Error reports content.....	36
Figure 10: SPV Reporting Tool .....	38
Figure 11: Output HTML reports at location on the Aurora server. ....	39
Figure 12: Golden Copy Control tab with Calendar Application.....	40
Figure 13: Notification pop-up window.....	41
Figure 14: Golden Copy report production (Part1).....	41
Figure 15: Golden Copy report production (Part2).....	42
Figure 16: Golden Copy report production (Part3).....	42
Figure 17: Golden Copy report production (Part4).....	43
Figure 18: Golden Copy report production (Part5).....	43
Figure 19: Trigger Report production (Part1). ....	44
Figure 20: Trigger Report production (Part2). ....	45
Figure 21: Error report production. ....	45
Figure 22: HTML output email content.....	46
Figure 23: SharePoint HOME page.....	47
Figure 24: SharePoint Home Page 2 .....	48
Figure 25: Golden Copy workspace and button feature.....	48
Figure 26: Golden Copy workspace 2.....	49
Figure 27: Trigger and Error reports Workspace and button feature. ....	49
Figure 28: Trigger and Error reports workspace 2 .....	50
Figure 29: Matured tab production. ....	51
Figure 30: Summary tab production. ....	52
Figure 31: Maturity Warning production.....	53
Figure 32: Error Log Workspace and Office Web Part feature. ....	54
Figure 33 SPV structure.....	138
Figure 34 General Credit Default Swap structure.....	140
Figure 35 General Asset Swap structure.....	141

**List of Tables**

Table 1: *Trigger Scenarios: This diagram displays the Trigger scenarios when changes in Collateral and Swap PV occur. If the first three fields are true then the listed status will be the output. Items are not triggered unless the value ranges are below 25% .....* 18



## Executive Summary

Bank of America is a dynamic company that uses numerous products in various marketplaces. More specifically, the Global Credit Products Technology group is currently working with a type of exotic trade called a special purpose vehicle (SPV). Bank of America profits from working with SPVs on numerous levels. They generate income by first establishing the SPV for the company and then by maintaining and trading with it. In order to control and classify the SPV trades' data, the Credit traders have requested the creation of daily reports. Thus, the Global Credit Products Technology group seeks to enhance the reporting related to the SPV trades in order to automate the current daily reporting procedures.

A Collateral Trigger Database application was created to help the Credit traders monitor the collateral values in the event that the collateral price/rating hits the defined threshold. Also, Credit Risk Managers must ensure that the risk is properly identified in each case and requires SPV trade data for systematic calculations.

The Collateral Trigger application produces daily reports called Trigger reports, which include all triggered trades for various regions. However, the Credit traders do not need all of the data from these reports. Thus, they requested additional reports based on the data from the Trigger reports. The current daily reporting procedure is a manual process which requires copying and pasting a large amount of data into different MS Excel locations and formats. This method increases the chance of errors occurring in the production of the desired reports. In addition, reports with triggered and error trades are sent through email daily which is inefficient for user analyses.

The goal of this project was to automate the daily reporting procedures related to the SPV trades. To improve the current manual process, a reporting tool was developed called the SPV Reporting Tool. A Visual Basic Application macro within Microsoft Excel was used to create the reporting tool. With limited user input, the macro automatically accesses six different reports through Internet Explorer and imports the data into Excel. Once the data is centralized into an Excel spreadsheet, several additional macros generate the desired output reports.

To make the SPV Reporting Tool accessible to all members of the team, a button feature on an internal SharePoint site was developed. The button feature was embedded into the Page Viewer Web Part and all users were granted with “read only” permissions to ensure security while accessing the reporting tool.

The SPV Reporting Tool allows the Global Credit Products group to view and use the SPV valuation data sets more efficiently. By developing this tool, each member of the Global Credits Trading Solution group and Credit Risk Management team is able to view the data and make analyses without spending time manipulating the data and gathering the information manually. The automated procedure improves the performance by saving a significant amount of time, optimizes data analyzes, and reduces the chance of human error when compared with its manual process.

## 1. Introduction

The Global Credit Products Technology group is currently working with a type of exotic trade called a special purpose vehicle (SPV). Bank of America profits from working with SPVs on numerous levels. They generate income by first establishing the SPV for the company and then by maintaining and trading with it.

A Collateral Trigger Database application was created to help the Credit traders monitor the collateral values in the event that the collateral price/rating<sup>1</sup> hits the defined threshold as well as other standards (See Background section for further details). Also, Credit Risk Managers must ensure that the risk is properly identified in each case and requires SPV trade data for systematic calculations. However, Credit traders do not need all of the data from the Collateral Trigger Application. Thus, a more relevant report needs to be created called the Golden Copy (See Background section for further details). In addition, the Collateral Trigger application generates daily emails with the triggered and error trades. This process is inefficient for user analyses. Thus, enhanced data views need to be provided for optimized analyzes.

The goal of this project was to automate the production of the Golden Copy report and create better data views of the trigger and error summary reports (See Background section for further details). To accomplish this goal a SPV Reporting Tool was developed. This reporting tool eliminates the process of the user accessing multiple data sources while creating the reports. This in turn saves time and reduces the chance of human errors. By creating enhanced

---

<sup>1</sup> Collateral is an asset or assets offered by a borrower in order to produce a loan. Collateral could be any asset which takes the form of personal property, investment securities, or real estates, the values of each can be readily determined.

data views of the trigger and error summary reports, users no longer have to spend time sorting through inefficient emails that contain poor data formats or risk obtaining the incorrect information. Access to the reporting tool was placed on an internal SharePoint site to enhance information sharing within the Bank.

To improve the reporting procedure, a Visual Basic reporting tool was developed to meet the needs of the Global Credit Products Technology group. A Visual Basic Application macro within Microsoft Excel was used to create the reporting tool. With limited user input, the macro automatically accesses six different reports through Internet Explorer and imports the data into Excel. Once the data is centralized into an Excel spreadsheet, several macros generate the desired output reports.

By creating this tool along with providing enhancements to the existing Collateral Trigger application, each member of Global Credits Trading Solution group and Credit Risk Management team is able to view the data and make analyses without spending time manipulating the data and gathering the information. More specifically, the SPV Reporting Tool significantly reduces the amount of human errors and improves performance when compared to its manual process.

## 2. Background

### 2.1. Special Purpose Vehicle (SPV)

Bank of America is a dynamic company that utilizes numerous products in various marketplaces. An example of this is their involvement with a type of exotic trade called a special purpose vehicle (SPV). Also known as a special purpose entity, these trades are unique in their structure and development (Investopedia). The bank has succeeded in making profits by entering this trade market, however, since they are complicated products, there is a large monitoring structure around them. In order to remain profitable and prevent miscalculations with these products, Bank of America needs to have a constant and comprehensive reporting structure in place.

A special purpose vehicle (SPV) is a subsidiary company that has its own legal entity and therefore can enter into financial transactions (Investopedia). While it is a subsidiary company, the SPV does not have a physical location, management or employees. Its actions are directly controlled by the parent company even though they have separate financial reporting sheets and company ratings. Overall, the SPV is simply a “dummy” company for the parent company to function through (Gorton, 2005). The main reason that SPVs exist is to be used as counterparty for swaps and other derivative transactions (The Basel Committee on Banking Supervision, 2009).

A company benefits from creating an SPV because it allows them to isolate their risk externally. In the event that the parent company goes bankrupt, the SPV will still be able to meet its obligations because it is an individual legal entity (Investopedia). Therefore, SPVs are

known as being bankruptcy-remote (The Basel Committee on Banking Supervision, 2009). This characteristic is very appealing to the financial bodies that may enter into a trade with an SPV. If the parent company collapses, those who are financially tied to the SPV will be secured in their trade transactions.

In addition, because the SPV and the parent company have separate financial reports than that of its parent company, debt and negative assets of the parent company will not appear in the SPVs balance sheets. Since the SPV was just created, it has no negative attributes. This is a positive element because the SPV is now seen as a low risk and high rated entity (Wharton School of the University of Pennsylvania, 2006). Based on these characteristics, companies establish SPVs to take advantage of its higher rating and lower risk.

An SPV is created for the sole purpose of completing defined transactions as stated by the parent company. They serve no other purpose and do not have any other capabilities (Gorton, 2005). For example, Company A needs financing and decides to issue a bond. Based on their profile and debt, they are low rated. In order to issues higher rated bonds, Company A can create an SPV which has no debt to its name and is considered a high rated issuer of bonds. Each transaction with an outside party goes through the SPV and then to Company A.

While there are some start-up costs to establish and SPV, many times the benefits outweigh this cost (Gorton, 2005). In the end, the parent company receives better financing options and the investor receives a more secured investment with generally higher returns (Wharton School of the University of Pennsylvania, 2006).

## **2.2. Bank of America and SPVs**

Bank of America profits from working with SPVs on numerous levels. Bank of America helps companies first create a SPV and generates income through this process. In addition, Bank of America is selling bonds for the SPV and this service also generates income.

Once the SPV is created, it sells credit default protection to Bank of America in order to provide additional returns to the investor. This service agreement between the SPV and Bank of America is called a credit default swap (CDS) (Bank of America - Merrill Lynch, 2009). A CDS works like insurance in that it agrees to pay the insured in the case of a default in exchange for an annuity of premium payments (The New York Times). In this specific transaction, Bank of America is paying premiums in exchange for protection in the event of a specific credit default. If the item does default, the investing company will want to buy the protection that Bank of America owns. While it's true that not every bond will default and the premiums will be seen as a loss, by pooling together this risk, the bank is able to make a profit. Currently Bank of America is engaged in approximately 1000 trades with the right to issue 70 more recently granted. Bank of America is able to purchase the protection it needs from the SPV. (For more information, refer to Appendix C)

## **2.3. SPV Reporting**

SPVs are very complex instruments. They control many different financial tools that need to be monitored on many different levels (Bank of America - Merill Lynch, 2009). A way of making sure that the SPV can back the bonds they are issuing is to have a minimum standard of

collateral for each valued swap. Collateral can be any valued item such as a bond, cash, or a syndicated loan. Furthermore, more than one type of collateral can be used to back a swap.

In order to analyze the data fluidly, normalization of the data needs to occur. For example, these trades are reported in different currencies. Unless they are all displayed in one currency rate, it is difficult for traders to make intuitive observations and analyses. Also, as the data that compiles these reports are from multiple data sources, many times there is an error in the original data program. This in turn reports an error in the Collateral Trigger Application.

### **2.3.1. Golden Copy**

In order to normalize and organize the SPV trade data, the Credit traders have requested the creation of a Golden Copy report daily. The Golden Copy is a subset of the data displayed in the Collateral Trigger Application with additional fields that help the data to be compared at the same standards. The Collateral Trigger Application outputs three reports daily and in the Golden Copy they are joined.

There are three trigger reports created because they separate the SPV trades based on where the trade transaction occurred. If an SPV trade was established by a trader that sits at a desk under the Asia Flow group, those trade details will be reported in the ASIA report. The same is true for trades originating from the EMEA Flow group being reported in the EMEA report and the Global Sct group being reported in the GLOBAL report.

The Golden Copy rectifies the unaligned trade information so that Credit traders can easily see all of the SPV trades of a certain date for all regions at once. Additionally, the format of the Golden Copy is necessary because the data enters into other systems for analyses and without the proper format, misreporting can occur.



### 2.3.2. Trigger Reports

It is important that the bank monitors the collateral and verify that it is constantly meeting its minimum standard values. As long as the value of the items meet the agreed upon minimum, then the swap transaction can continue. However, if the collateral loses value, the SPV will need to contribute more collateral to meet the minimum standard. Because there are different forms of collateral that change in different ways, there needs to be a monitoring system to check the Mark to Market value of the collateral daily. It would be ideal for the outside custodian who is holding the collateral to report the changing values daily; however that is not a reliable option. Therefore, Bank of America needs to create its own reporting tool to monitor the changing values of the collateral and the swaps (Bank of America - Merrill Lynch, 2009).

In order to monitor the collateral and make sure that it retains its value, a Collateral Trigger Application was created to report on the swaps that need additional collateral. This report is called the Trigger report and is a daily summary of each swap and its collateral. It's necessary that the report is created daily because the product's value changes daily.

In each report, the swap and collateral value are listed and each item that needs additional collateral is highlighted in red and marked as "Triggered". Items can be triggered based on the collateral relative to swap (CRVS) value, collateral price, or collateral rating. The CRVS field monitors the value of the collateral at the deal level against the value of the swap at the deal level. The percentage reported shows how much value the item has retained since the deal transaction. The collateral amount has to meet a certain percentage value of the swap and if this does not occur, it will report a trigger. The percentage difference between the collateral

value at the deal level and the swap value at the deal level must be above 25% according to the deal contract. If the percentage falls below 25%, then the item is triggered and additional collateral needs to be presented. Similarly a collateral price trigger may occur. This is the event that the value of the collateral alone has fallen below 50% of its value at the deal level (Bank of America - Merrill Lynch, 2009).

Lastly, a collateral rating trigger may occur. This is the event that the rating of the collateral falls beneath the minimum level. Bond ratings are retrieved from Standard & Poor's, Moody's and Fitch credit rating agencies. If a rating from even one of these agencies falls below the standard requirement, the item will need to be supported with different collateral. Based on contract agreements, collateral that is low rated is not as secure and is too risky for these transaction purposes. Once the trades have been triggered, it is the job of the Credit Traders to retrieve additional collateral. Table A below summarizes the various Trigger scenarios (Bank of America - Merrill Lynch, 2009).

Collateral	Swap PV	CRVS (Collateral – Swap PV)	Status
Increased Value	Increased Value	Above 25%	OK
Increased Value	Same Value	Above 25%	OK
Increased Value	Decreased Value	Above 25%	OK
Same Value	Increased Value	Below 25%	<b>Triggered</b>
Same Value	Decreased Value	Above 25%	OK
Same Value	Same Value	Above 25%	OK
Decreased Value	Same Value	Below 25%	<b>Triggered</b>
Decreased Value	Decreased Value	Above 25%	<b>Triggered</b>
Decreased Value	Increased Value	Below 25%	<b>Triggered</b>

*Table 1: Trigger Scenarios: This diagram displays the Trigger scenarios when changes in Collateral and Swap PV occur. If the first three fields are true then the listed status will be the output. Items are not triggered unless the value ranges are below 25%*

### **2.3.3. Error Reports**

The Collateral Trigger Application pulls from multiple data sources in order to produce the Trigger report. A challenge in this process is that data can be entered incorrectly in the main data sources which result in the Trigger report being unable to post the necessary information. This is an example of an error occurring in the Trigger report. Errors can occur due to market data, collateral prices or trade present value (Bank of America - Merrill Lynch, 2009). A market data error occurs when the Trigger report is unable to download the Standard & Poor's, Moody's or Fitch ratings from an internal database called REALM. A collateral price error occurs when there is an error downloading the price of the collateral. A trade present value error occurs when the trade present value could not be calculated. If any of these errors occur, the status is flagged as "Error" and the field causing the error is highlighted in pink. Once errors are identified, the day to day reporters and custodians of the Trigger report will need to investigate the error to find the root cause of it and fix it.

## 2.4. Collateral Trigger Database Application

A Collateral Trigger Database application was created to help the Credit traders monitor which trades are not meeting certain minimum value requirements and need to post more collateral. The following section contains details about the technical infrastructure, applications and uses of the application.

### 2.4.1. Technical Infrastructure

**ODR:** On Demand Risk contains a ReportServer which accepts trigger report requests, evaluates identified triggers, and creates a report result that is emailed to individuals identified on a defined notification list.

**Aurora Web Tools:** A subset of the Aurora Web Tools JavaServer Pages facilitates the creation and definition of trigger reports that are consumable by the ODR ReportServer

**GDA:** The Global Derivative Analytics is the pricing and risk management resource and contains analytics functionality relevant to the rates, credit, commodities and equity derivatives businesses. (Bank of America - Merrill Lynch, 2009)

The ODR trigger service is comprised of two distinct components. Reports and triggers are defined using the Aurora Web Tool. Triggers are checked and a trigger report result is generated from the ODR ReportServer trigger component. Once a trigger report is defined, the Aurora trigger report system generates a report configuration file that is consumable by the ODR ReportServer. All required details including trade or instrument ID's, data sources, and notification lists are included in the generated configuration file.

A scheduled batch process sends the report configurations as requests to be processed by the ODR ReportServer via an identified ODR instance. The ODR ReportServer then utilizes

the ODR stack to retrieve the appropriate static and market data in order to compare against defined trigger values. Once all triggers are evaluated, the ODR ReportServer generates a HTML report which is emailed along with a report summary to individuals listed in the defined email notification list.

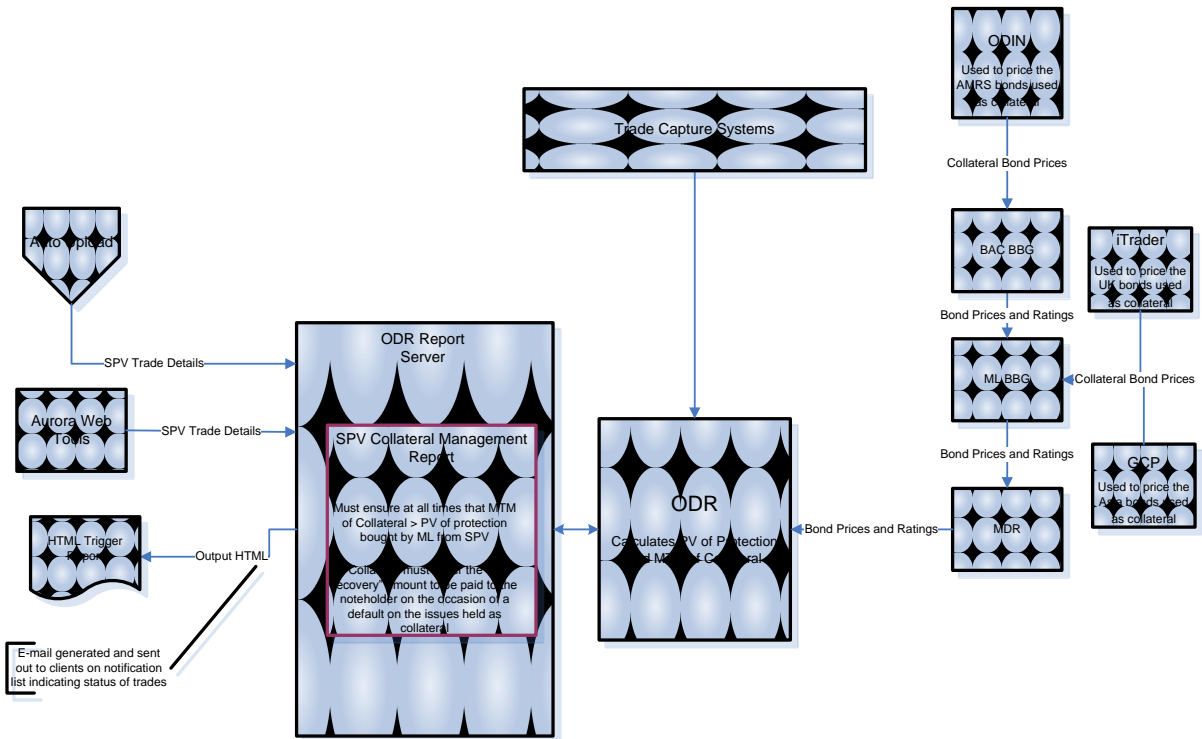


Figure 1: Collateral Trigger Database Application

- ❖ The Collateral Trigger Application contains reports for the following regions (Bank of America - Merrill Lynch, 2009):
  - CREDIT\_FLOW\_ASIA – ASIA credit sales and trading
  - CREDIT\_FLOW\_EMEA – EMEA credit sales and trading
  - CREDIT\_FLOW\_GLOBAL – GLOBAL credit sales and trading
- ❖ Properties of the current ODR trigger report result include:

- For each trigger instrument, the definition and status of all available trigger types are listed
  - User cannot configure report contents or layout (i.e. add additional data, column order)
- ❖ Existing report layout includes:
- Overall status of each trigger set (ratings, spread, price, PV) per trigger instrument
  - Listing of all trigger definitions (ratings, spread, price PV), whether they are defined or not
  - Trigger trade list (Description, SPV, Cpty, Instrument, Tenor/Maturity)
  - User defined trigger values (ratings, spread, price, PV)

#### 2.4.2. Applications of the Collateral Trigger Database

Within their daily responsibilities, the Credit Trading Solution group and Credit Risk Management need to achieve the following tasks (Bank of America - Merrill Lynch, 2009):

- ❖ Monitoring Potential Technical Default of the Structured Note:
- Desk needs to monitor the difference relative valuation between the underlying collateral MTM and the PV of the Swap.
  - Collateral monitored counts typically 1 or 2 bonds; therefore the marked-to-market collateral value is the sum of each bonds position MTM.
  - The Swap's PV is taken out of VMaster, ORCA or Aurora, depending on the type of the structure/booking
- ❖ Monitoring underlying collateral to the Structured Notes:
- Trading needs to monitor collateral as Term of the transaction can indicate early redemption or other event if collateral price / rating hit a defined threshold
  - Trading need also to monitor collateral in a pure risk management perspective.
- ❖ Using Data for Counterparty Credit Risk Management purposes:

- Credit Products Risk desk must ensure that the issuer risks are properly identified in any case, and requires data necessary for a systematic calculation
- Credit Products Risk desk should ideally be able to net positions wherever necessary for a given Asset and Credit Products.

### 2.4.3. Use of the Collateral Trigger Database

The user has to define the triggers through Aurora Web tool (Production box <http://liberty.worldnet.ml.com:8081/aurora/trigger/> ) (Bank of America - Merrill Lynch, 2009).

Nightly Batches would collect these triggers data and execute them to create an output HTML report on the Aurora web server location (i.e.

<http://uswxapplexp01.lvt.us.ml.com:8081/aurora/trigger/20090612/>). The general notification

process is through an email. The user receives the link to the HTML report through this email.

The user views the generated report and can explode an SPV&Series to look at the respective bonds constituting the collateral. To explode the trade the user clicks on “SPV Identifier” or “CoperID”, which should open another HTML screen with the relevant details. In addition, the user can view all details for each trade by clicking on generate all sub reports. The user is notified by email for all early warnings and triggers if any occur.

### **3. Business Problem**

The Global Credit Products Technology group at Bank of America seeks to automate their current reporting procedure related to the special purpose vehicle (SPV) trades (See Background section for further details). This automated process must directly provide reports, which will control and organize the SPV trades' data, to the Credit traders and risk analysts.

The current daily reporting procedure is a manual process which requires copying and pasting a large amount of data into different MS Excel locations and formats. This manual process causes inefficient data analysis and it is time consuming. In addition, it is subject to human errors and high risk of obtaining inaccurate information. Thus, enhanced data views need to be provided for optimized analyses.

The goal of this project was to automate the daily reporting procedures related to the SPV trades. To improve the current manual process, a reporting tool was developed called the SPV Reporting Tool.

The following objectives were determined in order to achieve the goal of this project:

- Identify the target output reports, data sources, and formats
- Identify and develop a tool that will automate the production of SPV reports
- Construct and manage a central location for information sharing –  
SharePoint site



## 4. Methodology/Technical Design

The following section contains details about the completion of the design requirements which need to be implemented so that the SPV Reporting Tool will be able to meet the Global Credit Products Technology group's needs. It will not only help them better troubleshoot the output reports generated by the Collateral Trigger application, but it will also ensure that the consumers are continuously receiving the most accurate data possible.

### Infrastructure of the SPV Reporting Tool

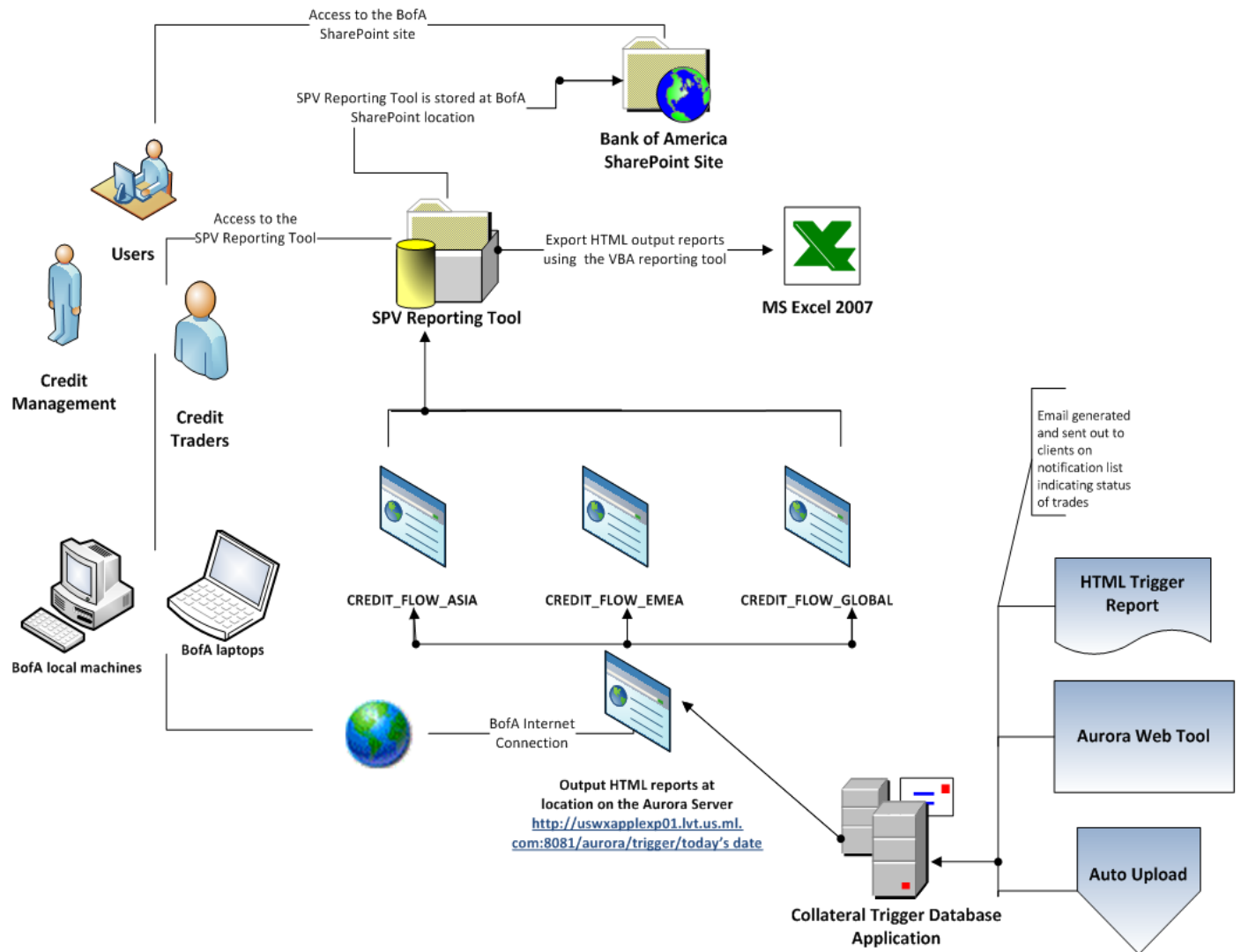


Figure 2: SPV Reporting Tool infrastructure.

### *Export to Microsoft Excel*

The Collateral Trigger application, already developed by the Global Credit Products Technology team, generates the SPV Trigger reports. There are three different reports based on region: ASIA, EMEA and GLOBAL (See Background section for further details). Each of the Main reports has a Sub report. To extract all Main and Sub reports to the Excel sheet, an Excel macro was created by using several VBA functions. In addition, a loop was used to access all three regions (ASIA, EMEA and GLOBAL). The macro automatically opens Internet Explorer, copies all six reports and pastes them into two different tabs (Main and Sub) in a single Excel file (see Figure 3).

The user must define the Trigger reports through Aurora Web tool (<http://liberty.worldnet.ml.com:8081/aurora/trigger/>) where at the end of the URL he/she must specify the date of the report in plain text (no date format is used). The URL for accessing the reports is modified daily due to the date change. Thus, a VBA function was created to get a particular date as an input data which the user can choose by selecting a date from a Calendar application (See Appendix B for further details). Since no reports are produced on weekends and New York Stock Exchange holidays, this application provides the user easier and more efficient input of the data. Once, the user selects a date from the Calendar application a VBA macro converts the date format to a plain text and the report is ready to be run.

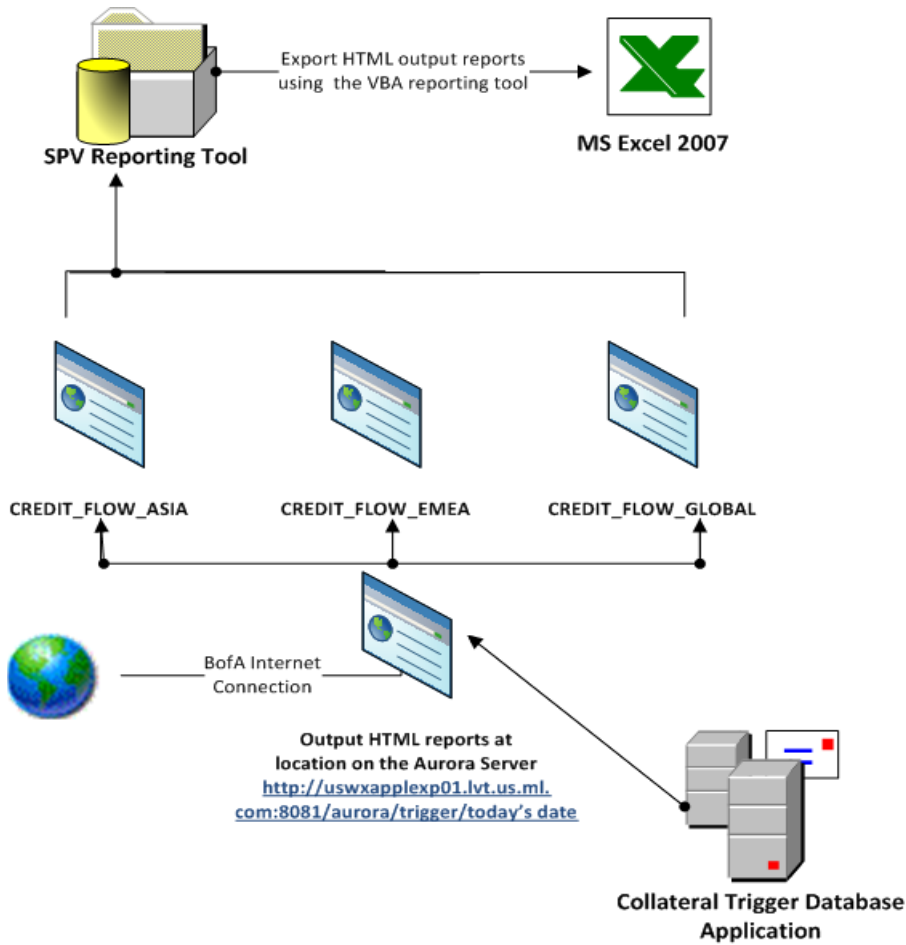


Figure 3: Export to Microsoft Excel procedure.

### Golden Copy Data Mappings

Credit traders do not need all of the data from the Trigger reports. Thus, another report was created by using the SPV Reporting Tool called Golden Copy (See Background section for further details).

Each of the fields in the Golden Copy has a formula which matches the data from the Main and Sub output reports. For example, a formula takes a string from a specified field of the Main or Sub report and concatenates it with another string from the Main or Sub report. The formulas were included into a VBA macro which fills the Golden Copy columns with the right

data (See Appendix B for further details). The final Golden Copy report appears on a separate Excel spreadsheet for additional manual modifications if needed.

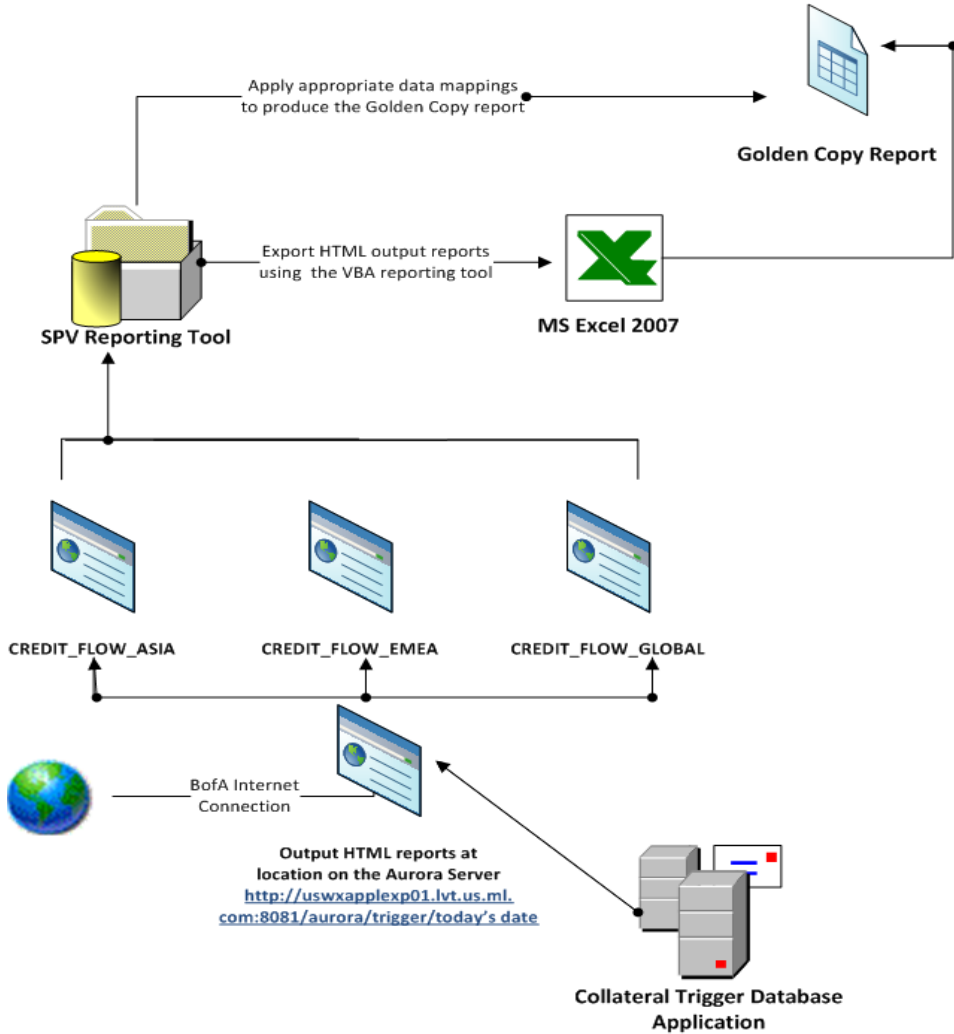


Figure 4: Golden Copy report data mappings procedure.

### *Trigger and Error reports data mappings using the SPV Reporting Tool*

The SPV Reporting Tool was modified in order to produce the desired Trigger and Error summary reports. After exporting all six output reports from the Collateral Trigger application, a VBA method was created which filters only the SPV trades with triggers and errors in it. Once

the errors and triggers were sorted, all the required data mappings for the Trigger and Error reports were applied into the VBA code.

For example, a formula takes a string from a specified field from the output Main or Sub reports and concatenates it with another string from the Main or Sub reports. The Trigger and Error reports appear in a separate Excel spreadsheet for additional manual modifications if needed (See Appendix B for further details).

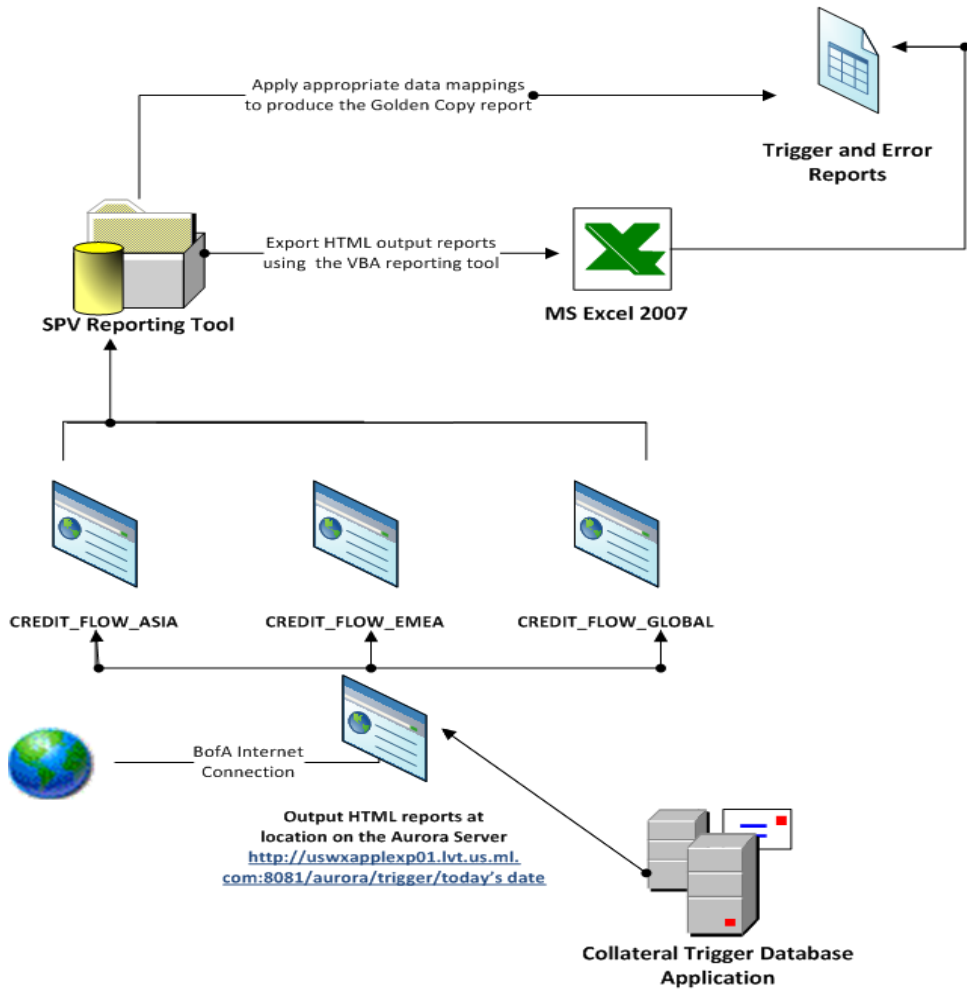


Figure 5: Trigger and Error reports data mappings procedure.

## ***HTML output of the Trigger and Error reports using the backend of the SPV Collateral***

### ***Database Application***

Emails are generated daily using a Java method which gets all triggered and error trades from the output Main and Sub reports for each of the three regions (ASIA, EMEA and GLOBAL)(See Background section for more details). To improve the appearance of the email content, modifications to the HTML email output were made for better organization of the text and tables (See Appendix B for further details). Also, modifications to the Java code from the SPV Collateral Trigger application backend were made. More specifically, the code of the HTML output was inserted in a Java method which takes the output content of the email and converts it into a HTML tabular format which is displayed in the daily email.

### ***Button for generating the SPV Reporting Tool from SharePoint site***

To make the SPV Reporting Tool accessible to all members of the team, a button feature on an internal SharePoint site was developed. The button was embedded into Page Viewer Web Part which was used to display a content stored in a common SharePoint location. A hyperlink of the SPV Reporting Tool location to the SharePoint site was embedded into the button so that it can be accessed by all users.

In order to modify and run the reports, users have to save the Excel spreadsheet on their hard drives and then generate the desired reports. To ensure security of accessing the reporting tool, all users are granted with “read only” permissions. With this change in the permissions, each user can only open and read the content of the reporting tool. In addition, administrators are the only users granted with “full control” permissions and they are the only

ones who can modify the reporting tool. They are limited to small amount due to security and change control standards.

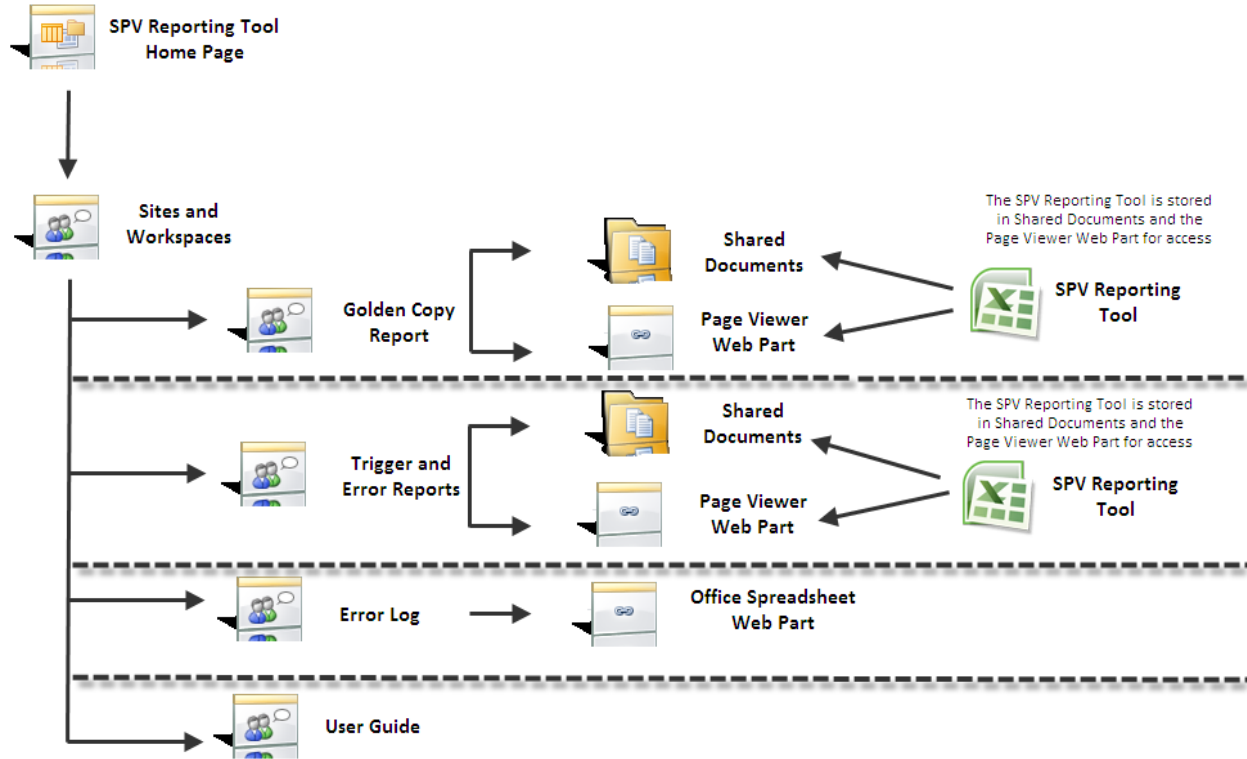


Figure 6: SPV Reporting Tool SharePoint site infrastructure.

### Compatibility with Internet Explorer versions

Throughout the testing phase, there were issues while running the SPV Reporting Tool using Internet Explorer 7.0. The VBA code was not compatible with this version of Internet Explorer. However, there were no errors while running the reports on Internet Explorer 6.0. To make the SPV Reporting Tool compatible with both versions of Internet Explorer, modifications were made to the VBA code. Originally, the SendKeys<sup>2</sup> method was used to simulate keyboard

<sup>2</sup> SendKeys is a method in VBA that passes keyboard strokes through the program. (Microsoft Corporation)

operations by a user. Each SendKeys method was represented by one or more characters. To specify a single keyboard character, the character itself was used. For example, to represent the letter A, pass in the string "A" to the method. The use of this function led to inaccurate execution of the assigned operations. Thus, this method was replaced by identifying the Sub report embedded link entry name from the JavaScript of the Collateral Trigger application (See Appendix B for further details). Once the entry name is found, the next assigned operation is executed and another function navigates to the assigned URLs which contain both the Main and Sub reports. In addition, a loop is used for accessing all three different regions (ASIA, EMEA and GLOBAL).

### *Compatibility with Microsoft Excel versions*

Throughout the testing phase, there were issues while running the SPV Reporting Tool on different versions of Microsoft Excel. An error occurred in MS Excel 2003 while reports were exported into a spreadsheet due to an excessive number of cell formats.

This problem occurs when a workbook contains more than approximately 4,000 different combinations of cell formats (Microsoft Corporation, 2009). A combination is defined as a unique set of formatting elements that are applied to a cell. This error was resolved by Microsoft in MS Excel 2007 by adding 64, 000 different combinations of cell formats (Microsoft Corporation, 2009).

In order to make the SPV Reporting Tool compatible with Excel 2003, modifications were made to the VBA code. Since the error occurred when both Main and Sub reports were pasted at the same time, new method was developed to copy and paste each of the Main and Sub reports separately.



This VBA method allows control over MS Word from MS Excel by using SendKeys function to simulate keyboard operations by a user (See Appendix B for further details). First, both Main and Sub reports are exported into MS Word. Then, the reports are exported into MS Excel spreadsheet individually in two separate tabs (Main and Sub).

By using this method, the time to run the report was prolonged to allow multiple applications to run with less consumption of the system resources.

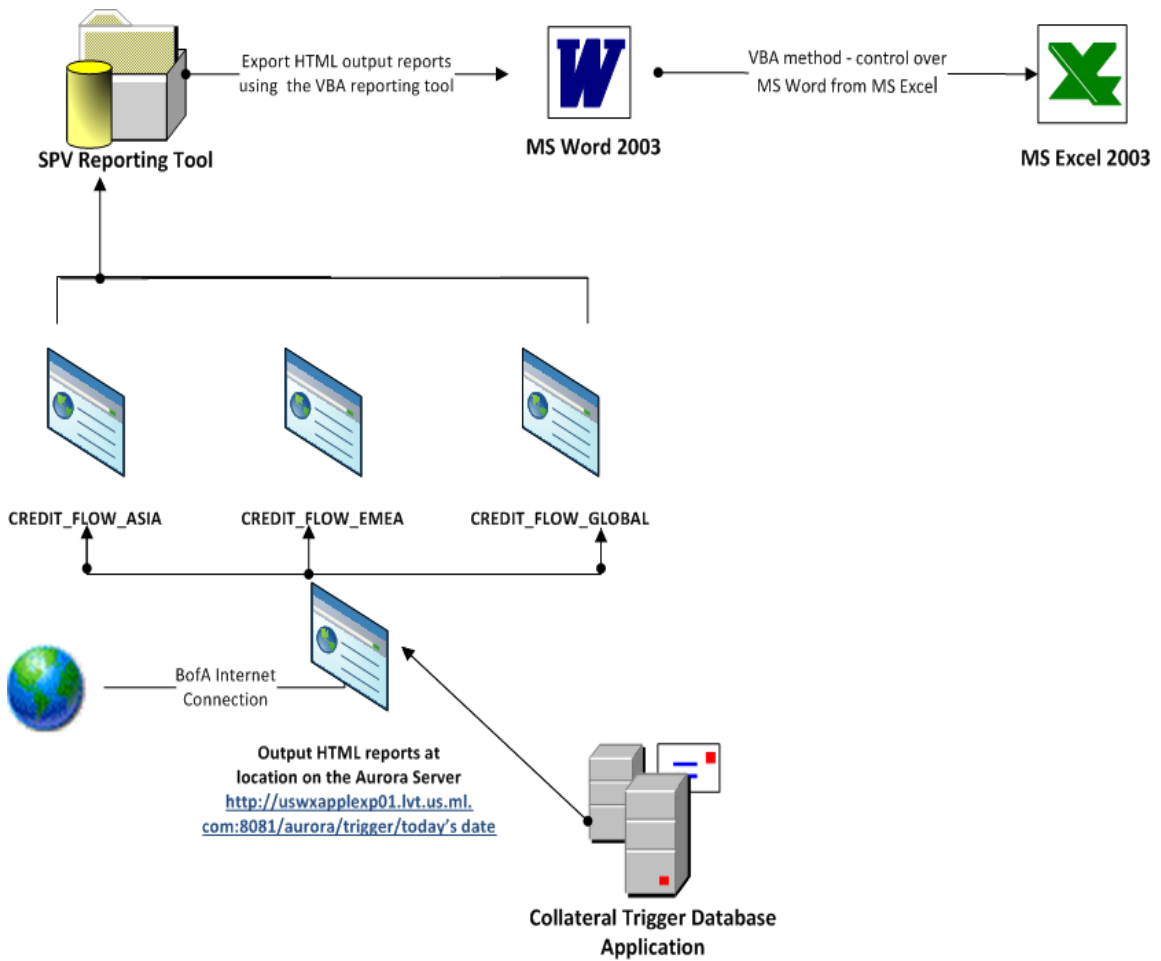


Figure 7: SPV Reporting Tool compatibility with MS Excel 2003

### ***Additional Enhancements to the SPV Reporting Tool***

Additional enhancements to the SPV Reporting Tool were made in order to completely meet the Credit traders' needs.

#### ***Matured Tab***

To produce a summary of the matured trades a VBA method was created (See Appendix B for further details). This method filters all the matured trades from the already created Golden Copy report by finding all the dates which are greater or equal to the current calendar date.

The matured trades are produced on a separate tab in the final Golden Copy report (See Figure 8).

#### ***Summary Tab***

The Summary tab enhancement was made to analyze data from the generated Golden Copy report by searching for the issue date, SPV name, and report name (See Appendix B for further details). This will allow the Credit traders to track how close they are to their goals in each region. In order to accomplish this new enhancement new formulas for the data mappings were created.

The summary of the SPV trades is produced on a separate tab in the final Golden Copy report (See Figure 8).

Global Credit Products Technology - SPV Reporting Tool  
Major Qualifying Project

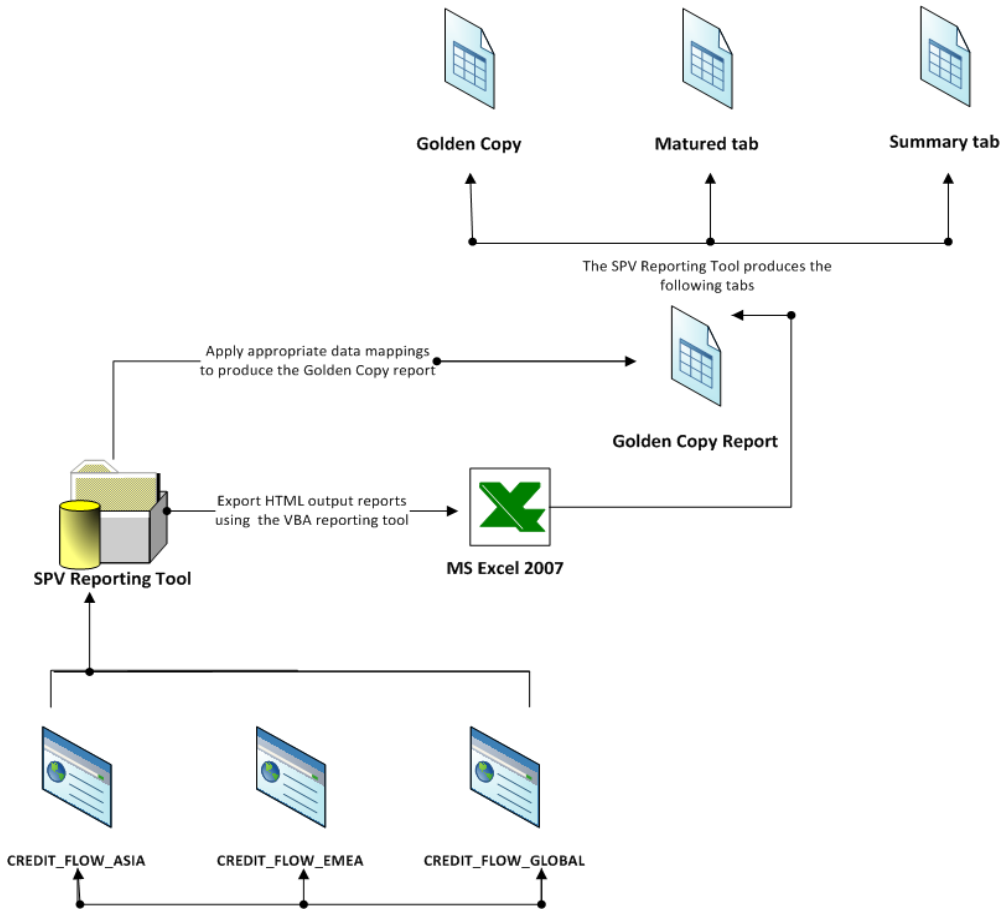


Figure 8: Golden Copy report content.

*Maturity Warning Tab*

The Maturity Warning tab enhancement was made to enable the Credit traders to identify all the SPV trades which will mature in the next ten business days. A VBA method similar to that of the Matured tab was used. This method identifies all the trades which have a date greater than the current calendar date and do not exceed ten business days (See Appendix B for further details).

The Maturity Warning tab is produced on a separate tab in the final Trigger and Error report (See Figure 9).

Global Credit Products Technology - SPV Reporting Tool  
Major Qualifying Project

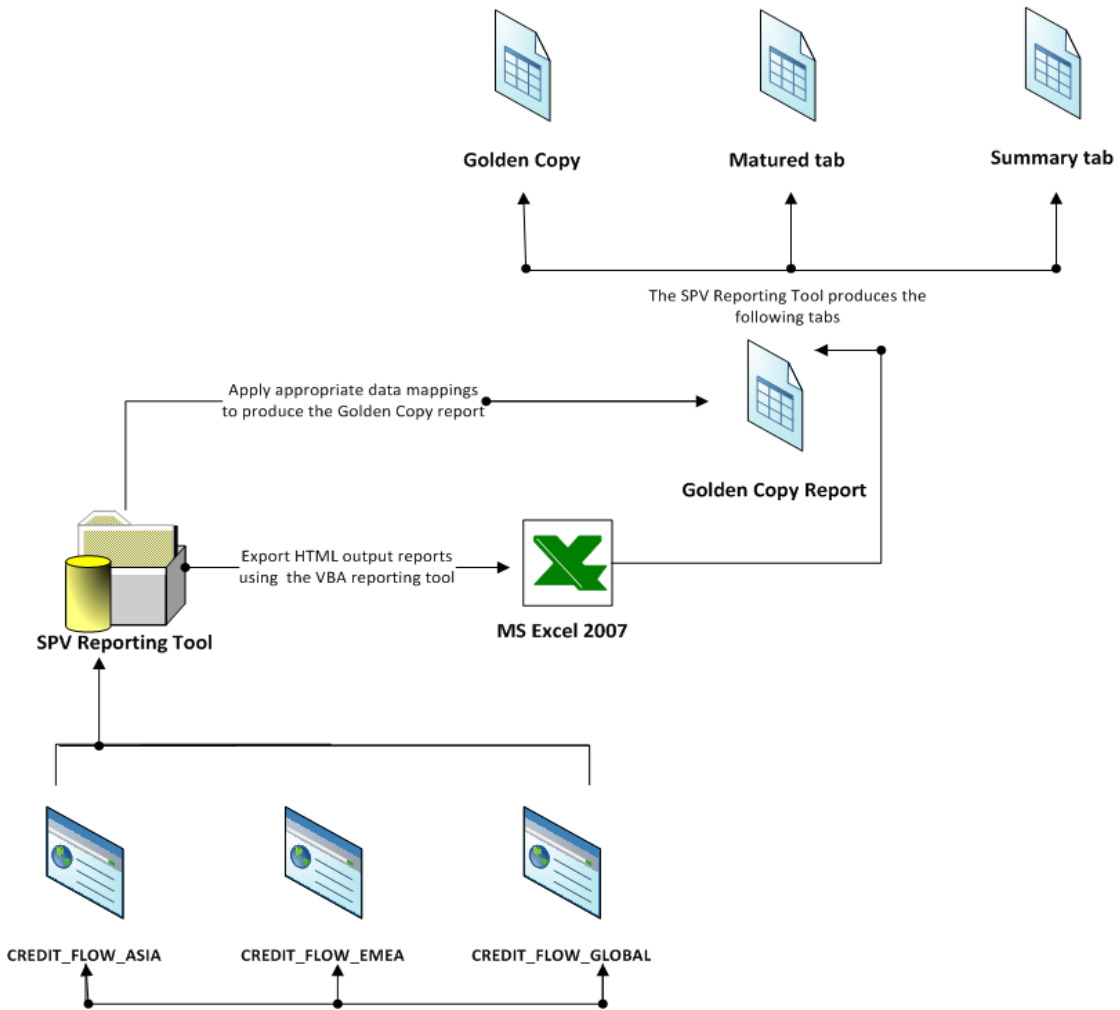


Figure 9: Trigger and Error reports content.

*Error Log on the SharePoint*

A Spreadsheet Web Part was used for this enhancement. This SharePoint Web Part provided a way to create custom Web Parts that can be bound to external data sources such as Microsoft Excel services.

The Spreadsheet Web Part displays a queried data by mapping its elements and formats to the spreadsheet grid. Then, the data can be modified manually by any user who has rights to

change it. There is no need to pull data from any of the Trigger reports. These tables are used to store the errors and the progress made resolving them in a central location that can be updated by all contributors. The headings are set up and the text fields are provided, however, these logs will be completely inputted by the user.

## 5. Results

The following section contains details about the completion of the final product – SPV Reporting tool.

### *Export to Microsoft Excel*

The SPV Reporting Tool contains a Control tab where the user can read the instructions before running the report (See Figure 10).

The screenshot displays the 'Golden Copy Report' interface within the 'Control' tab of an Excel spreadsheet. The interface includes the Bank of America Merrill Lynch logo and the following instructions:

1. Enter the date of the report you want to create via the Show Calendar button or enter the date manually (YYYYMMDD)  
*Please note that there are not generated reports on Saturday/Sunday and NYSE holidays*
2. Enter the FX rates under the FX rates tab.
3. Do not delete or rename any of the existing sheet tabs in the excel template.
4. Try to access less applications while the process runs.
5. When you see the pop-up window "Report Completed Successfully", you can view the report in the new excel spreadsheet.

Below the instructions, there is a 'Show Calendar' button with a calendar icon, a text field labeled 'The date you have been selected is:' with an empty input box, and a blue 'Create Golden Copy Report' button. The Excel ribbon at the bottom shows the following tabs: Control, Main, Sub, HTMLScrape, FX, SPV LU, Golden Copy, and Matured.

Figure 10: SPV Reporting Tool

An Excel macro was created by using several VBA functions. The macro automatically opens Internet Explorer, copies all the reports from different URL's and pastes them into two different sheets in Excel – the Main and Sub sheets(See Figure 11). In addition, a VBA function was created to get a particular date which the user could choose by selecting a date from a Calendar application. This application was created for easier input of the data (See Figure 12).

Report Name	STATUS	SPV Identifier	SPV Coper ID
CREDIT SCT GLOBAL	OK	Neon Capital 227	161633947
CREDIT SCT GLOBAL	OK	Neon Capital 236	163879038
CREDIT SCT GLOBAL	OK	Neon Capital 207	160600014
CREDIT SCT GLOBAL	OK	HELIUM CAPITAL LIMITED SERIES 54	202598
CREDIT SCT GLOBAL	OK	HELIUM CAPITAL LIMITED SERIES 58	202602
CREDIT SCT GLOBAL	TRIGGERED	HELIUM CAPITAL LIMITED SERIES 65	160526188
CREDIT SCT GLOBAL	OK	SILK ROAD PLUS PUBLIC LIMITED COMPANY SERIES #8	161636171
CREDIT SCT GLOBAL	OK	PARCS 2007-9 STCLO	160558512
CREDIT SCT GLOBAL	OK	NEON CAPITAL LTD #128	154756996
CREDIT SCT GLOBAL	OK	NEON CAPITAL LTD #243	163879726
CREDIT SCT GLOBAL	TRIGGERED	CLEAR PLC SER 29	163815775
CREDIT SCT GLOBAL	OK	NEON CAPITAL LTD #245	163879731
CREDIT SCT GLOBAL	OK	ARGON CAPITAL PLC #14	603429
CREDIT SCT GLOBAL	OK	NEON CAPITAL LTD #163	156904760
CREDIT SCT GLOBAL	OK	FAIR ISLE CDO LIMITED #7	212120385
CREDIT SCT GLOBAL	OK	AURA CDO PUBLIC LIMITED COMPAN SER 11	156977772
CREDIT SCT GLOBAL	TRIGGERED	CLEAR PLC #30	163815778
CREDIT SCT GLOBAL	OK	AQUA CDO PLC SER 12	161652126

Figure 11: Output HTML reports at location on the Aurora server.

## Golden Copy Report SPV Reporting Tool



The SPV Reporting Tool will compile data from the ASIA, EMEA, and GLOBAL Trigger reports of a certain date of your choice and it will create the Golden Copy Report.

*Note: Please enable all macros if they are not enabled on your computer.*

You can change the macro security settings in the Trust Center (Microsoft Office Button, Excel Trust Center Settings button, Macro Settings category. Or Developer tab, Code group, Macro Settings button).

1. Enter the date of the report you want to create via the Show Calendar button or enter the date manually (YYYYMMDD)

*Please note that there are not generated reports on Saturday/Sunday and NYSE holidays*

2. Enter the FX rates under the FX rates tab.

3. Do not delete or rename any of the existing sheet tabs in the spreadsheet.

4. Try to access less applications while the process runs.

5. When you see the pop-up window "Report Complete" view the report in the new excel spreadsheet.

Calendar

Please select the date of the report you wish to create.

*Please note that there are no reports generated on Sat/Sun and NYSE holidays.*

Nov 2009

Sun	Mon	Tue	Wed	Thu	Fri	Sat
25	26	27	28	29	30	31
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	1	2	3	4	5

OK CANCEL



The date you have been selected is: 20091117



Figure 12: Golden Copy Control tab with Calendar Application.



### Golden Copy Data Mappings

Once the report is successfully created, a pop-up message appears to notify the user (See Figure 13). The final Golden Copy report contains Golden Copy, Matured and Summary sheets.

The report appears in a separate Excel Spreadsheet for additional manual modifications if needed (See Figure 14).

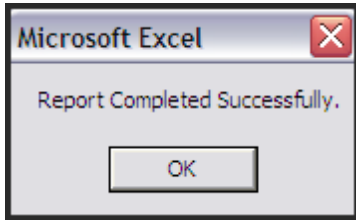


Figure 13: Notification pop-up window.

CoPer/GCID	Entity	BU	FO Region	Counterparty/Deal Name
160519229	MER	GCP	CREDIT_FLOW_ASIA	NEON CAPITAL LTD SERIES 197
160519229	MER	GCP	CREDIT_FLOW_ASIA	NEON CAPITAL LTD SERIES 197
161633944	MER	GCP	CREDIT_FLOW_ASIA	NEON CAPITAL LTD SERIES 226
161633944	MER	GCP	CREDIT_FLOW_ASIA	NEON CAPITAL LTD SERIES 226
161633944	MER	GCP	CREDIT_FLOW_ASIA	NEON CAPITAL LTD SERIES 226
156956520	MER	GCP	CREDIT_FLOW_ASIA	Atena Ltd Series 2
160524547	MER	GCP	CREDIT_FLOW_ASIA	Atena Ltd Series 3
156910559	MER	GCP	CREDIT_FLOW_ASIA	Libra A Ltd Series 12
156912897	MER	GCP	CREDIT_FLOW_ASIA	Bulls Capital Ltd Series 93
156914121	MER	GCP	CREDIT_FLOW_ASIA	Bulls Capital Ltd Series 94
160534322	MER	GCP	CREDIT_FLOW_ASIA	Bulls Capital Ltd Series 101
163624536	MER	GCP	CREDIT_FLOW_ASIA	Bulls Capital Ltd Series 112
156898432	MER	GCP	CREDIT_FLOW_ASIA	Bulls Capital Ltd Series 91
156971444	MER	GCP	CREDIT_FLOW_ASIA	NEON CAPITAL LTD SERIES 191
156971444	MER	GCP	CREDIT_FLOW_ASIA	NEON CAPITAL LTD SERIES 191
156971451	MER	GCP	CREDIT_FLOW_ASIA	NEON CAPITAL LTD SERIES 193
154770859	MER	GCP	CREDIT_FLOW_ASIA	Libra A Limited Series 9
156803112	MER	GCP	CREDIT_FLOW_ASIA	Libra A Limited Series 11
156925774	MER	GCP	CREDIT_FLOW_ASIA	Libra A Limited Series 13
80852	MER	GCP	CREDIT_FLOW_ASIA	Alpha-Sires Ltd Series 149
200095	MER	GCP	CREDIT_FLOW_ASIA	Alpha-Sires Ltd Series 178
607153	MER	GCP	CREDIT_FLOW_ASIA	Alpha-Sires Ltd Series 193
156971450	MER	GCP	CREDIT_FLOW_ASIA	NEON CAPITAL LTD SERIES 192
163641658	MER	GCP	CREDIT_FLOW_ASIA	NEON CAPITAL LTD SERIES 251
156926291	MER	GCP	CREDIT_FLOW_ASIA	NEON CAPITAL LTD Series 180
202558	MER	GCP	CREDIT_FLOW_ASIA	NEON CAPITAL LTD Series 72
154773561	MER	GCP	CREDIT_FLOW_ASIA	NEON CAPITAL LTD Series 132
163879733	MER	GCP	CREDIT_FLOW_ASIA	NEON CAPITAL LTD SERIES 246
80552	MER	GCP	CREDIT_FLOW_ASIA	ALPHA-SIRES LTD Series 142
156959365	MER	GCP	CREDIT_FLOW_ASIA	PHILIPPINES CREDIT LINKED TRUST SERIE
605014	MER	GCP	CREDIT_FLOW_ASIA	NEON CAPITAL LTD Series 49
212109150	MER	GCP	CREDIT_FLOW_ASIA	Neon Capital Ltd Series 279
163879724	MER	GCP	CREDIT_FLOW_ASIA	NEON CAPITAL LTD Series 242
212101622	MER	GCP	CREDIT_FLOW_ASIA	NEON CAPITAL LTD Series 264
160589672	MER	GCP	CREDIT_FLOW_ASIA	HELIUM CAPITAL LTD Series 66
160589672	MER	GCP	CREDIT_FLOW_ASIA	HELIUM CAPITAL LTD Series 66
212109151	MER	GCP	CREDIT_FLOW_ASIA	NEON CAPITAL LTD SERIES 280
154707571	MER	GCP	CREDIT_FLOW_ASIA	NEON CAPITAL LTD Series 100
163624547	MER	GCP	CREDIT_FLOW_ASIA	BULLS CAPITAL LTD Series 113
163641878	MER	GCP	CREDIT_FLOW_ASIA	NEON CAPITAL LTD Series 256
603288	MER	GCP	CREDIT_FLOW_ASIA	ALPHA-SIRES LTD Series 180
155916262	MER	GCP	CREDIT_FLOW_ASIA	SEIRA LTD Series 8
605015	MER	GCP	CREDIT_FLOW_ASIA	NEON CAPITAL LTD Series 50
161635431	MER	GCP	CREDIT_FLOW_ASIA	XENON CAPITAL PLC Series 119
603058	MER	GCP	CREDIT_FLOW_ASIA	B SPIRES LTD Series 41

Figure 14: Golden Copy report production (Part1)

Each of the fields in the Golden Copy is accompanied by a formula which matched the data from the original Main and Sub reports. These formulas were incorporated into a VBA macro which matched the data from the Main and Sub reports and filled the Golden Copy fields with the right data (See Figures 15 through 18).

CoPer/GCID	Entity	BU	FO Region	Counterparty/Deal Name	Deal ISIN	Issue Date	Maturity Date	Notional
160519229	MER	GCP	CREDIT_FLOW_ASIA	NEON CAPITAL LTD SERIES 197	BLANK_ISIN		6/20/14	12,500,000
160519229	MER	GCP	CREDIT_FLOW_ASIA	NEON CAPITAL LTD SERIES 197	BLANK_ISIN		6/20/14	12,500,000
161633944	MER	GCP	CREDIT_FLOW_ASIA	NEON CAPITAL LTD SERIES 226	BLANK_ISIN		1/15/19	30,000,000
161633944	MER	GCP	CREDIT_FLOW_ASIA	NEON CAPITAL LTD SERIES 226	BLANK_ISIN		1/15/19	30,000,000
161633944	MER	GCP	CREDIT_FLOW_ASIA	NEON CAPITAL LTD SERIES 226	BLANK_ISIN		1/15/19	30,000,000
156956520	MER	GCP	CREDIT_FLOW_ASIA	Atena Ltd Series 2	BLANK_ISIN		3/20/18	5,000,000
160524547	MER	GCP	CREDIT_FLOW_ASIA	Atena Ltd Series 3	BLANK_ISIN		12/20/25	3,000,000
156910559	MER	GCP	CREDIT_FLOW_ASIA	Libra A Ltd Series 12	BLANK_ISIN		9/20/24	3,000,000
156912897	MER	GCP	CREDIT_FLOW_ASIA	Bulls Capital Ltd Series 93	BLANK_ISIN		3/9/15	3,700,000
156914121	MER	GCP	CREDIT_FLOW_ASIA	Bulls Capital Ltd Series 94	BLANK_ISIN		3/26/15	500,000
160534322	MER	GCP	CREDIT_FLOW_ASIA	Bulls Capital Ltd Series 101	BLANK_ISIN		3/30/16	1,900,000
163624536	MER	GCP	CREDIT_FLOW_ASIA	Bulls Capital Ltd Series 112	BLANK_ISIN		3/10/17	1,000,000
156898432	MER	GCP	CREDIT_FLOW_ASIA	Bulls Capital Ltd Series 91	BLANK_ISIN		12/22/14	3,700,000
156898432	MER	GCP	CREDIT_FLOW_ASIA	NEON CAPITAL LTD SERIES 191	BLANK_ISIN		3/20/11	

Figure 15: Golden Copy report production (Part2)

Notional	Currency	Credit Linked to	Collateral ISIN	Collateral CUSIP	Security Description	Issuer	Collateral Type
12,500,000	USD		US59018YSU63	59018YSU6	BAC 5 02/03/14	Merrill Lynch & Co Inc	
12,500,000	USD		US38141GEA85	38141GEA8	GS 5 1/8 01/15/15	Goldman Sachs Group Inc/The	
30,000,000	USD		XS0197994337		MLC 0 09/20/09	Merrill Lynch & Co Inc	
30,000,000	USD		US060505CL64	060505CL6	BAC 5 3/4 08/15/16	Bank of America Corp	
30,000,000	USD		US59018YN641	59018YN64	BAC 6 7/8 04/25/18	Merrill Lynch & Co Inc	
5,000,000,000	JPY		JP1200391V02		JGB 2.6 03/20/18	Japan Government Twenty Year Bond	
3,000,000,000	JPY		JP1200841615		JGB 2 12/20/25	Japan Government Twenty Year Bond	
3,000,000,000	JPY		JP1200721494		JGB 2.1 09/20/24	Japan Government Twenty Year Bond	
3,700,000,000	JPY				LOAN		
500,000,000	JPY				LOAN		
1,900,000,000	JPY				LOAN		
1,000,000,000	JPY				LOAN		
3,700,000,000	JPY				LOAN		
20,000,000	USD		US026874AV92	026874AV9	AIG 4.7 10/01/10	American International Group Inc	
1,000,000,000	USD		US36962GS628	36962GS62	GE 4.7/8 10/21/10	General Electric Capital Corp	

Figure 16: Golden Copy report production (Part3)

Global Credit Products Technology - SPV Reporting Tool  
Major Qualifying Project

Collateral Type	Collateral Notional (CCY)	Collat Crncy	Collat Notional (USD)	Collat Notional at Deal Level (USD)	Collat Price	Collateral MTM (USD)
	7,500,000.00	USD	7,500,000	12,500,000	87.13%	6,534,825.00
	5,000,000.00	USD	5,000,000	12,500,000	92.15%	4,607,675.00
	10,000,000.00	USD	10,000,000	31,000,000	ERROR	ERROR
	10,000,000.00	USD	10,000,000	31,000,000	ERROR	ERROR
	11,000,000.00	USD	11,000,000	31,000,000	100.13%	11,013,750.00
	5,000,000,000.00	JPY	55,555,556	55,555,556	111.64%	62,023,888.83
	3,000,000,000.00	JPY	33,333,333	33,333,333	ERROR	ERROR
	3,000,000,000.00	JPY	33,333,333	33,333,333	104.00%	34,665,333.30
	3,700,000,000.00	JPY	41,111,111	41,111,111	0.00%	0.00
	500,000,000.00	JPY	5,555,556	5,555,556	0.00%	0.00
	1,900,000,000.00	JPY	21,111,111	21,111,111	0.00%	0.00
	1,000,000,000.00	JPY	11,111,111	11,111,111	0.00%	0.00
	3,700,000,000.00	JPY	41,111,111	41,111,111	0.00%	0.00
	10,000,000.00	USD	10,000,000	20,000,000	92.00%	9,200,000.00
	10,000,000.00	USD	10,000,000	20,000,000	ERROR	ERROR
	10,000,000.00	USD	10,000,000	10,000,000	100.00%	10,000,000.00
	4,400,000,000.00	JPY	48,888,889	48,888,889	100.00%	48,888,888.84
	4,600,000,000.00	JPY	51,111,111	51,111,111	100.00%	51,111,111.00

Figure 17: Golden Copy report production (Part4)

Collateral MTM (USD)	Collateral MTM at Deal Level (USD)	Average Collateral Price	Trader	FX Rates	Value Date
6,534,825.00	11,142,500	89.64%	Li-woon Lim		1 11/17/09
4,607,675.00	11,142,500	89.64%	Li-woon Lim		1 11/17/09
	11,013,750	100.13%	Manish Srivastava		1 11/17/09
	11,013,750	100.13%	Manish Srivastava		1 11/17/09
11,013,750.00	11,013,750	100.13%	Manish Srivastava		1 11/17/09
62,023,888.83	62,023,889	111.64%	Kazuya Ichikawa/Shinichi Minohara	0.011111111	11/17/09
	0	ERROR	Kazuya Ichikawa/Shinichi Minohara	0.011111111	11/17/09
34,665,333.30	34,665,333	104.00%	Kazuya Ichikawa/Shinichi Minohara	0.011111111	11/17/09
0.00	0	0.00%	Shimon Jacobs	0.011111111	11/17/09
0.00	0	0.00%	Shimon Jacobs	0.011111111	11/17/09
0.00	0	0.00%	Shimon Jacobs	0.011111111	11/17/09
0.00	0	0.00%	Shimon Jacobs	0.011111111	11/17/09
0.00	0	0.00%	Shimon Jacobs	0.011111111	11/17/09
9,200,000.00	9,200,000	92.00%	Li-woon Lim		1 11/17/09
	9,200,000	92.00%	Li-woon Lim		1 11/17/09

Figure 18: Golden Copy report production (Part5)

**Dashboard for Trigger and Error reports using the Excel reporting tool**

The SPV Reporting Tool was slightly modified in order to produce the desired Trigger and Error reports. The Trigger and Error reports appeared in a separate Excel Spreadsheet for additional manual modifications if needed (See Figures 19 through 21).

TRIGGERS	CRVS	Collateral Rating	Collateral Price	
CREDIT SCT GLOBAL	57	0	0	
CREDIT FLOW ASIA	0	2	0	
CREDIT FLOW EMEA	9	0	2	
TOTAL	66	2	2	
<b>Trigger Report</b>				
Report Name	SPV Name	CoPer ID	SPV ISIN	Collateral ISIN
CREDIT FLOW EMEA	PUBLIC LIMITED COMPA	161635423	BLANK ISIN	
CREDIT FLOW EMEA	XENON CAP #162	163619123	XS0327783485	
CREDIT FLOW EMEA	ENON CAPITAL PLC #18	163631223	XS0347749359	
CREDIT FLOW EMEA	ENON CAPITAL PLC #18	163631225	XS0349451368	
CREDIT FLOW EMEA	ENON CAPITAL PLC #14	163870517	XS0318332136	
CREDIT FLOW EMEA	ENON CAPITAL PLC #15	163870528	XS0319489166	
CREDIT FLOW EMEA	XENON CAP #154	163617919	XS0322708917	
CREDIT FLOW EMEA	ENON CAPITAL PLC #15	163870526	XS0318915583	
CREDIT FLOW EMEA	ENON CAPITAL PLC #11	161635427	XS0282736064	
CREDIT SCT GLOBAL	M CAPITAL LIMITED SER	160526188	BLANK ISIN	
CREDIT SCT GLOBAL	CLEAR PLC SER 29	163815775	US225383AF52	
CREDIT SCT GLOBAL	CLEAR PLC #30	163815778	XS0293192943	
CREDIT SCT GLOBAL	CLEAR PLC #45	163818661	US225383AH19	
CREDIT SCT GLOBAL	PARCS-R 2007-15	163818519	US701776AR79	
CREDIT SCT GLOBAL	HELIUM CAPITAL LTD #8	161692413	XS0309760709	
CREDIT SCT GLOBAL	PARCS 2008-2	160558512	US699424BY22	
CREDIT SCT GLOBAL	PARCS-R 2007-17	163818519	US701776AS52	

Figure 19: Trigger Report production (Part1).

Global Credit Products Technology - SPV Reporting Tool  
Major Qualifying Project

Collateral ISIN	Swap ID	Trigger Type	Reason
	06ML25329	TRIGGERED	CRVS
	07ML35975	TRIGGERED	CRVS
	08ML07065	TRIGGERED	CRVS
	08ML08172	TRIGGERED	CRVS
	07ML28374	TRIGGERED	CRVS
	07ML29163	TRIGGERED	CRVS
	07ML31766	TRIGGERED	CRVS
	07ML28689	TRIGGERED	CRVS
	07ML02420A	EARLY WARNING	CRVS
	06ML26997A	TRIGGERED	CRVS
	07ML29436A	TRIGGERED	CRVS
	07ML30612A	TRIGGERED	CRVS
	07ML33394A	TRIGGERED	CRVS
	07ML180496A	TRIGGERED	CRVS
	07ML83086A	TRIGGERED	CRVS
	08ML23124A	TRIGGERED	CRVS

Figure 20: Trigger Report production (Part2).

Report Name	Trade PV	Market Data	Collateral Price
CREDIT_FLOW_GLOBAL	1	0	3
CREDIT_FLOW_ASIA	1	17	24
CREDIT_FLOW_EMEA	1	0	1
TOTAL	3	17	28

Report Name	SPV Name	CoPer ID	SPV ISIN	Collateral ISIN	Swap ID	Reason
CREDIT_FLOW_ASIA		212169908	XS0462974667			Trade PV
CREDIT_FLOW_EMEA	TITANIUM CAPITAL # 3	156970022	XS0234098100		05 ML85N	Trade PV
CREDIT_FLOW_GLOBAL	XENON CAPITAL PLC #	604922	XS0173029223		03ML07462	Trade PV
CREDIT_FLOW_ASIA	CAPITAL LIMITED SERIE	161633944	BLANK ISIN	PP5Q0EUE		Collateral Price
CREDIT_FLOW_ASIA	CAPITAL LIMITED SERIE	161633944	BLANK ISIN	PP5Q0EUE		Market Data
CREDIT_FLOW_ASIA	CAPITAL LIMITED SERIE	161633944	BLANK ISIN	US060505CL64		Collateral Price
CREDIT_FLOW_ASIA	CAPITAL LIMITED SERIE	161633944	BLANK ISIN	US060505CL64		Market Data
CREDIT_FLOW_ASIA	CAPITAL LIMITED SERIE	161633944	BLANK ISIN	US59018YN641		Collateral Price
CREDIT_FLOW_ASIA	CAPITAL LIMITED SERIE	161633944	BLANK ISIN	US59018YN641		Market Data
CREDIT_FLOW_ASIA	Atena Limited #3	160524547	BLANK ISIN	JP1200841615		Collateral Price
CREDIT_FLOW_ASIA	CAPITAL LIMITED SERIE	156971444	BLANK ISIN	US36962GS628		Collateral Price
CREDIT_FLOW_ASIA	Alpha-Series #149	80852	BLANK ISIN	US0395482013		Collateral Price
CREDIT_FLOW_ASIA	Alpha-Series #149	80852	BLANK ISIN	US0395482013		Market Data
CREDIT_FLOW_ASIA	Alpha-Series #178	200095	BLANK ISIN	XS0150230315		Collateral Price
CREDIT_FLOW_ASIA	XENON CAPITAL PLC #	156926294	XS0173029223			Collateral Price

Figure 21: Error report production.

**HTML output of the Trigger and Error reports using the backend of the SPV Collateral**

**Database Application**

To create a Dashboard for the Trigger and Error report, modifications to the Java code from the SPV Collateral Application backend were made. The HTML of the email output was modified for better organization of the text and tables (See Figure 22)

Trigger\_Report: Region Name

Today's Date

# Number of trades with activated triggers: 20

Trigger Summary:  
# Trigger: 12  
# Early Warning: 8

SPV Name	SPV ISIN	Collateral ISIN	Trigger Type
HELIUM CAPITAL LIMITED SERIES 65	XS0327783485	XS0295847568	Collateral Price
XENON CAPITAL PLC #183	US225383AA65	BLANK_ISIN	Collateral Rating
XENON CAPITAL PLC #149	XS0327783485	XS0319601422	CRVS
CLEAR PLC #30	US225383AA65	XS0190400381	CRVS
PARCS-R 2007-17	XS0327783485	XS0295847568	Collateral Price
HELIUM CAPITAL LIMITED SERIES 65	US225383AA65	XS0295847568	Collateral Price
HELIUM CAPITAL LIMITED SERIES 65	US225383AA65	XS0295847568	Collateral Price
HELIUM CAPITAL LIMITED SERIES 65	US225383AA65	XS0295847568	CRVS
HELIUM CAPITAL LIMITED SERIES 65	US225383AA65	XS0295847568	Collateral Price
HELIUM CAPITAL LIMITED SERIES 65	US225383AA65	XS0295847568	Collateral Rating

Error Details  
# Errors due to static data: 0  
# Errors due to market data: 0  
# Errors due to bond prices: 1  
# Errors due to trade pv: 1

Please click link below to access the Trigger Report:  
[http://uswxapplexp01.lvt.us.ml.com:8081/aurora/trigger/Today's Date/TriggerReport-CREDIT\\_FLOW\\_EMEA.html](http://uswxapplexp01.lvt.us.ml.com:8081/aurora/trigger/Today's Date/TriggerReport-CREDIT_FLOW_EMEA.html)

Please contact support at [mailto:GCD\\_Risk@win.ml.com](mailto:GCD_Risk@win.ml.com) for enquiries

Figure 22: HTML output email content.

### Button for generating the SPV Reporting Tool from the SharePoint site

In order to make the SPV Reporting Tool accessible to all members of the team, a button on an internal SharePoint site (See Figures 23 and 24) was developed. The button was embedded into Page Viewer Web Part which was used to display a content stored in a common SharePoint location (See Figures 25 through 28).



Figure 23: SharePoint HOME page.

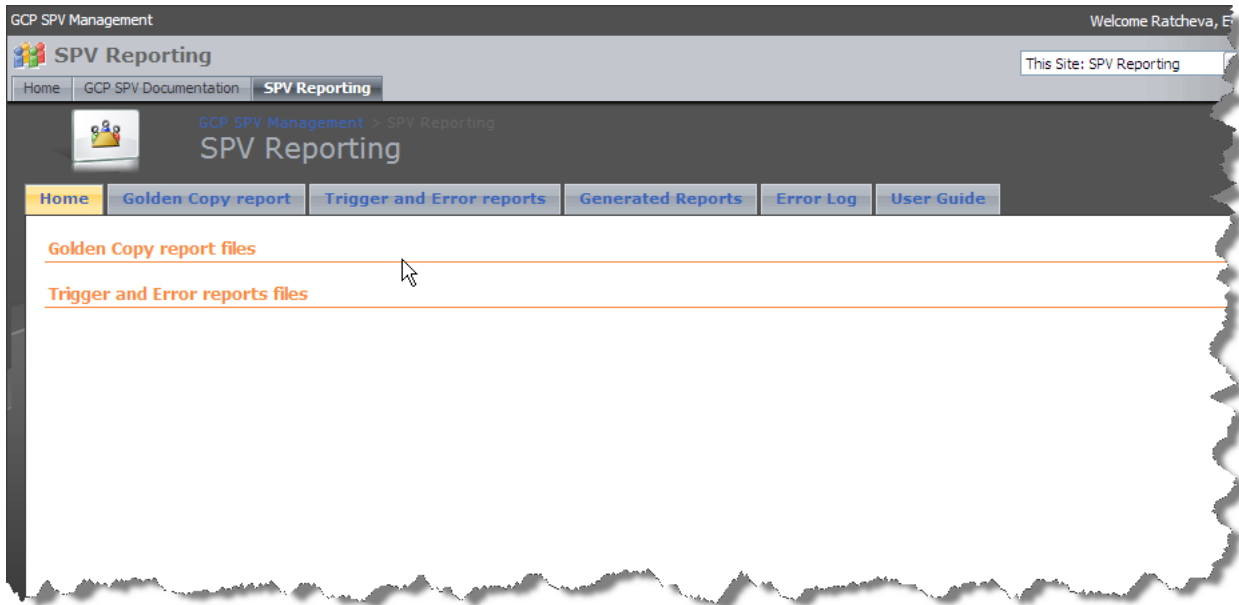


Figure 24: SharePoint Home Page 2



Figure 25: Golden Copy workspace and button feature.



Global Credit Products Technology - SPV Reporting Tool  
Major Qualifying Project

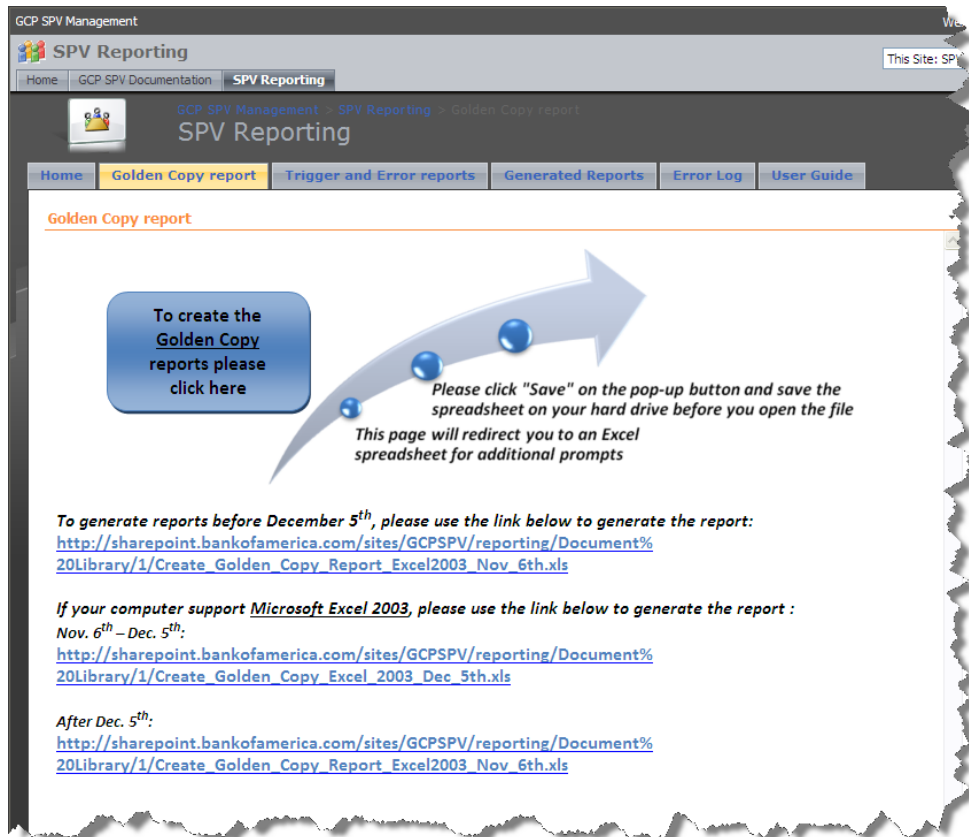


Figure 26: Golden Copy workspace 2

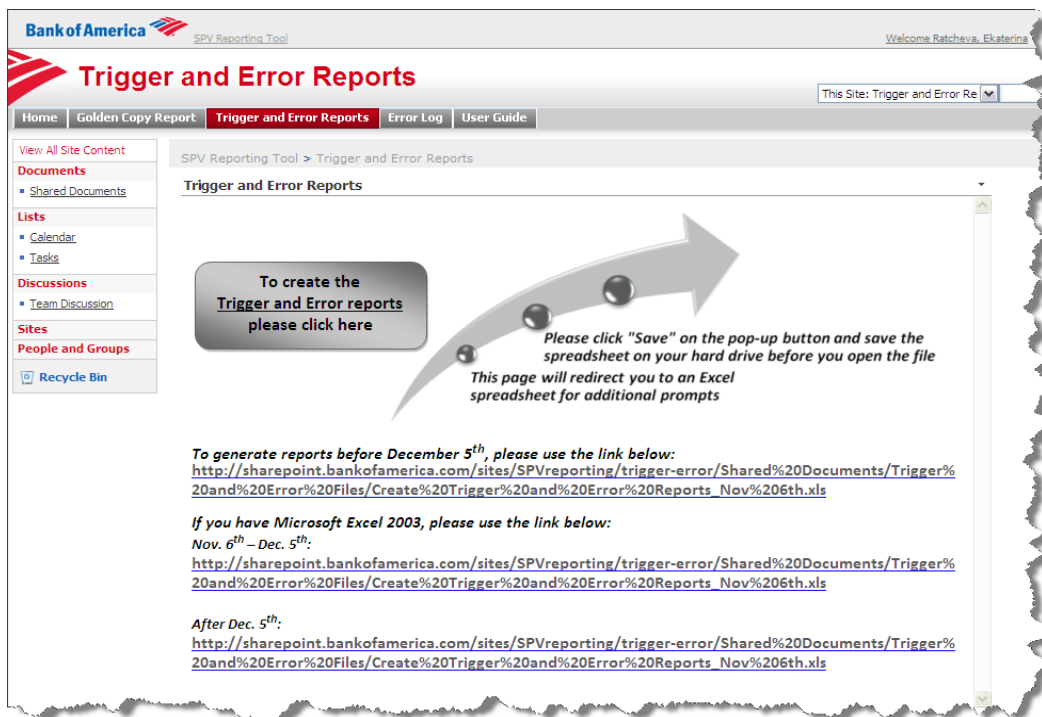


Figure 27: Trigger and Error reports Workspace and button feature.



Figure 28: Trigger and Error reports workspace 2

**Additional Enhancements to the SPV Reporting Tool**

Additional enhancements were made to the SPV Reporting Tool to improve SPV monitoring and analysis. A Matured trades, Summary, and Maturity Warning reports were created in separate tabs. In addition, the Error Log on an internal SharePoint site was created to track the errors and the progress of the SPV triggered trades.

**Matured Tab**

In order to produce a summary of the matured trades once the Golden Copy report was produced through the SPV Reporting Tool, a VBA method was created (See Figure 29). This tab contains the same information from the columns in the Golden Copy but only of the matured trades. These trades are still reported because even though it has matured, the charged assets have not. This means that Bank of America is still due to receive coupon payments and/or principal until the asset matures. This report allows the Credit Traders to easily spot and identify which matured trades they should expect capital from.

CoPer/GCID	Entity	BU	FO Region	Counterparty/Deal Name	Deal ISIN	Issue Date	Maturity Date
154770859	MER	GCP	CREDIT_FLOW_ASIA	Libra A Limited Series 9	BLANK_ISIN		9/18/09
156952495	MER	GCP	CREDIT_FLOW_ASIA	NEON CAPITAL LTD Series 187	XS0230055906		10/29/09
154787987	MER	GCP	CREDIT_FLOW_ASIA	NEON CAPITAL LTD Series 152	XS0205836819		8/21/09
163641880	MER	GCP	CREDIT_FLOW_ASIA	NEON CAPITAL LTD Series 258	XS0422661677		10/29/09
163619089	MER	GCP	CREDIT_FLOW_EMEA	Xenon Capital Plc Series 168	XS0334608212		12/20/08
163619132	MER	GCP	CREDIT_FLOW_EMEA	Xenon Capital Plc Series 169	XS0334787982		12/20/08
163619095	MER	GCP	CREDIT_FLOW_EMEA	Xenon Capital Plc Series 175	XS0340390540		3/20/09
163631223	MER	GCP	CREDIT_FLOW_EMEA	Xenon Capital Plc Series 183	XS0347749359		3/20/09
163631225	MER	GCP	CREDIT_FLOW_EMEA	Xenon Capital Plc Series 185	XS0349451368		3/20/09
163870517	MER	GCP	CREDIT_FLOW_EMEA	Xenon Capital Plc Series 149	XS0318332136		9/11/08
163646518	MER	GCP	CREDIT_FLOW_EMEA	Xenon Capital Plc Series 210	XS0387715583		12/4/09
163870528	MER	GCP	CREDIT_FLOW_EMEA	Xenon Capital Plc Series 151	XS0319489166		9/18/08
163619069	MER	GCP	CREDIT_FLOW_EMEA	Xenon Capital Plc Series 163	XS0327681309		12/20/08
163619070	MER	GCP	CREDIT_FLOW_EMEA	Xenon Capital Plc Series 164	XS0327681309		12/20/08
163619071	MER	GCP	CREDIT_FLOW_EMEA	Xenon Capital Plc Series 165	XS0327681309		12/20/08
163619072	MER	GCP	CREDIT_FLOW_EMEA	Xenon Capital Plc Series 166	XS0327681309		12/20/08
163619073	MER	GCP	CREDIT_FLOW_EMEA	Xenon Capital Plc Series 167	XS0327681309		12/20/08
163619074	MER	GCP	CREDIT_FLOW_EMEA	Xenon Capital Plc Series 168	XS0327681309		12/20/08
163619075	MER	GCP	CREDIT_FLOW_EMEA	Xenon Capital Plc Series 169	XS0327681309		12/20/08
163619076	MER	GCP	CREDIT_FLOW_EMEA	Xenon Capital Plc Series 170	XS0327681309		12/20/08
163619077	MER	GCP	CREDIT_FLOW_EMEA	Xenon Capital Plc Series 171	XS0327681309		12/20/08
163619078	MER	GCP	CREDIT_FLOW_EMEA	Xenon Capital Plc Series 172	XS0327681309		12/20/08
163619079	MER	GCP	CREDIT_FLOW_EMEA	Xenon Capital Plc Series 173	XS0327681309		12/20/08
163619080	MER	GCP	CREDIT_FLOW_EMEA	Xenon Capital Plc Series 174	XS0327681309		12/20/08
163619081	MER	GCP	CREDIT_FLOW_EMEA	Xenon Capital Plc Series 175	XS0327681309		12/20/08
163619082	MER	GCP	CREDIT_FLOW_EMEA	Xenon Capital Plc Series 176	XS0327681309		12/20/08
163619083	MER	GCP	CREDIT_FLOW_EMEA	Xenon Capital Plc Series 177	XS0327681309		12/20/08
163619084	MER	GCP	CREDIT_FLOW_EMEA	Xenon Capital Plc Series 178	XS0327681309		12/20/08
163619085	MER	GCP	CREDIT_FLOW_EMEA	Xenon Capital Plc Series 179	XS0327681309		12/20/08
163619086	MER	GCP	CREDIT_FLOW_EMEA	Xenon Capital Plc Series 180	XS0327681309		12/20/08
163619087	MER	GCP	CREDIT_FLOW_EMEA	Xenon Capital Plc Series 181	XS0327681309		12/20/08
163619088	MER	GCP	CREDIT_FLOW_EMEA	Xenon Capital Plc Series 182	XS0327681309		12/20/08
163619089	MER	GCP	CREDIT_FLOW_EMEA	Xenon Capital Plc Series 183	XS0327681309		12/20/08
163619090	MER	GCP	CREDIT_FLOW_EMEA	Xenon Capital Plc Series 184	XS0327681309		12/20/08
163619091	MER	GCP	CREDIT_FLOW_EMEA	Xenon Capital Plc Series 185	XS0327681309		12/20/08
163619092	MER	GCP	CREDIT_FLOW_EMEA	Xenon Capital Plc Series 186	XS0327681309		12/20/08
163619093	MER	GCP	CREDIT_FLOW_EMEA	Xenon Capital Plc Series 187	XS0327681309		12/20/08
163619094	MER	GCP	CREDIT_FLOW_EMEA	Xenon Capital Plc Series 188	XS0327681309		12/20/08
163619095	MER	GCP	CREDIT_FLOW_EMEA	Xenon Capital Plc Series 189	XS0327681309		12/20/08
163619096	MER	GCP	CREDIT_FLOW_EMEA	Xenon Capital Plc Series 190	XS0327681309		12/20/08
163619097	MER	GCP	CREDIT_FLOW_EMEA	Xenon Capital Plc Series 191	XS0327681309		12/20/08
163619098	MER	GCP	CREDIT_FLOW_EMEA	Xenon Capital Plc Series 192	XS0327681309		12/20/08
163619099	MER	GCP	CREDIT_FLOW_EMEA	Xenon Capital Plc Series 193	XS0327681309		12/20/08
163619100	MER	GCP	CREDIT_FLOW_EMEA	Xenon Capital Plc Series 194	XS0327681309		12/20/08
163619101	MER	GCP	CREDIT_FLOW_EMEA	Xenon Capital Plc Series 195	XS0327681309		12/20/08
163619102	MER	GCP	CREDIT_FLOW_EMEA	Xenon Capital Plc Series 196	XS0327681309		12/20/08
163619103	MER	GCP	CREDIT_FLOW_EMEA	Xenon Capital Plc Series 197	XS0327681309		12/20/08
163619104	MER	GCP	CREDIT_FLOW_EMEA	Xenon Capital Plc Series 198	XS0327681309		12/20/08
163619105	MER	GCP	CREDIT_FLOW_EMEA	Xenon Capital Plc Series 199	XS0327681309		12/20/08
163619106	MER	GCP	CREDIT_FLOW_EMEA	Xenon Capital Plc Series 200	XS0327681309		12/20/08

Figure 29: Matured tab production.

Summary Tab

The Summary tab lists the number of SPVs that have been issued since a given date, which is a user input field. This enhancement was made to analyze data from the Golden Copy report by searching for the issue date, SPV name, and report name to categorize the counts. Because Bank of America has recently been approved to issue an additional 70 notes, this summary will allow the business teams to track how close it is to its goals. In the future, when more notes are granted, this report will still be useful for the same purpose (See Figure 30).

		Global		EMEA		AsiaPac	
		Heritage B #	Heritage M #	Heritage B #	Heritage M #	Heritage B #	Heritage M #
Key Vehic	STRATA		PARCS - all variants	Helix Capital (Jsy)	Argon	Helix Capital (Jsy)	Argon
			PARCS-R	Helix Investments	CLEAR	Helix Investments	CLEAR
			PARCS-L	Motif Finance (Irl)	Neon	Motif Finance (Irl)	Neon
			PARCS-S	Sceptre Capital	Helium	Sceptre Capital	Helium
					Xenon		Xenon
					Stratus*		Azusa
							Bulls
							Libra
							Atena
							Jubilee
Total Interim Capacity		0	0	0	0	0	0
Since							
9/1/2009							
		Global		EMEA		AsiaPac	
		Heritage B #	Heritage M #	Heritage B #	Heritage M #	Heritage B #	Heritage M #
Key Vehic	STRATA	0	PARCS - ε	0	Helix Capit	0	Argon
			PARCS-R	0	Helix Inves	0	CLEAR
			PARCS-L	0	Motif Finar	0	Neon
			PARCS-S	0	Sceptre Ca	0	Helium
						0	Xenon
						0	Stratus*
						0	Azusa
							Bulls
							Libra
							Atena
							Jubilee
Total Interim Capacity		0	0	0	0	0	0
Total Interim Capac		0	0	0	0	0	0

Figure 30: Summary tab production.

*Maturity Warning Tab*

The Maturity Warning report displays the trades that will mature in the next ten business days. This will notify the Credit traders to expect the final principal amounts when the trades mature (See Figure 31).

Repo		Maturity Warnings				
CREDIT_SCT_GLOBAL		2				
CREDIT_FLOW_ASIA		3				
CREDIT_FLOW_EMEA		2				
TOTAL		7				

Maturity Warning Report						
Report Name	SPV Name	CoPer ID	SPV ISIN	Swap ID	Maturity Date	Days Until Maturity
CREDIT_FLOW_ASIA	Libra A Limited #11	156803112	BLANK_ISIN	04 10348A-2	12/21/2009	21
CREDIT_FLOW_ASIA	NEON CAPITAL LTD #13	154773561	XS0201246443	04ML15608A	12/20/2009	20
CREDIT_FLOW_ASIA	NEON CAPITAL LTD #16	154787994	XS0207786442	04ML22328A	12/20/2009	20
CREDIT_FLOW_EMEA	ENON CAPITAL PLC #6	154782152	XS0204894645	04ML18881A	12/20/2009	20
CREDIT_FLOW_EMEA	XENON CAP #210	163646518	XS0387715583	08ML38412	12/4/2009	4
CREDIT_SCT_GLOBAL	ALPHA-SIRES LTD #152	82484	XS0140068189	01ML2786A	12/18/2009	18
CREDIT_SCT_GLOBAL	RGON CAPITAL PLC #4	154786925	XS0205946089	04ML21009A	12/20/2009	20

Figure 31: Maturity Warning production.

### Error Log on the SharePoint

The Error Log will be used to store the errors and the progress made resolving them in a central location (internal SharePoint site) that can be updated by all contributors (See Figure 32).

**Bank of America** SPV Reporting Tool Welcome Ratcheva, Ekaterina

## Error Log

This Site: Error Log

Home Golden Copy Report Trigger and Error Reports **Error Log** User Guide

SPV Reporting Tool > Error Log

**Error Log**

Refresh Save Connect to Data... Commands and Options... Toolbar

	A	B	C	D	E	F	G	H
4								
5	<b>Bond Errors</b>							
6	Report	Collateral ISIN	BBG ID	Collateral Name	Book	Comments	Assigned	Resolution ETA
7	Asia	XS0197994337	PP5QOEUE3	Merrill Lynch & Co Inc	SPVJ	eds to be set up and Pric	Ema/Paul	
8	Asia	XS0216094473	PP5NOFY45	Merrill Lynch & Co Inc	SPVJ	eds to be set up and Pric	Ema/Paul	
9	Asia	XS0287534548	PP1UOH921	Merrill Lynch & Co Inc	SPVJ	eds to be set up and Pric	Ema/Paul	
10	Asia	XS0173509430	PP5DOHJ57	Merrill Lynch & Co Inc	SPVJ	eds to be set up and Pric	Ema/Paul	
11	Asia	XS0349632157	PP5T0BJQ9	Merrill Lynch & Co Inc	SPVJ	eds to be set up and Pric	Ema/Paul	
12	Asia	XS0224392430	PP4N043J2		SPVJ	eds to be set up and Pric	Ema/Paul	
13	Asia	XS0227053344	PP53ONNU6	Merrill Lynch & Co Inc	SPVJ	eds to be set up and Pric	Ema/Paul	
14	Asia	XS0213906745	PP2HOEFM5	Merrill Lynch & Co Inc	SPVJ	eds to be set up and Pric	Ema/Paul	
15	Asia	JP1200841615		Japan Government Twenty Year Bond	SPVJ	eds to be set up and Pric	Ema/Paul	
16	Asia	US36962G6628	EF139977	General Electric Capital Corp	PRCO	eds to be set up and Pric	Rothrock	6-Nov
17	Asia	XS0197153371			SPVJ	eds to be set up and Pric	Ema/Paul	
18	Global	XS0210106000			SPVJ	eds to be set up and Pric	Ema/Paul	
19	Global	XS0161598080	PP4H1HN12	Banco Espirito Santo		Still error, need to investiga	Hannah	
20	Global	XS0250203832			SPVD	eds to be set up and Pric	EMEA Pricers	
21	Global	XS0284302303			SPVD	eds to be set up and Pric	EMEA Pricers	
22	Global	XS0278482574			SPVD	eds to be set up and Pric	EMEA Pricers	
23	Global	XS0205548604		MERRILL LYNCH & CO	PRCO	DR for Bond source RDS b	Pravesh	6-Nov
24	Global	US14041NCL38		CAPITAL ONE MULTI-ASSET EXECUT	PRCO	Does not exist in ODR	Pravesh	6-Nov
25	Global	XS0085468352		ASIF III Jersey Ltd	PRCO	rrency in not correct in O	Pravesh	6-Nov
26	EMEA	XS0088162127		Merrill Lynch & Co Inc	SPVD	currency in file to be corr	Shavara	
27								
28								
29	<b>Missing Collateral Info</b>							
30	Collateral ISIN	Collateral Name	SPV ISIN	SPV Name				
31	XS0320054629		BLANK_ISIN	Neon Capital_236				
32	XS0237179998		BLANK_ISIN	HELIUM CAPITAL LIMITED SERIES 58				
33	XS0256215145		BLANK_ISIN	HELIUM CAPITAL LIMITED SERIES 65				
34	XS0276360392		BLANK_ISIN	OAD PLUS PUBLIC LIMITED COMPANY SERIES #8				
35	JS17305EDL65		US225383AF52	CLEAR PLC SER 29				
36								
37								

Figure 32: Error Log Workspace and Office Web Part feature.

## 6. Recommendations

While this project was able to create a suitable and profitable solution to the SPV reporting process, several recommendations can be made: the SPV reporting tools need to be continuously maintained, a higher performance tool should be implemented if more SPV trades are issued, and, a dashboard to display real time trigger and error summary reports should be created on an internal Bank of America Wiki page.

### 6.1. Maintenance of the SPV reporting tools

The SPV Reporting Tool needs to remain relevant for the duration of its use. Thus, it needs to correlate with the original Collateral Trigger Application. The output format of the Collateral Trigger Application is undergoing constant changes in order to contain the appropriate data for the Credit traders and risk team. However, for every added column or change in logic, the SPV reporting tool is affected and if not properly maintained can misreport data or even break. For every new release change of the Collateral Trigger Application, the SPV reporting tool needs to be modified and tested. In order to assist in this process, a User Guide (See Appendix E) has been created that describes each step in modifying the VBA code of the SPV Reporting Tool and important troubleshooting scenarios. For any other changes, an employee who is particularly familiar with VBA coding should assist in editing the code.

### 6.2. Implementation of a higher performance tool

The current solution works appropriately for the number of SPV trades that are under Bank of America monitoring. However, if the volume of SPV trades in Bank of America significantly increases, the tool may perform too slow or may not be able to hold the number of trades due to MS Excel capabilities. Thus, the changes in the SPV trade's volume should be reported. In

addition, the feasibility and probability of the NPC<sup>3</sup> allowing the target goal of SPV trades to be issued needs to be analyzed. If it seems that the issuance of a significant amount of new SPV trades will occur, there should be an effort placed into creating a new tool which will be able to perform the same functions at higher performance levels.

### **6.3. Dashboard on an internal Wiki Page for Trigger and Error summary reports**

To create a Dashboard for the Trigger and Error reports, modifications to the Java code from the SPV Collateral Application backend can be made. Currently, emails with the Trigger and Errors are generated daily using a Java method which gets the accurate data from the Main and Sub output reports for each of the three regions – ASIA, EMEA and GLOBAL. To automate the current procedure, a file can be created with an output similar to the one in the email for each of the reports. The HTML of the email output has been already modified for better organization of the text and tables (See Methodology/Technical Design section for further details). A daily file can be created, and then stored in a Unix Box Merrill Lynch server location. This location can be accessible from an internal Wiki Page so that the file content can be displayed on the Wiki page. An index file of the three individual files based on a region can be created. This index file can be linked to each of the generated html files as needed. In addition, the index file has to be programmed so that every day a new file will be added to the daily batch for each of the regions. The modified HTML content from the email has to be copied to “daily.html” and linked to the file from the Wiki so that the Wiki page can load the latest

---

<sup>3</sup> The NPC is a European regulation group that needs to authorize Bank of America with permission to issue more SPV trades. The chance of the NPC allowing Bank of America to issue more trades depends on the bank’s internal monitoring, regulating, and risk management of the SPVs. (Bank of America - Merrill Lynch, 2009)



available data at any time. The “daily.html” file can be included in an IFRAME on the Wiki Page for better information sharing among the appropriate users.

## 7. Conclusion

The SPV Reporting Tool made significant enhancements by improving performance, reducing the chances of human errors, and improving data analysis. In addition to these enhancements, the SPV Reporting tool is reliable because it automatically analyzes the reports listed in the Collateral Trigger application and compiles them into MS Excel spreadsheets.

The manual process required copying and pasting a large amount of data into different MS Excel locations and formats. While this method was time consuming and inefficient for data analyses, the SPV Reporting Tool improved performance significantly and optimized data analysis. In addition, this automated process decreased the risk of obtaining inaccurate information and reduced the chances of human errors.

By creating several features on the SharePoint site, all members from the Global Credit Products group are able to view and analyze data at all times. The button feature gives them direct access to the SPV Reporting Tool and the Error Log provides each user the opportunity to manually modify data related to the SPV trades' errors and the progress made resolving them.

In conclusion, the SPV Reporting Tool automated the reporting procedure related to the SPV trades. Now, the Credit traders and the Credit management teams do not have to spend time sorting reports from various locations and importing data into different MS Excel documents and formats. They are able to view and analyze; control and classify the SPV trades' data more efficiently.

Future release changes of the SPV Reporting Tool should include continued maintenance, implementation of a higher performance tool if SPV trades' volume increases, and a real time dashboard to display trigger and error summary reports.

## References

- Bank of America - Merrill Lynch. (2009). *On Demand Risk Trigger Report - Phase II*. New York: Bank of America - Merrill Lynch.
- Bank of America - Merrill Lynch. (2009). *Procedures and User Guide for Collateral Trigger Database*. New York: Bank of America - Merrill Lynch.
- Bank of America - Merrill Lynch. (2009). *Special Purpose Vehicles*. New York: Bank of America - Merrill Lynch.
- Bank of America - Merrill Lynch. (2009). *SPV Monitoring & Valuation*. New York: Bank of America - Merrill Lynch.
- Barbican Consulting. (n.d.). *Asset Swaps Financial Training Guide*. Retrieved December 8, 2009, from Barbican Consulting: <http://www.barbicanconsulting.co.uk/assetswaps>
- Cilia, J. (1996, August). *Product Summary Asset Swaps: Creating Synthetic Instruments*. Retrieved December 1, 2009, from Federal Reserve Bank of Chicago: <http://www.chicagofed.org/publications/capitalmarketnews/assetswp.pdf>
- Gorton, G. B. (2005, September). *Special Purpose Vehicles and Securitization*. Retrieved December 1, 2009, from Social Science Research Network: [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=713782](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=713782)
- Investopedia. (n.d.). *Asset Swap*. Retrieved December 5, 2009, from Investopedia: <http://www.investopedia.com/terms/a/assetswap.asp>
- Investopedia. (n.d.). *Special Purpose Vehicle/Entity (SPV/SPE)*. Retrieved December 1, 2009, from Investopedia: <http://www.investopedia.com/terms/s/spv.asp>
- Microsoft Corporation. (2009). *Excel Specifications and Limits*. Retrieved from <http://office.microsoft.com/en-us/excel/HP100738491033.aspx?pid=CH101030621033#WorksheetWorkbook>
- Microsoft Corporation. (n.d.). *SendKeys Method*. Retrieved December 7, 2009, from Microsoft Excel Visual Basic Reference: [http://msdn.microsoft.com/en-us/library/aa202943\(offic.10\).aspx](http://msdn.microsoft.com/en-us/library/aa202943(offic.10).aspx)
- Pereira, R. (2003, September). *Understanding Asset Swaps*. Retrieved December 7, 2009, from Yield Curve: <http://www.yieldcurve.com/Mktresearch/LearningCurve/LearningCurve4.pdf>
- The Basel Committee on Banking Supervision. (2009, September). *Report on Special Purpose Entities*. Retrieved 7 December, 2009, from <http://www.bis.org/publ/joint23.pdf>
- The New York Times. (n.d.). *Credit Default Swaps*. Retrieved December 1, 2009, from The New York Times: [http://topics.nytimes.com/top/reference/timestopics/subjects/c/credit\\_default\\_swaps/index.html](http://topics.nytimes.com/top/reference/timestopics/subjects/c/credit_default_swaps/index.html)

Wharton School of the University of Pennsylvania. (2006, May 17). *Enron Aside, Special Purpose Vehicles (SPVs) Are Legal, Innovative and Widely Used*. Retrieved December 1, 2009, from Knowledge@Wharton: Finance and Investment:  
<http://knowledge.wharton.upenn.edu/article.cfm?articleid=1483>

## Appendix A. Technical Design Requirements

<b>Document Name:</b>	Design Requirements Specifications
<b>Project Name:</b>	<i>SPV Reporting Tool</i>
<b>Group Name:</b>	<i>Global Credit Products Technology</i>

<b>New Requirements</b>
<b>Not a requirement</b>

Process Step	Req #	Description	Prospective Release	Type of Requirement	Details	Owner	Comments
1	1.1	Export the HTML tables from the Collateral Trigger Database to MS Excel	9-Nov	Golden Copy	Create a macro to export the HTML tables to excel	Jenny Encarnacion	
2	2.1	Data Mappings	9-Nov	Golden Copy	Each of the fields in the Golden Copy has an incorporated formula which matches the data from the Main and Sub reports. For example, a formula takes a string from a specified field from the Main or Sub reports and concatenates it with another string from the Main or Sub reports. The formulas were included into a VBA macro which fills the Golden Copy columns	Jenny Encarnacion	
3	3.1	Button for generating the SPV Reporting Tool has to be created on an internal SharePoint site	11-Nov	Golden Copy		Ekaterina Ratcheva	
4	4.1	Excel 2003 Capabilities	20-Nov	Golden Copy	Macro has to be created in order the macros to be able to run on Excel 2003	Jenny Encarnacion Ekaterina Ratcheva	

Global Credit Products Technology - SPV Reporting Tool  
Major Qualifying Project

	4.1.1	Macro which copies both Main and Sub reports from the Collateral Trigger Database application pastes it into MS Word	20-Nov	Golden Copy		Ekaterina Ratcheva	
	4.1.2	Macro which copies the sub report from the MS Word file and pastes it in Excel	20-Nov	Golden Copy		Ekaterina Ratcheva	
	4.1.3	Macro which copies the Main report from the MS Word file and pastes it in Excel	20-Nov	Golden Copy		Ekaterina Ratcheva	
	4.1.4	Macro which deletes all the formatting from the Excel tab where the reports are pasted and copies each of the reports and pastes them into a new tab	20-Nov	Golden Copy		Ekaterina Ratcheva	
5	5.1	<b>Create Dashboard Trigger Report for each of the main and sub reports for ASIA, GLOBAL and EMEA</b>	13-Nov	Dashboard		Ekaterina Ratcheva	This is Phase 1 of this piece of the project. Once we have this part completed we can move to Phase 2
-	5.1.1	The Trigger Reports need to be stored on the SPV SharePoint website	13-Nov	Dashboard	We can use Pravesh program for generating the emails every day and send the files to the SharePoint Website instead.	Ekaterina Ratcheva	Questions for Pravesh for generating the reports automatically every day
-	5.1.2	The Trigger Reports has to be generated automatically every day and posted on the SharePoint website	13-Nov	Dashboard	-	Ekaterina Ratcheva	-
	5.1.3	An index file of the individual files has to be created.	23-Nov	Dashboard	An index file of the individual files has to be created. This index file would link to each of the generated html files as needed. It would need to be modified programmatically each time you add a new file in your daily batch. This would provide a "historic view" of the generated files.	Pravesh Pajpai	This requirement has to be implemented by Pravesh Pajpai

Global Credit Products Technology - SPV Reporting Tool  
Major Qualifying Project

	5.1.4	The files from the Unix locations have to be link to the Wiki Page	23-Nov	Dashboard	The data that is normally sent in the email could be copied into daily.html (and/or daily.txt). We can link to this file from the Wiki so that any time the Wiki page is loaded the latest available “daily” data is loaded.	Pravesh Pajpai	This requirement has to be implemented by Pravesh Pajpai
	5.1.5	This “daily” file would be included in an iframe on the Wiki page	23-Nov	Dashboard		Pravesh Pajpai	This requirement has to be implemented by Pravesh Pajpai
	5.1.6	Each of the Trigger Reports should contain the following fields: SPV Name, CoPer ID, Collateral ISIN, SWAP ID, Trigger Type, Reason, History (since)	13-Nov	Dashboard		Ekaterina Ratcheva	
	5.1.7	HTML change of the output file	30-Nov	Dashboard	The html code needs to be updated and sent to Pravesh to include it into the Java code	Ekaterina Ratcheva	
6	6.2	<b>Create Dashboard Error Report for each of the main and sub reports for ASIA, GLOBAL and EMEA</b>	13-Nov	Dashboard	We can use Pravesh program for generating the emails every day and send the files to the SharePoint Website instead.	Ekaterina Ratcheva Pravesh Pajpai	
-	6.2.1	The Error Reports need to be stored on the SPV SharePoint website	13-Nov	Dashboard	-	Ekaterina Ratcheva	-
-	6.2.2	The Error Reports have to be generated automatically every day and posted on the SharePoint website	13-Nov	Dashboard	-	Ekaterina Ratcheva	-
	6.2.3	Each of the Error Reports should contain the following fields: SPV Name, CoPer ID, SPV ISIN, Collateral ISIN, SWAP ID, Reason, History (since)	13-Nov	Dashboard		Pravesh Pajpai	This requirement has to be implemented by Pravesh Pajpai

Global Credit Products Technology - SPV Reporting Tool  
Major Qualifying Project

7	7.1	<b>Trigger/Error Reports using the Excel Reporting tool</b>	30-Nov	Dashboard	As an alternate solution, we will create trigger and error views through a macro and using the Excel reporting tool for creation of the Golden Copy.	Jenny Encarnacion Ekaterina Ratcheva	
	7.1.1	Create a separate button on the SharePoint for the Trigger and Error Reports	30-Nov	Dashboard		Ekaterina Ratcheva	
	7.1.2	Update the control tab of the reporting tool for the Trigger/Error Reports	30-Nov	Dashboard		Ekaterina Ratcheva	
8	8.1	<b>A summary of the Trigger and Error reports have to be added at the beginning of each of the reports</b>	TBA	Dashboard		Jenny Encarnacion Ekaterina Ratcheva	
9	9.1	<b>The 3 different Trigger Reports (ASIA, GLOBAL and EMEAL) have to be combined in one major report</b>	TBA	Dashboard		Ekaterina Ratcheva	
10	10.1	<b>The 3 different Error Reports (ASIA, GLOBAL and EMEAL) have to be combined in one major report</b>	TBA	Dashboard		Jenny Encarnacion	
11	11.1	<b>Error Log on the SharePoint Website</b>	24-Nov	Other	These logs will be completely inputted by the user. There is no need to pull data from any of the reports. These tables will be used to store the errors and the progress made resolving them in a central location that can be updated by all contributors. The headings will need to be set up and the text fields provided. Other than that all of the information in the tables will come from the user.	Ekaterina Ratcheva	



Global Credit Products Technology - SPV Reporting Tool  
Major Qualifying Project

12	12.1	<b>Summary Tab on the Golden Copy report</b>	24-Nov	Golden Copy	The summary page of the Sharepoint will track against this allotment. The report will have to pull data from the output reports by searching for the issue date and the SPV name to categorize the counts. This will allow the business to easily track how close it is to its goals.	Jenny Encarnacion
13	13.1	<b>Matured Tab on the Golden Copy</b>	20-Nov	Other	Macro has to be created to use data mappings to produce a summary of the matured trades has been created. A separate tab on the Excel spreadsheet has been created	Ekaterina Ratcheva
14	14.1	<b>Maturity Warning Tab</b>	30-Nov	Other	The maturity warning tab enhancement was made to enable the Credit traders to identify all the SPV trades which will be matured in the next ten business days.	Jenny Encarnacion

Last modified: 12/03/2009 by Ekaterina Ratcheva

## Appendix B. Visual Basic Code Supplement

### Golden Copy report

```
' CONTROL_MainImport Module
' This class controls the main functionality of the SPV reporting
' tool: opens a website, copies and pastes all of the data into excel
' and then closes the website. In addition, the additional modules
' are controlled by this module
'
' Requirements:
' Requires Visual Basic for Applications, Microsoft Excel 12.0 Object
' Library
' Microsoft Forms 12.0 Object Library
'
' Limitations:
' Does not support Microsoft Excel 2007 due to the following error:
' **Too many different cell formats**

Sub ImportHTMLtoSheet()

Application.ScreenUpdating = False '//Run this in the background

    Dim IE As Object
    Dim log, getdate As String
    Dim logflow As Boolean
    log = "ASIA"
    logflow = True

'//Gets the report date from a cell in the control tab after it was
'converted from the Calendar function
getdate = Sheets("Control").Range("G33")

'//Clears all fields in Main and Sub Sheets
    Sheets("Main").Select
    Cells.Select
    Selection.Delete Shift:=xlUp
    Sheets("Sub").Select
    Cells.Select
    Selection.Delete Shift:=xlUp

'//Generates reports for ASIA, EMEA and GLOBAL regions
Do Until logflow = False

'// Clears all fields in HTMLScrape sheet
    Sheets("HTMLScrape").Select
    Cells.Select
```

```
Selection.Delete Shift:=xlUp

'//Controls Internet Explorer application from MS Excel
Set IE = CreateObject("InternetExplorer.Application")

With IE
    .Visible = True

'//Opens all the URLs where the date is mapped into the "getdate"
field

    If log = "ASIA" Then
        .navigate
"http://uswxapplexp01.lvt.us.ml.com:8081/aurora/trigger/" & getdate &
"/TriggerReport-CREDIT_FLOW_ASIA.html" ' should work for any URL
    End If

    If log = "EMEA" Then
        .navigate
"http://uswxapplexp01.lvt.us.ml.com:8081/aurora/trigger/" & getdate &
"/TriggerReport-CREDIT_FLOW_EMEA.html"
    End If

    If log = "GLOBAL" Then
        .navigate
"http://uswxapplexp01.lvt.us.ml.com:8081/aurora/trigger/" & getdate &
"/TriggerReport-CREDIT_SCT_GLOBAL.html"
    End If

'// Waits until Internet Explorer finishes loading the page
While IE.Busy
    DoEvents
Wend

Do
    If IE.readyState = 4 Then
        Exit Do
    Else
        DoEvents
    End If
Loop

'//3 seconds wait time
Application.Wait Now + TimeValue("0:00:03")

End With

'// Identifies the Sub report embedded link entry name from
' the JavaScript of the Collateral Trigger application
' Once the entry name is found, the next assigned operation
' is executed and another function navigates to the assigned
' URLs which contain all six output Main and Sub reports.
```

Global Credit Products Technology - SPV Reporting Tool  
Major Qualifying Project

```
For Each inpEntryButton In IE.Document.All
    If inpEntryButton.outerText = "Get All Sub Reports" Then
        If inpEntryButton.Name = "" Then inpEntryButton.Click
    End If
Next inpEntryButton
Do
    If IE.readyState = 4 Then
        Exit Do
    Else
        DoEvents
    End If
Loop

    While IE.Busy
        DoEvents
    Wend

Application.Wait Now + TimeValue("0:00:03")
IE.ExecWB 17, 0 '// Select all

    While IE.Busy
        DoEvents
    Wend

    IE.ExecWB 12, 2 '// Copy selection
    Sheets("HTMLScrape").Select
    Range("A1").Select
    ActiveSheet.PasteSpecial Format:="HTML", link:=False,
DisplayAsIcon:=False
    Range("A1").Select
    IE.Quit

'//A loop is used for accessing all three different regions (ASIA,
EMEA and GLOBAL)

    If log = "GLOBAL" Then
        logflow = False
    End If

    If log = "EMEA" Then
        log = "GLOBAL"
    End If

    If log = "ASIA" Then
        log = "EMEA"
    End If

'//Module which modifies the HTMLScrape into main and sub reports
Application.Run "CreateReport" '//Runs the module
```

Loop

```
'//Clears HTMLScrape sheet
    Sheets("HTMLScrape").Select
    Cells.Select
    Selection.Delete Shift:=xlUp

'//Module which create Headers on Main and Sub sheets
Application.Run "CreateHeaders" '//Runs the module

'//Module which cleans the Main sheet
Application.Run "MainClean" '//Runs the module

'//Module which data mappings are applied and creates the for the
Golden Copy report
Application.Run "FillGoldenCopy" '//Runs the module

'//Module which creates the Matured tab
Application.Run "MaturedTab" '//Runs the module

'//Module which saves the Golden copy report and the Matured tab in a
new sheet
Application.Run "SaveNew" '//Runs the module

Application.ScreenUpdating = True '//Stop running in the background
```

End Sub

```
/* Calendar Module
' This class gets an output date from the calendar form and then
' converts the date format it into plain text
' ©2009 Ekaterina Ratcheva, WPI
'
' Requirements:
' Requires Visual Basic for Applications, Microsoft Excel 12.0
Object Library
' Microsoft Forms 12.0 Object Library
'
' Limitations:
' No limitations
```

Option Explicit

```
Private Sub Calendar1_Click()
Worksheets("Control").Range("C34") = Calendar1.Value
Worksheets("Control").Range("C34").NumberFormat = "yyyymmdd"
Range("G33") = Format(Range("C34"), "yyyymmdd")
```

```
End Sub

Private Sub CommandButton1_Click()
Unload Me

End Sub

Private Sub CommandButton2_Click()
Unload Me

End Sub

Private Sub Label1_Click()

End Sub

Private Sub UserForm_Activate()
    Me.Calendar1.Value = Date
End Sub

' Golden Copy Module
' This class controls all data mappings for producing
' the Golden Copy.
'

Sub FillGoldenCopy()
    Dim mrcnt As String
    Dim srcnt As String

    Sheets("Main").Select
    Range("A2").Select
    Range(Selection, Selection.End(xlDown)).Select
    mrcnt = Selection.Rows.Count

'//Creates unique Coper and ISN identifier in Main Column T

    Range("T2").Select
    ActiveCell.FormulaR1C1 = "=RC[-16]&RC[-15]"
    Range("T2").Select
    Selection.AutoFill Destination:=Range("T2:T" & mrcnt + 1),
Type:=xlFillDefault

'// Clears Golden Copy tab
    Sheets("Golden Copy").Select
    Rows("2:2").Select
    Range(Selection, Selection.End(xlDown)).Select
    Selection.Delete Shift:=xlUp

'// Fills first data row with formulas
    Sheets("Golden Copy").Select
```

```

Range("A2").Select
ActiveCell.FormulaR1C1 = "=Sub!RC[4]"
Selection.NumberFormat = "General"
Range("B2").Select
ActiveCell.FormulaR1C1 = "MER"
Range("C2").Select
ActiveCell.FormulaR1C1 = _
    "=IF(RIGHT(RC[1], 4) = ""OBAL"", ""SCT"", IF(RIGHT(RC[1], 4) =
""EMEA"", ""GCP"", IF(RIGHT(RC[1], 4) = ""ASIA"", ""GCP"",
""ERROR")))"
Range("D2").Select
ActiveCell.FormulaR1C1 = "=Sub!RC[-3]"
Range("E2").Select
ActiveCell.FormulaR1C1 = _
    "=IFERROR(INDEX('SPV LU'!C1:C8, MATCH('Golden Copy'!RC1 &
'Golden Copy'!RC6, 'SPV LU'!C1, 0), 4), Sub!RC[-2])"
Range("F2").Select
ActiveCell.FormulaR1C1 = "=Sub!RC[-2]"
Range("G2").Select
ActiveCell.FormulaR1C1 = _
    "=INDEX(Main!C1:C20, MATCH('Golden Copy'!RC1 & 'Golden
Copy'!RC6, Main!C20, 0), 8)"
Range("H2").Select
ActiveCell.FormulaR1C1 = _
    "=INDEX(Main!C1:C20, MATCH('Golden Copy'!RC1 & 'Golden
Copy'!RC6, Main!C20, 0), 9)"
Range("I2").Select
ActiveCell.FormulaR1C1 = _
    "=INDEX(Main!C1:C20, MATCH('Golden Copy'!RC1 & 'Golden
Copy'!RC6, Main!C20, 0), 11)"
Range("J2").Select
ActiveCell.FormulaR1C1 = _
    "=INDEX(Main!C1:C20, MATCH('Golden Copy'!RC1 & 'Golden
Copy'!RC6, Main!C20, 0), 10)"
Range("L2").Select
ActiveCell.FormulaR1C1 = "=Sub!RC[-6]"
Range("M2").Select
ActiveCell.FormulaR1C1 = "=IF(Sub!RC[-6]=0, "" "", Sub!RC[-6])"
Range("N2").Select
ActiveCell.FormulaR1C1 = "=IF(Sub!RC[-6]=0, "" "", Sub!RC[-6])"
Range("O2").Select
ActiveCell.FormulaR1C1 = "=IF(Sub!RC[-5]=0, "" "", Sub!RC[-5])"
Range("Q2").Select
ActiveCell.FormulaR1C1 = "=Sub!RC[-4]"
Range("R2").Select
ActiveCell.FormulaR1C1 = "=Sub!RC[-6]"
Range("S2").Select
ActiveCell.FormulaR1C1 = "=RC[-2]*RC[7]"
Range("T2").Select
ActiveCell.FormulaR1C1 = "=SUMIFS(C[-1],C6, RC6,C1, RC1)"
Range("U2").Select

```

```
ActiveCell.FormulaR1C1 = "=IFERROR(IF(Sub!RC[-6]="",Sub!RC[-5]/100, Sub!RC[-6]/100),"ERROR")"  
Selection.NumberFormat = "0.00%"  
Range("V2").Select  
ActiveCell.FormulaR1C1 = "=IFERROR(RC[-3]*RC[-1], "ERROR")"  
Range("W2").Select  
ActiveCell.FormulaR1C1 = "=IFERROR(SUMIFS(C[-1],C6, RC6,C1, RC1), "ERROR")"  
Range("X2").Select  
ActiveCell.FormulaR1C1 = "=IFERROR(AVERAGEIFS(C[-3],C6, RC6,C1, RC1), "ERROR")"  
Selection.NumberFormat = "0.00%"  
Range("Y2").Select  
ActiveCell.FormulaR1C1 =  
    "=INDEX(Main!C1:C20, MATCH('Golden Copy'!RC1 & 'Golden Copy'!RC6, Main!C20, 0), 7)"  
Range("Z2").Select  
ActiveCell.FormulaR1C1 = "=VLOOKUP(RC[-8], FX!C[-25]:C[-24],2,0)"  
Range("AA2").Select  
ActiveCell.FormulaR1C1 =  
    "=INDEX(Main!C1:C20, MATCH('Golden Copy'!RC1 & 'Golden Copy'!RC6, Main!C20, 0), 19)"  
Range("AB2").Select  
ActiveCell.FormulaR1C1 = "=IF(INDEX(Main!C1:C20, MATCH('Golden Copy'!RC1 & 'Golden Copy'!RC6, Main!C20, 0), 17)=0, "", INDEX(Main!C1:C20, MATCH('Golden Copy'!RC1 & 'Golden Copy'!RC6, Main!C20, 0), 18))"
```

```
'// Copies lines for the number of sub trades
```

```
Sheets("Sub").Select  
Range("A2").Select  
Range(Selection, Selection.End(xlDown)).Select  
srcnt = Selection.Rows.Count
```

```
Sheets("Golden Copy").Select  
Rows("2:2").Select  
Selection.Copy  
Rows("3:" & srcnt + 1).Select  
ActiveSheet.Paste  
Application.CutCopyMode = False  
Range("A2").Select
```

```
'// Creates header for Golden Copy report in the Golden Copy tab
```

```
Sheets("Golden Copy").Select  
Range("A1").Select  
ActiveCell.FormulaR1C1 = "CoPer/GCI ID"  
Range("B1").Select  
ActiveCell.FormulaR1C1 = "Entity"  
Range("C1").Select  
ActiveCell.FormulaR1C1 = "BU"
```



Global Credit Products Technology - SPV Reporting Tool  
Major Qualifying Project

```
Range("D1").Select
ActiveCell.FormulaR1C1 = "FO Region"
Range("E1").Select
ActiveCell.FormulaR1C1 = "Counterparty/Deal Name "
Range("F1").Select
ActiveCell.FormulaR1C1 = "Deal ISIN"
Range("G1").Select
ActiveCell.FormulaR1C1 = "Issue Date"
Range("H1").Select
ActiveCell.FormulaR1C1 = "Maturity Date"
Range("I1").Select
ActiveCell.FormulaR1C1 = "Notional"
Range("J1").Select
ActiveCell.FormulaR1C1 = "Currency"
Range("K1").Select
ActiveCell.FormulaR1C1 = "Credit Linked to"
Range("L1").Select
ActiveCell.FormulaR1C1 = "Collateral ISIN"
Range("M1").Select
ActiveCell.FormulaR1C1 = "Collateral CUSIP"
Range("N1").Select
ActiveCell.FormulaR1C1 = "Security Description"
Range("O1").Select
ActiveCell.FormulaR1C1 = "Issuer"
Range("P1").Select
ActiveCell.FormulaR1C1 = "Collateral Type"
Range("Q1").Select
ActiveCell.FormulaR1C1 = "Collateral Notional (CCY)"
Range("R1").Select
ActiveCell.FormulaR1C1 = "Collat Crncy"
Range("S1").Select
ActiveCell.FormulaR1C1 = "Collat Notional (USD)"
Range("T1").Select
ActiveCell.FormulaR1C1 = "Collat Notional at Deal Level (USD)"
Range("U1").Select
ActiveCell.FormulaR1C1 = "Collat Price"
Range("V1").Select
ActiveCell.FormulaR1C1 = "Collateral MTM (USD)"
Range("W1").Select
ActiveCell.FormulaR1C1 = "Collateral MTM at Deal Level (USD)"
Range("X1").Select
ActiveCell.FormulaR1C1 = "Average Collateral Price"
Range("Y1").Select
ActiveCell.FormulaR1C1 = "Trader"
Range("Z1").Select
ActiveCell.FormulaR1C1 = "FX Rates"
Range("AA1").Select
ActiveCell.FormulaR1C1 = "Value Date"
Range("AB1").Select
ActiveCell.FormulaR1C1 = "Transaction Discription"
```

'//Applies formatting to the Golden Copy report in the Golden Copy tab

```
Rows("1:1").RowHeight = 30
Rows("1:1").Select
With ActiveWindow
    .SplitColumn = 0
    .SplitRow = 1
End With
ActiveWindow.FreezePanes = True
Columns("D:D").Select
Selection.Borders(xlDiagonalDown).LineStyle = xlNone
Selection.Borders(xlDiagonalUp).LineStyle = xlNone
Selection.Borders(xlEdgeLeft).LineStyle = xlNone
Selection.Borders(xlEdgeTop).LineStyle = xlNone
Selection.Borders(xlEdgeBottom).LineStyle = xlNone
With Selection.Borders(xlEdgeRight)
    .LineStyle = xlContinuous
    .ColorIndex = 0
    .TintAndShade = 0
    .Weight = xlThin
End With
Selection.Borders(xlInsideVertical).LineStyle = xlNone
Selection.Borders(xlInsideHorizontal).LineStyle = xlNone

Rows("1:1").Select
Selection.Font.Bold = True
Selection.Font.Underline = xlUnderlineStyleSingle '//Format the
Golden Copy
Rows("2:2").Select
Range(Selection, Selection.End(xlDown)).Select
With Selection.Font
    .Name = "Calibri"
    .Size = 10
    .Strikethrough = False
    .Superscript = False
    .Subscript = False
    .OutlineFont = False
    .Shadow = False
    .Underline = xlUnderlineStyleNone
    .ColorIndex = xlAutomatic
    .TintAndShade = 0
    .ThemeFont = xlThemeFontMinor
End With
Range("A1").Select

End Sub
```

' HTML Scrape Module

```
' This class pastes all HTML reports into Microsoft Excel and
' applies additional functionalities in order to produce the
' desired reports
```

```
Sub CreateReport()  
    Dim HTMLScrape, Main As Worksheet  
    Dim maincount, subcount, place As Integer  
    Dim LRow As Integer  
    Dim LColARange As String  
    Dim LContinue As Boolean  
  
    '// Opens HTMLScrape and copies Main Table to Main sheet  
        Sheets("HTMLScrape").Select  
        Range("A1").Select  
        Range(Selection, Selection.End(xlDown)).Select  
        maincount = Selection.Rows.Count  
  
    '// Loops through all column A values until a blank cell is found to  
    allow appending of reports  
        Sheets("Main").Select  
        LContinue = True  
        LRow = 1  
  
    While LContinue = True  
  
        LRow = LRow + 1  
        LColARange = "A" & CStr(LRow)  
  
        'Found a blank cell, do not continue  
        If Len(Range(LColARange).Value) = 0 Then  
            LContinue = False  
        End If  
  
    Wend  
  
    '// Pastes where the first empty cell was  
        Sheets("HTMLScrape").Select  
        Range("A3:AN" & maincount - 1).Select  
        Selection.Copy  
        Sheets("Main").Select  
        Range("A" & LRow).Select  
        ActiveSheet.Paste  
  
    '//Opens HTMLScrape and copies Sub Table to Sub sheet  
        Sheets("HTMLScrape").Select  
        Range("B" & maincount + 3).Select  
        Range(Selection, Selection.End(xlDown)).Select  
        subcount = Selection.Rows.Count + maincount + 2  
  
    '// Loops through all column A values until a blank cell is found  
        Sheets("Sub").Select  
        LContinue = True  
        LRow = 1  
  
    While LContinue = True
```

```
LRow = LRow + 1
LColARange = "A" & CStr(LRow)

'Found a blank cell, do not continue
If Len(Range(LColARange).Value) = 0 Then
    LContinue = False
End If

Wend

Sheets("HTMLScrape").Select
Range("B" & maincount + 3 & ":W" & subcount).Select
Selection.Copy
Sheets("Sub").Select
Range("A" & LRow).Select
ActiveSheet.Paste

End Sub

' Make Headers Module
' This class creates headers to the Main and Sub tab sheets
'

Sub CreateHeaders()

'//Creates headers for Main sheet
Sheets("Main").Select
Range("A1").Select
ActiveCell.FormulaR1C1 = "Report Name"
Range("B1").Select
ActiveCell.FormulaR1C1 = "STATUS"
Range("C1").Select
ActiveCell.FormulaR1C1 = "SPV Identifier"
Range("Y1").Select
ActiveCell.FormulaR1C1 = "SPV Coper ID"
Range("Z1").Select
ActiveCell.FormulaR1C1 = "SPV Note ISN"
Range("AA1").Select
ActiveCell.FormulaR1C1 = "Book"
Range("AB1").Select
ActiveCell.FormulaR1C1 = "Trader"
Range("AC1").Select
ActiveCell.FormulaR1C1 = "Issue Date"
Range("AD1").Select
ActiveCell.FormulaR1C1 = "Maturity"
Range("AE1").Select
ActiveCell.FormulaR1C1 = "Ccy"
Range("AF1").Select
ActiveCell.FormulaR1C1 = "Notional"
```

```
Range("AG1").Select
ActiveCell.FormulaR1C1 = "Swap Admin #"
Range("AH1").Select
ActiveCell.FormulaR1C1 = "Collateral MTM"
Range("AI1").Select
ActiveCell.FormulaR1C1 = "Swap Pv"
Range("AJ1").Select
ActiveCell.FormulaR1C1 = "CRVS Trigger Level"
Range("AK1").Select
ActiveCell.FormulaR1C1 = "CRVS Current"
Range("AL1").Select
ActiveCell.FormulaR1C1 = "Contractual Trigger"
Range("AM1").Select
ActiveCell.FormulaR1C1 = "Transaction Description"
Range("AN1").Select
ActiveCell.FormulaR1C1 = "Report Date"
```

'// Create headers for Sub Sheet

```
Sheets("Sub").Select
Range("A1").Select
ActiveCell.FormulaR1C1 = "Report Name"
Range("B1").Select
ActiveCell.FormulaR1C1 = "STATUS"
Range("C1").Select
ActiveCell.FormulaR1C1 = "SPV Identifier"
Range("D1").Select
ActiveCell.FormulaR1C1 = "SPV ISN"
Range("E1").Select
ActiveCell.FormulaR1C1 = "SPV Coper ID"
Range("F1").Select
ActiveCell.FormulaR1C1 = "Collateral ISIN"
Range("G1").Select
ActiveCell.FormulaR1C1 = "Collateral CUSIP"
Range("H1").Select
ActiveCell.FormulaR1C1 = "Security Description"
Range("I1").Select
ActiveCell.FormulaR1C1 = "Collateral Coper ID"
Range("J1").Select
ActiveCell.FormulaR1C1 = "Collateral Name"
Range("K1").Select
ActiveCell.FormulaR1C1 = "Collateral Guarantor"
Range("L1").Select
ActiveCell.FormulaR1C1 = "Ccy"
Range("M1").Select
ActiveCell.FormulaR1C1 = "Notional"
Range("N1").Select
ActiveCell.FormulaR1C1 = "Collateral Price Trigger"
Range("O1").Select
ActiveCell.FormulaR1C1 = "Collateral Price Current"
Range("P1").Select
ActiveCell.FormulaR1C1 = "S&P Trigger"
```

```
Range("Q1").Select  
ActiveCell.FormulaR1C1 = "S&P Current"  
Range("R1").Select  
ActiveCell.FormulaR1C1 = "Moody's Trigger"  
Range("S1").Select  
ActiveCell.FormulaR1C1 = "Moody's Current"  
Range("T1").Select  
ActiveCell.FormulaR1C1 = "Fitch Trigger"  
Range("U1").Select  
ActiveCell.FormulaR1C1 = "Fitch Current"  
Range("V1").Select  
ActiveCell.FormulaR1C1 = "Transaction Description"
```

End Sub

```
' Maturated Tab Module
```

```
' This class creates the Maturated tab once the  
' Golden Copy report is created  
,
```

```
Sub MaturatedTab()
```

```
Dim cell As Range
```

```
'// Copies all data from the Golden Copy Report
```

```
Sheets("Golden Copy").Select  
Cells.Select  
Selection.Copy
```

```
'// Pastes the content into the Maturity tab sheet
```

```
Sheets("Maturated").Select  
Cells.Select  
ActiveSheet.Paste
```

```
Rows("1:1").Select  
With ActiveWindow  
    .SplitColumn = 0  
    .SplitRow = 1  
End With  
ActiveWindow.FreezePanes = True
```

```
'// For each of the cells selects the date which is greater than  
today's date in order to filter all trades which will be matured in  
the future
```

```
For Each cell In Range("H2:H1000")  
    If cell.Value > Date And cell.Value <> Empty Then  
cell.EntireRow.Hidden = True
```

Next

```
Sheets("Golden Copy").Select  
Range("AB1").Select  
Range(Selection, Selection.End(xlDown)).Delete
```

End Sub

```
' Save New Workbook Module
```

```
' This class creates a new workbook and copies the Golden Copy and the  
' Matured tab in new workbook. Also, it creates a Summary Tab sheet  
,
```

Sub SaveNew()

```
'//Copies and Pastes all data from the Golden Copy and Matured Tab in  
a new Excel Workbook  
Sheets(Array("Golden Copy", "Matured")).Select  
Sheets("Golden Copy").Activate  
Cells.Select  
Selection.Copy  
Workbooks.Add  
Cells.Select  
ActiveSheet.Select  
Range("A1").PasteSpecial Paste:=xlPasteValues, Operation:=xlNone,  
SkipBlanks _  
:=False, Transpose:=False  
Range("A1").PasteSpecial Paste:=xlPasteFormats, Operation:=xlNone,  
_  
SkipBlanks:=False, Transpose:=False  
Application.CutCopyMode = False  
  
Sheets("Sheet1").Activate  
Sheets("Sheet1").Name = "Golden Copy"  
  
Sheets("Sheet2").Activate  
Sheets("Sheet2").Name = "Matured"  
  
Sheets("Sheet3").Activate  
Sheets("Sheet3").Name = "Summary"  
  
'//Freezes panes of the Golden Copy and Matured tabs  
Sheets("Golden Copy").Activate  
Rows("1:1").Select  
With ActiveWindow  
    .SplitColumn = 0  
    .SplitRow = 1  
End With  
ActiveWindow.FreezePanes = True
```

```
Sheets("Matured").Activate
  Rows("1:1").Select
With ActiveWindow
  .SplitColumn = 0
  .SplitRow = 1
End With
ActiveWindow.FreezePanes = True

'// Module which creates the Summary tab
Application.Run "CreateSummaryTab"

  MsgBox "Report Completed Successfully." '//Pop-up message

End Sub

' Summary tab Module
  ' This class creates the data mappings for producing
  ' the Summary tab
  '

Sub CreateSummaryTab()

'//Creates summary tab
  Sheets("Summary").Select
  Range("B1:D1").Select
  ActiveCell.FormulaR1C1 = "Global"
  Range("F1:H1").Select
  ActiveCell.FormulaR1C1 = "EMEA"
  Range("J1:M1").Select
  ActiveCell.FormulaR1C1 = "AsiaPac"
  Range("B2").Select
  ActiveCell.FormulaR1C1 = "Heritage BAC1"
  Range("C2").Select
  ActiveCell.FormulaR1C1 = "#"
  Range("D2").Select
  ActiveCell.FormulaR1C1 = "Heritage MER"
  Range("E2").Select
  ActiveCell.FormulaR1C1 = "#"
  Range("F2").Select
  ActiveCell.FormulaR1C1 = "Heritage BAC2"
  Range("G2").Select
  ActiveCell.FormulaR1C1 = "#"
  Range("H2").Select
  ActiveCell.FormulaR1C1 = "Heritage MER"
  Range("I2").Select
  ActiveCell.FormulaR1C1 = "#"
  Range("J2").Select
  ActiveCell.FormulaR1C1 = "Heritage MER"
  Range("K2").Select
  ActiveCell.FormulaR1C1 = "#"
  Range("A4").Select
```



```
ActiveCell.FormulaR1C1 = "Key Vehicles (17) "  
Range("B4").Select  
ActiveCell.FormulaR1C1 = "STRATA"  
Range("D4").Select  
ActiveCell.FormulaR1C1 = "PARCS - all variants"  
Range("D5").Select  
ActiveCell.FormulaR1C1 = "PARCS-R"  
Range("D6").Select  
ActiveCell.FormulaR1C1 = "PARCS-L"  
Range("D7").Select  
ActiveCell.FormulaR1C1 = "PARCS-S"  
Range("F4").Select  
ActiveCell.FormulaR1C1 = "Helix Capital (Jsy) "  
Range("F5").Select  
ActiveCell.FormulaR1C1 = "Helix Investments"  
Range("F6").Select  
ActiveCell.FormulaR1C1 = "Motif Finance (Irl) "  
Range("F7").Select  
ActiveCell.FormulaR1C1 = "Sceptre Capital"  
Range("H4").Select  
ActiveCell.FormulaR1C1 = "Argon"  
Range("H5").Select  
ActiveCell.FormulaR1C1 = "CLEAR"  
Range("H6").Select  
ActiveCell.FormulaR1C1 = "Neon"  
Range("H7").Select  
ActiveCell.FormulaR1C1 = "Helium"  
Range("H8").Select  
ActiveCell.FormulaR1C1 = "Xenon"  
Range("H9").Select  
ActiveCell.FormulaR1C1 = "Stratus*"  
Range("J4").Select  
ActiveCell.FormulaR1C1 = "Argon"  
Range("J5").Select  
ActiveCell.FormulaR1C1 = "CLEAR"  
Range("J6").Select  
ActiveCell.FormulaR1C1 = "Neon"  
Range("J7").Select  
ActiveCell.FormulaR1C1 = "Helium"  
Range("J8").Select  
ActiveCell.FormulaR1C1 = "Xenon"  
Range("J9").Select  
ActiveCell.FormulaR1C1 = "Azusa"  
Range("J10").Select  
ActiveCell.FormulaR1C1 = "Bulls"  
Range("J11").Select  
ActiveCell.FormulaR1C1 = "Libra"  
Range("J12").Select  
ActiveCell.FormulaR1C1 = "Atena"  
Range("J13").Select  
ActiveCell.FormulaR1C1 = "Jubilee"  
Range("A14").Select
```

Global Credit Products Technology - SPV Reporting Tool  
Major Qualifying Project

```
ActiveCell.FormulaR1C1 = "Total Interim Capacity Request"  
Range("A16").Select  
ActiveCell.FormulaR1C1 = "Since"  
Range("A17").Select  
ActiveCell.FormulaR1C1 = "9/1/2009"  
Range("B18:D18").Select  
ActiveCell.FormulaR1C1 = "Global"  
Range("F18:H18").Select  
ActiveCell.FormulaR1C1 = "EMEA"  
Range("J18:K18").Select  
ActiveCell.FormulaR1C1 = "AsiaPac"  
Range("B19").Select  
ActiveCell.FormulaR1C1 = "Heritage BAC1"  
Range("C19").Select  
ActiveCell.FormulaR1C1 = "#"  
Range("D19").Select  
ActiveCell.FormulaR1C1 = "Heritage MER"  
Range("E19").Select  
ActiveCell.FormulaR1C1 = "#"  
Range("F19").Select  
ActiveCell.FormulaR1C1 = "Heritage BAC2"  
Range("G19").Select  
ActiveCell.FormulaR1C1 = "#"  
Range("H19").Select  
ActiveCell.FormulaR1C1 = "Heritage MER"  
Range("I19").Select  
ActiveCell.FormulaR1C1 = "#"  
Range("J19").Select  
ActiveCell.FormulaR1C1 = "Heritage MER"  
Range("K19").Select  
ActiveCell.FormulaR1C1 = "#"  
Range("A21").Select  
ActiveCell.FormulaR1C1 = "Key Vehicles (17)"  
Range("B21").Select  
ActiveCell.FormulaR1C1 = "STRATA"  
Range("D21").Select  
ActiveCell.FormulaR1C1 = "PARCS - all variants"  
Range("D22").Select  
ActiveCell.FormulaR1C1 = "PARCS-R"  
Range("D23").Select  
ActiveCell.FormulaR1C1 = "PARCS-L"  
Range("D24").Select  
ActiveCell.FormulaR1C1 = "PARCS-S"  
Range("F21").Select  
ActiveCell.FormulaR1C1 = "Helix Capital (Jsy)"  
Range("F22").Select  
ActiveCell.FormulaR1C1 = "Helix Investments"  
Range("F23").Select  
ActiveCell.FormulaR1C1 = "Motif Finance (Irl)"  
Range("F24").Select  
ActiveCell.FormulaR1C1 = "Sceptre Capital"  
Range("H21").Select
```

```

ActiveCell.FormulaR1C1 = "Argon"
Range("H22").Select
ActiveCell.FormulaR1C1 = "CLEAR"
Range("H23").Select
ActiveCell.FormulaR1C1 = "Neon"
Range("H24").Select
ActiveCell.FormulaR1C1 = "Helium"
Range("H25").Select
ActiveCell.FormulaR1C1 = "Xenon"
Range("H26").Select
ActiveCell.FormulaR1C1 = "Stratus*"
Range("J21").Select
ActiveCell.FormulaR1C1 = "Argon"
Range("J22").Select
ActiveCell.FormulaR1C1 = "CLEAR"
Range("J23").Select
ActiveCell.FormulaR1C1 = "Neon"
Range("J24").Select
ActiveCell.FormulaR1C1 = "Helium"
Range("J25").Select
ActiveCell.FormulaR1C1 = "Xenon"
Range("J26").Select
ActiveCell.FormulaR1C1 = "Azusa"
Range("J27").Select
ActiveCell.FormulaR1C1 = "Bulls"
Range("J28").Select
ActiveCell.FormulaR1C1 = "Libra"
Range("J29").Select
ActiveCell.FormulaR1C1 = "Atena"
Range("J30").Select
ActiveCell.FormulaR1C1 = "Jubilee"
Range("J31").Select
Range("C21").Select
ActiveCell.FormulaR1C1 = _
    "=COUNTIFS('Golden Copy'!C[1],""*GLOBAL"", 'Golden Copy'!C[-
1], ""=BAC"", 'Golden Copy'!C[-1], RC[-1]&""*"", 'Golden
Copy'!C[4], "">=""&R17C[-2])"
Range("E21").Select
ActiveCell.FormulaR1C1 = _
    "=COUNTIFS('Golden Copy'!C[-1],""*GLOBAL"", 'Golden Copy'!C[-
3], ""=MER"", 'Golden Copy'!C, RC[-1]&""*"", 'Golden
Copy'!C[2], "">=""&R17C[-4])"
Range("E22").Select
ActiveCell.FormulaR1C1 = _
    "=COUNTIFS('Golden Copy'!C[-1],""*GLOBAL"", 'Golden Copy'!C[-
3], ""=MER"", 'Golden Copy'!C, RC[-1]&""*"", 'Golden
Copy'!C[2], "">=""&R17C[-4])"
Range("E23").Select
ActiveCell.FormulaR1C1 = _
    "=COUNTIFS('Golden Copy'!C[-1],""*GLOBAL"", 'Golden Copy'!C[-
3], ""=MER"", 'Golden Copy'!C, RC[-1]&""*"", 'Golden
Copy'!C[2], "">=""&R17C[-4])"

```

```
Range("E24").Select
ActiveCell.FormulaR1C1 = _
    "=COUNTIFS('Golden Copy'!C[-1],""*GLOBAL"", 'Golden Copy'!C[-
3], ""=MER"", 'Golden Copy'!C, RC[-1]&""*"", 'Golden
Copy'!C[2], "">=""&R17C[-4])"
Range("G21").Select
ActiveCell.FormulaR1C1 = _
    "=COUNTIFS('Golden Copy'!C[-3],""*EMEA"", 'Golden Copy'!C[-
5], ""=BAC"", 'Golden Copy'!C[-1], RC[-1]&""*"", 'Golden
Copy'!C, "">=""&R17C[-6])"
Range("G22").Select
ActiveCell.FormulaR1C1 = _
    "=COUNTIFS('Golden Copy'!C[-3],""*EMEA"", 'Golden Copy'!C[-
5], ""=BAC"", 'Golden Copy'!C[-2], RC[-1]&""*"", 'Golden
Copy'!C, "">=""&R17C[-6])"
Range("G23").Select
ActiveCell.FormulaR1C1 = _
    "=COUNTIFS('Golden Copy'!C[-3],""*EMEA"", 'Golden Copy'!C[-
5], ""=BAC"", 'Golden Copy'!C[-2], RC[-1]&""*"", 'Golden
Copy'!C, "">=""&R17C[-6])"
Range("G24").Select
ActiveCell.FormulaR1C1 = _
    "=COUNTIFS('Golden Copy'!C[-3],""*EMEA"", 'Golden Copy'!C[-
5], ""=BAC"", 'Golden Copy'!C[-2], RC[-1]&""*"", 'Golden
Copy'!C, "">=""&R17C[-6])"
Range("I21").Select
ActiveCell.FormulaR1C1 = _
    "=COUNTIFS('Golden Copy'!C[-5],""*EMEA"", 'Golden Copy'!C[-
7], ""=MER"", 'Golden Copy'!C[-4], RC[-1]&""*"", 'Golden Copy'!C[-
2], "">=""&R17C[-8])"
Range("I22").Select
ActiveCell.FormulaR1C1 = _
    "=COUNTIFS('Golden Copy'!C[-5],""*EMEA"", 'Golden Copy'!C[-
7], ""=MER"", 'Golden Copy'!C[-4], RC[-1]&""*"", 'Golden Copy'!C[-
2], "">=""&R17C[-8])"
Range("I23").Select
ActiveCell.FormulaR1C1 = _
    "=COUNTIFS('Golden Copy'!C[-5],""*EMEA"", 'Golden Copy'!C[-
7], ""=MER"", 'Golden Copy'!C[-4], RC[-1]&""*"", 'Golden Copy'!C[-
2], "">=""&R17C[-8])"
Range("I24").Select
ActiveCell.FormulaR1C1 = _
    "=COUNTIFS('Golden Copy'!C[-5],""*EMEA"", 'Golden Copy'!C[-
7], ""=MER"", 'Golden Copy'!C[-4], RC[-1]&""*"", 'Golden Copy'!C[-
2], "">=""&R17C[-8])"
Range("I25").Select
ActiveCell.FormulaR1C1 = _
    "=COUNTIFS('Golden Copy'!C[-5],""*EMEA"", 'Golden Copy'!C[-
7], ""=MER"", 'Golden Copy'!C[-4], RC[-1]&""*"", 'Golden Copy'!C[-
2], "">=""&R17C[-8])"
Range("I26").Select
ActiveCell.FormulaR1C1 = _
```

```
"=COUNTIFS('Golden Copy'!C[-5],""*EMEA"", 'Golden Copy'!C[-7], ""=MER"", 'Golden Copy'!C[-4], RC[-1]&""*"", 'Golden Copy'!C[-2], "">=""&R17C[-8])"  
Range("K21").Select  
ActiveCell.FormulaR1C1 = _  
"=COUNTIFS('Golden Copy'!C[-7], ""*ASIA"", 'Golden Copy'!C[-9], ""=BAC"", 'Golden Copy'!C[-6], RC[-1]&""*"", 'Golden Copy'!C[-4], "">=""&R17C[-10])"  
Range("K21").Select  
ActiveCell.FormulaR1C1 = _  
"=COUNTIFS('Golden Copy'!C[-9], ""*ASIA"", 'Golden Copy'!C[-11], ""=MER"", 'Golden Copy'!C[-8], RC[-1]&""*"", 'Golden Copy'!C[-6], "">=""&R17C[-12])"  
Range("K22").Select  
ActiveCell.FormulaR1C1 = _  
"=COUNTIFS('Golden Copy'!C[-9], ""*ASIA"", 'Golden Copy'!C[-11], ""=MER"", 'Golden Copy'!C[-8], RC[-1]&""*"", 'Golden Copy'!C[-6], "">=""&R17C[-12])"  
Range("K23").Select  
ActiveCell.FormulaR1C1 = _  
"=COUNTIFS('Golden Copy'!C[-9], ""*ASIA"", 'Golden Copy'!C[-11], ""=MER"", 'Golden Copy'!C[-8], RC[-1]&""*"", 'Golden Copy'!C[-6], "">=""&R17C[-12])"  
Range("K24").Select  
ActiveCell.FormulaR1C1 = _  
"=COUNTIFS('Golden Copy'!C[-9], ""*ASIA"", 'Golden Copy'!C[-11], ""=MER"", 'Golden Copy'!C[-8], RC[-1]&""*"", 'Golden Copy'!C[-6], "">=""&R17C[-12])"  
Range("K25").Select  
ActiveCell.FormulaR1C1 = _  
"=COUNTIFS('Golden Copy'!C[-9], ""*ASIA"", 'Golden Copy'!C[-11], ""=MER"", 'Golden Copy'!C[-8], RC[-1]&""*"", 'Golden Copy'!C[-6], "">=""&R17C[-12])"  
Range("K26").Select  
ActiveCell.FormulaR1C1 = _  
"=COUNTIFS('Golden Copy'!C[-9], ""*ASIA"", 'Golden Copy'!C[-11], ""=MER"", 'Golden Copy'!C[-8], RC[-1]&""*"", 'Golden Copy'!C[-6], "">=""&R17C[-12])"  
Range("K27").Select  
ActiveCell.FormulaR1C1 = _  
"=COUNTIFS('Golden Copy'!C[-9], ""*ASIA"", 'Golden Copy'!C[-11], ""=MER"", 'Golden Copy'!C[-8], RC[-1]&""*"", 'Golden Copy'!C[-6], "">=""&R17C[-12])"  
Range("K28").Select  
ActiveCell.FormulaR1C1 = _  
"=COUNTIFS('Golden Copy'!C[-9], ""*ASIA"", 'Golden Copy'!C[-11], ""=MER"", 'Golden Copy'!C[-8], RC[-1]&""*"", 'Golden Copy'!C[-6], "">=""&R17C[-12])"  
Range("K29").Select  
ActiveWindow.SmallScroll Down:=6  
ActiveCell.FormulaR1C1 = _
```

```
"=COUNTIFS('Golden Copy'!C[-9],""*ASIA"", 'Golden Copy'!C[-11], ""=MER"", 'Golden Copy'!C[-8], RC[-1]&""*"", 'Golden Copy'!C[-6], "">=""&R17C[-12])"  
Range("K30").Select  
ActiveCell.FormulaR1C1 = _  
"=COUNTIFS('Golden Copy'!C[-9],""*ASIA"", 'Golden Copy'!C[-11], ""=MER"", 'Golden Copy'!C[-8], RC[-1]&""*"", 'Golden Copy'!C[-6], "">=""&R17C[-12])"
```

```
Range("A31").Select  
ActiveCell.FormulaR1C1 = "Total Interim Capacity Actual"  
Range("C31").Select  
ActiveCell.FormulaR1C1 = "=SUM(R[-10]C:R[-1]C)"  
Range("E31").Select  
ActiveCell.FormulaR1C1 = "=SUM(R[-10]C:R[-1]C)"  
Range("G31").Select  
ActiveCell.FormulaR1C1 = "=SUM(R[-10]C:R[-1]C)"  
Range("I31").Select  
ActiveCell.FormulaR1C1 = "=SUM(R[-10]C:R[-1]C)"  
Range("K31").Select  
ActiveCell.FormulaR1C1 = "=SUM(R[-10]C:R[-1]C)"
```

```
Range("A33").Select  
ActiveCell.FormulaR1C1 = "Total Interim Capacity Remaining"  
Range("C33").Select  
ActiveCell.FormulaR1C1 = "=R[-19]C-R[-2]C"  
Range("E33").Select  
ActiveCell.FormulaR1C1 = "=R[-19]C-R[-2]C"  
Range("G33").Select  
ActiveCell.FormulaR1C1 = "=R[-19]C-R[-2]C"  
Range("I33").Select  
ActiveCell.FormulaR1C1 = "=R[-19]C-R[-2]C"  
Range("K33").Select  
ActiveCell.FormulaR1C1 = "=R[-19]C-R[-2]C"
```

```
ActiveWindow.SmallScroll Down:=-6  
Range("A16:A17").Select  
With Selection.Interior  
    .Pattern = xlSolid  
    .PatternColorIndex = xlAutomatic  
    .ThemeColor = xlThemeColorLight2  
    .TintAndShade = 0.599993896298105  
    .PatternTintAndShade = 0  
End With  
Range("B18:E18").Select  
Selection.Borders(xlDiagonalDown).LineStyle = xlNone  
Selection.Borders(xlDiagonalUp).LineStyle = xlNone  
With Selection.Borders(xlEdgeLeft)  
    .LineStyle = xlContinuous  
    .ColorIndex = 0  
    .TintAndShade = 0  
    .Weight = xlThin
```

```
End With
With Selection.Borders(xlEdgeTop)
    .LineStyle = xlContinuous
    .ColorIndex = 0
    .TintAndShade = 0
    .Weight = xlThin
End With
With Selection.Borders(xlEdgeBottom)
    .LineStyle = xlContinuous
    .ColorIndex = 0
    .TintAndShade = 0
    .Weight = xlThin
End With
With Selection.Borders(xlEdgeRight)
    .LineStyle = xlContinuous
    .ColorIndex = 0
    .TintAndShade = 0
    .Weight = xlThin
End With
Selection.Borders(xlInsideVertical).LineStyle = xlNone
Selection.Borders(xlInsideHorizontal).LineStyle = xlNone
Range("F18:I18").Select
Selection.Borders(xlDiagonalDown).LineStyle = xlNone
Selection.Borders(xlDiagonalUp).LineStyle = xlNone
With Selection.Borders(xlEdgeLeft)
    .LineStyle = xlContinuous
    .ColorIndex = 0
    .TintAndShade = 0
    .Weight = xlThin
End With
With Selection.Borders(xlEdgeTop)
    .LineStyle = xlContinuous
    .ColorIndex = 0
    .TintAndShade = 0
    .Weight = xlThin
End With
With Selection.Borders(xlEdgeBottom)
    .LineStyle = xlContinuous
    .ColorIndex = 0
    .TintAndShade = 0
    .Weight = xlThin
End With
With Selection.Borders(xlEdgeRight)
    .LineStyle = xlContinuous
    .ColorIndex = 0
    .TintAndShade = 0
    .Weight = xlThin
End With
Selection.Borders(xlInsideVertical).LineStyle = xlNone
Selection.Borders(xlInsideHorizontal).LineStyle = xlNone
Range("J18:K18").Select
Selection.Borders(xlDiagonalDown).LineStyle = xlNone
```

```
Selection.Borders(xlDiagonalUp).LineStyle = xlNone
With Selection.Borders(xlEdgeLeft)
    .LineStyle = xlContinuous
    .ColorIndex = 0
    .TintAndShade = 0
    .Weight = xlThin
End With
With Selection.Borders(xlEdgeTop)
    .LineStyle = xlContinuous
    .ColorIndex = 0
    .TintAndShade = 0
    .Weight = xlThin
End With
With Selection.Borders(xlEdgeBottom)
    .LineStyle = xlContinuous
    .ColorIndex = 0
    .TintAndShade = 0
    .Weight = xlThin
End With
With Selection.Borders(xlEdgeRight)
    .LineStyle = xlContinuous
    .ColorIndex = 0
    .TintAndShade = 0
    .Weight = xlThin
End With
Selection.Borders(xlInsideVertical).LineStyle = xlNone
Selection.Borders(xlInsideHorizontal).LineStyle = xlNone
Range("B19:E30").Select
Selection.Borders(xlDiagonalDown).LineStyle = xlNone
Selection.Borders(xlDiagonalUp).LineStyle = xlNone
With Selection.Borders(xlEdgeLeft)
    .LineStyle = xlContinuous
    .ColorIndex = 0
    .TintAndShade = 0
    .Weight = xlThin
End With
With Selection.Borders(xlEdgeTop)
    .LineStyle = xlContinuous
    .ColorIndex = 0
    .TintAndShade = 0
    .Weight = xlThin
End With
With Selection.Borders(xlEdgeBottom)
    .LineStyle = xlContinuous
    .ColorIndex = 0
    .TintAndShade = 0
    .Weight = xlThin
End With
With Selection.Borders(xlEdgeRight)
    .LineStyle = xlContinuous
    .ColorIndex = 0
    .TintAndShade = 0
```



```
.Weight = xlThin
End With
Selection.Borders(xlInsideVertical).LineStyle = xlNone
Selection.Borders(xlInsideHorizontal).LineStyle = xlNone
Range("F19:I30").Select
Selection.Borders(xlDiagonalDown).LineStyle = xlNone
Selection.Borders(xlDiagonalUp).LineStyle = xlNone
With Selection.Borders(xlEdgeLeft)
    .LineStyle = xlContinuous
    .ColorIndex = 0
    .TintAndShade = 0
    .Weight = xlThin
End With
With Selection.Borders(xlEdgeTop)
    .LineStyle = xlContinuous
    .ColorIndex = 0
    .TintAndShade = 0
    .Weight = xlThin
End With
With Selection.Borders(xlEdgeBottom)
    .LineStyle = xlContinuous
    .ColorIndex = 0
    .TintAndShade = 0
    .Weight = xlThin
End With
With Selection.Borders(xlEdgeRight)
    .LineStyle = xlContinuous
    .ColorIndex = 0
    .TintAndShade = 0
    .Weight = xlThin
End With
Selection.Borders(xlInsideVertical).LineStyle = xlNone
Selection.Borders(xlInsideHorizontal).LineStyle = xlNone
Range("J19:K30").Select
Selection.Borders(xlDiagonalDown).LineStyle = xlNone
Selection.Borders(xlDiagonalUp).LineStyle = xlNone
With Selection.Borders(xlEdgeLeft)
    .LineStyle = xlContinuous
    .ColorIndex = 0
    .TintAndShade = 0
    .Weight = xlThin
End With
With Selection.Borders(xlEdgeTop)
    .LineStyle = xlContinuous
    .ColorIndex = 0
    .TintAndShade = 0
    .Weight = xlThin
End With
With Selection.Borders(xlEdgeBottom)
    .LineStyle = xlContinuous
    .ColorIndex = 0
    .TintAndShade = 0
```

```
.Weight = xlThin
End With
With Selection.Borders(xlEdgeRight)
    .LineStyle = xlContinuous
    .ColorIndex = 0
    .TintAndShade = 0
    .Weight = xlThin
End With
Selection.Borders(xlInsideVertical).LineStyle = xlNone
Selection.Borders(xlInsideHorizontal).LineStyle = xlNone
Range("A31:E31").Select
Selection.Borders(xlDiagonalDown).LineStyle = xlNone
Selection.Borders(xlDiagonalUp).LineStyle = xlNone
With Selection.Borders(xlEdgeLeft)
    .LineStyle = xlContinuous
    .ColorIndex = 0
    .TintAndShade = 0
    .Weight = xlThin
End With
With Selection.Borders(xlEdgeTop)
    .LineStyle = xlContinuous
    .ColorIndex = 0
    .TintAndShade = 0
    .Weight = xlThin
End With
With Selection.Borders(xlEdgeBottom)
    .LineStyle = xlContinuous
    .ColorIndex = 0
    .TintAndShade = 0
    .Weight = xlThin
End With
With Selection.Borders(xlEdgeRight)
    .LineStyle = xlContinuous
    .ColorIndex = 0
    .TintAndShade = 0
    .Weight = xlThin
End With
Selection.Borders(xlInsideVertical).LineStyle = xlNone
Selection.Borders(xlInsideHorizontal).LineStyle = xlNone
Range("F31:I31").Select
Selection.Borders(xlDiagonalDown).LineStyle = xlNone
Selection.Borders(xlDiagonalUp).LineStyle = xlNone
With Selection.Borders(xlEdgeLeft)
    .LineStyle = xlContinuous
    .ColorIndex = 0
    .TintAndShade = 0
    .Weight = xlThin
End With
With Selection.Borders(xlEdgeTop)
    .LineStyle = xlContinuous
    .ColorIndex = 0
    .TintAndShade = 0
```

```
.Weight = xlThin
End With
With Selection.Borders(xlEdgeBottom)
    .LineStyle = xlContinuous
    .ColorIndex = 0
    .TintAndShade = 0
    .Weight = xlThin
End With
With Selection.Borders(xlEdgeRight)
    .LineStyle = xlContinuous
    .ColorIndex = 0
    .TintAndShade = 0
    .Weight = xlThin
End With
Selection.Borders(xlInsideVertical).LineStyle = xlNone
Selection.Borders(xlInsideHorizontal).LineStyle = xlNone
Range("J31:K31").Select
Selection.Borders(xlDiagonalDown).LineStyle = xlNone
Selection.Borders(xlDiagonalUp).LineStyle = xlNone
With Selection.Borders(xlEdgeLeft)
    .LineStyle = xlContinuous
    .ColorIndex = 0
    .TintAndShade = 0
    .Weight = xlThin
End With
With Selection.Borders(xlEdgeTop)
    .LineStyle = xlContinuous
    .ColorIndex = 0
    .TintAndShade = 0
    .Weight = xlThin
End With
With Selection.Borders(xlEdgeBottom)
    .LineStyle = xlContinuous
    .ColorIndex = 0
    .TintAndShade = 0
    .Weight = xlThin
End With
With Selection.Borders(xlEdgeRight)
    .LineStyle = xlContinuous
    .ColorIndex = 0
    .TintAndShade = 0
    .Weight = xlThin
End With
Selection.Borders(xlInsideVertical).LineStyle = xlNone
Selection.Borders(xlInsideHorizontal).LineStyle = xlNone
Range("A18:A30").Select
Selection.Borders(xlDiagonalDown).LineStyle = xlNone
Selection.Borders(xlDiagonalUp).LineStyle = xlNone
With Selection.Borders(xlEdgeLeft)
    .LineStyle = xlContinuous
    .ColorIndex = 0
    .TintAndShade = 0
```

```
.Weight = xlThin
End With
With Selection.Borders(xlEdgeTop)
    .LineStyle = xlContinuous
    .ColorIndex = 0
    .TintAndShade = 0
    .Weight = xlThin
End With
With Selection.Borders(xlEdgeBottom)
    .LineStyle = xlContinuous
    .ColorIndex = 0
    .TintAndShade = 0
    .Weight = xlThin
End With
With Selection.Borders(xlEdgeRight)
    .LineStyle = xlContinuous
    .ColorIndex = 0
    .TintAndShade = 0
    .Weight = xlThin
End With
Selection.Borders(xlInsideVertical).LineStyle = xlNone
Selection.Borders(xlInsideHorizontal).LineStyle = xlNone
ActiveWindow.SmallScroll Down:=9
Range("A33:K33").Select
With Selection.Interior
    .Pattern = xlSolid
    .PatternColorIndex = xlAutomatic
    .ThemeColor = xlThemeColorLight2
    .TintAndShade = 0.599993896298105
    .PatternTintAndShade = 0
End With
With Selection.Font
    .ThemeColor = xlThemeColorDark1
    .TintAndShade = 0
End With
Selection.Font.Bold = True
Range("A33:K33").Select
With Selection.Interior
    .Pattern = xlSolid
    .PatternColorIndex = xlAutomatic
    .ThemeColor = xlThemeColorLight2
    .TintAndShade = 0.399975585192419
    .PatternTintAndShade = 0
End With
Range("C27").Select
ActiveWindow.SmallScroll Down:=-6
Range("B18:E18").Select
With Selection
    .HorizontalAlignment = xlCenterAcrossSelection
    .VerticalAlignment = xlBottom
    .WrapText = False
    .Orientation = 0
```

```
.AddIndent = False
.IndentLevel = 0
.ShrinkToFit = False
.ReadingOrder = xlContext
.MergeCells = False
End With
Range("F18:I18").Select
With Selection
    .HorizontalAlignment = xlCenterAcrossSelection
    .VerticalAlignment = xlBottom
    .WrapText = False
    .Orientation = 0
    .AddIndent = False
    .IndentLevel = 0
    .ShrinkToFit = False
    .ReadingOrder = xlContext
    .MergeCells = False
End With
Range("J18:K18").Select
With Selection
    .HorizontalAlignment = xlCenterAcrossSelection
    .VerticalAlignment = xlBottom
    .WrapText = False
    .Orientation = 0
    .AddIndent = False
    .IndentLevel = 0
    .ShrinkToFit = False
    .ReadingOrder = xlContext
    .MergeCells = False
End With
Range("A31:K31").Select
With Selection.Interior
    .Pattern = xlSolid
    .PatternColorIndex = xlAutomatic
    .Color = 13434879
    .TintAndShade = 0
    .PatternTintAndShade = 0
End With
Range("B18:K18").Select
With Selection.Interior
    .Pattern = xlSolid
    .PatternColorIndex = xlAutomatic
    .Color = 13434879
    .TintAndShade = 0
    .PatternTintAndShade = 0
End With

Range("B1:E1").Select
Selection.Borders(xlDiagonalDown).LineStyle = xlNone
Selection.Borders(xlDiagonalUp).LineStyle = xlNone
With Selection.Borders(xlEdgeLeft)
    .LineStyle = xlContinuous
```

```
.ColorIndex = 0
.TintAndShade = 0
.Weight = xlThin
End With
With Selection.Borders(xlEdgeTop)
.LineStyle = xlContinuous
.ColorIndex = 0
.TintAndShade = 0
.Weight = xlThin
End With
With Selection.Borders(xlEdgeBottom)
.LineStyle = xlContinuous
.ColorIndex = 0
.TintAndShade = 0
.Weight = xlThin
End With
With Selection.Borders(xlEdgeRight)
.LineStyle = xlContinuous
.ColorIndex = 0
.TintAndShade = 0
.Weight = xlThin
End With
Selection.Borders(xlInsideVertical).LineStyle = xlNone
Selection.Borders(xlInsideHorizontal).LineStyle = xlNone
Range("F1:I1").Select
Selection.Borders(xlDiagonalDown).LineStyle = xlNone
Selection.Borders(xlDiagonalUp).LineStyle = xlNone
With Selection.Borders(xlEdgeLeft)
.LineStyle = xlContinuous
.ColorIndex = 0
.TintAndShade = 0
.Weight = xlThin
End With
With Selection.Borders(xlEdgeTop)
.LineStyle = xlContinuous
.ColorIndex = 0
.TintAndShade = 0
.Weight = xlThin
End With
With Selection.Borders(xlEdgeBottom)
.LineStyle = xlContinuous
.ColorIndex = 0
.TintAndShade = 0
.Weight = xlThin
End With
With Selection.Borders(xlEdgeRight)
.LineStyle = xlContinuous
.ColorIndex = 0
.TintAndShade = 0
.Weight = xlThin
End With
Selection.Borders(xlInsideVertical).LineStyle = xlNone
```

```
Selection.Borders(xlInsideHorizontal).LineStyle = xlNone
Range("J1:K1").Select
With Selection.Interior
    .Pattern = xlSolid
    .PatternColorIndex = xlAutomatic
    .Color = 13434879
    .TintAndShade = 0
    .PatternTintAndShade = 0
End With
Range("B2:E13").Select
Selection.Borders(xlDiagonalDown).LineStyle = xlNone
Selection.Borders(xlDiagonalUp).LineStyle = xlNone
With Selection.Borders(xlEdgeLeft)
    .LineStyle = xlContinuous
    .ColorIndex = 0
    .TintAndShade = 0
    .Weight = xlThin
End With
With Selection.Borders(xlEdgeTop)
    .LineStyle = xlContinuous
    .ColorIndex = 0
    .TintAndShade = 0
    .Weight = xlThin
End With
With Selection.Borders(xlEdgeBottom)
    .LineStyle = xlContinuous
    .ColorIndex = 0
    .TintAndShade = 0
    .Weight = xlThin
End With
With Selection.Borders(xlEdgeRight)
    .LineStyle = xlContinuous
    .ColorIndex = 0
    .TintAndShade = 0
    .Weight = xlThin
End With
Selection.Borders(xlInsideVertical).LineStyle = xlNone
Selection.Borders(xlInsideHorizontal).LineStyle = xlNone
Range("F2:I13").Select
Selection.Borders(xlDiagonalDown).LineStyle = xlNone
Selection.Borders(xlDiagonalUp).LineStyle = xlNone
With Selection.Borders(xlEdgeLeft)
    .LineStyle = xlContinuous
    .ColorIndex = 0
    .TintAndShade = 0
    .Weight = xlThin
End With
With Selection.Borders(xlEdgeTop)
    .LineStyle = xlContinuous
    .ColorIndex = 0
    .TintAndShade = 0
    .Weight = xlThin
```

```
End With
With Selection.Borders(xlEdgeBottom)
    .LineStyle = xlContinuous
    .ColorIndex = 0
    .TintAndShade = 0
    .Weight = xlThin
End With
With Selection.Borders(xlEdgeRight)
    .LineStyle = xlContinuous
    .ColorIndex = 0
    .TintAndShade = 0
    .Weight = xlThin
End With
Selection.Borders(xlInsideVertical).LineStyle = xlNone
Selection.Borders(xlInsideHorizontal).LineStyle = xlNone
Range("J2:K13").Select
Selection.Borders(xlDiagonalDown).LineStyle = xlNone
Selection.Borders(xlDiagonalUp).LineStyle = xlNone
With Selection.Borders(xlEdgeLeft)
    .LineStyle = xlContinuous
    .ColorIndex = 0
    .TintAndShade = 0
    .Weight = xlThin
End With
With Selection.Borders(xlEdgeTop)
    .LineStyle = xlContinuous
    .ColorIndex = 0
    .TintAndShade = 0
    .Weight = xlThin
End With
With Selection.Borders(xlEdgeBottom)
    .LineStyle = xlContinuous
    .ColorIndex = 0
    .TintAndShade = 0
    .Weight = xlThin
End With
With Selection.Borders(xlEdgeRight)
    .LineStyle = xlContinuous
    .ColorIndex = 0
    .TintAndShade = 0
    .Weight = xlThin
End With
Selection.Borders(xlInsideVertical).LineStyle = xlNone
Selection.Borders(xlInsideHorizontal).LineStyle = xlNone
ActiveWindow.SmallScroll Down:=-6
Range("A14:E14").Select
Selection.Borders(xlDiagonalDown).LineStyle = xlNone
Selection.Borders(xlDiagonalUp).LineStyle = xlNone
With Selection.Borders(xlEdgeLeft)
    .LineStyle = xlContinuous
    .ColorIndex = 0
    .TintAndShade = 0
```



```
.Weight = xlThin
End With
With Selection.Borders(xlEdgeTop)
    .LineStyle = xlContinuous
    .ColorIndex = 0
    .TintAndShade = 0
    .Weight = xlThin
End With
With Selection.Borders(xlEdgeBottom)
    .LineStyle = xlContinuous
    .ColorIndex = 0
    .TintAndShade = 0
    .Weight = xlThin
End With
With Selection.Borders(xlEdgeRight)
    .LineStyle = xlContinuous
    .ColorIndex = 0
    .TintAndShade = 0
    .Weight = xlThin
End With
Selection.Borders(xlInsideVertical).LineStyle = xlNone
Selection.Borders(xlInsideHorizontal).LineStyle = xlNone
Range("F14:I14").Select
Selection.Borders(xlDiagonalDown).LineStyle = xlNone
Selection.Borders(xlDiagonalUp).LineStyle = xlNone
With Selection.Borders(xlEdgeLeft)
    .LineStyle = xlContinuous
    .ColorIndex = 0
    .TintAndShade = 0
    .Weight = xlThin
End With
With Selection.Borders(xlEdgeTop)
    .LineStyle = xlContinuous
    .ColorIndex = 0
    .TintAndShade = 0
    .Weight = xlThin
End With
With Selection.Borders(xlEdgeBottom)
    .LineStyle = xlContinuous
    .ColorIndex = 0
    .TintAndShade = 0
    .Weight = xlThin
End With
With Selection.Borders(xlEdgeRight)
    .LineStyle = xlContinuous
    .ColorIndex = 0
    .TintAndShade = 0
    .Weight = xlThin
End With
Selection.Borders(xlInsideVertical).LineStyle = xlNone
Selection.Borders(xlInsideHorizontal).LineStyle = xlNone
Range("J14:K14").Select
```

```
Selection.Borders(xlDiagonalDown).LineStyle = xlNone
Selection.Borders(xlDiagonalUp).LineStyle = xlNone
With Selection.Borders(xlEdgeLeft)
    .LineStyle = xlContinuous
    .ColorIndex = 0
    .TintAndShade = 0
    .Weight = xlThin
End With
With Selection.Borders(xlEdgeTop)
    .LineStyle = xlContinuous
    .ColorIndex = 0
    .TintAndShade = 0
    .Weight = xlThin
End With
With Selection.Borders(xlEdgeBottom)
    .LineStyle = xlContinuous
    .ColorIndex = 0
    .TintAndShade = 0
    .Weight = xlThin
End With
With Selection.Borders(xlEdgeRight)
    .LineStyle = xlContinuous
    .ColorIndex = 0
    .TintAndShade = 0
    .Weight = xlThin
End With
Selection.Borders(xlInsideVertical).LineStyle = xlNone
Selection.Borders(xlInsideHorizontal).LineStyle = xlNone

Range("A14:K14").Select
With Selection.Interior
    .Pattern = xlSolid
    .PatternColorIndex = xlAutomatic
    .Color = 13434879
    .TintAndShade = 0
    .PatternTintAndShade = 0
End With
Range("B1:K1").Select
With Selection.Interior
    .PatternColorIndex = xlAutomatic
    .Color = 13434879
    .TintAndShade = 0
    .PatternTintAndShade = 0
End With
Range("B1:E1").Select
With Selection
    .HorizontalAlignment = xlCenterAcrossSelection
    .VerticalAlignment = xlBottom
    .WrapText = False
    .Orientation = 0
    .AddIndent = False
    .IndentLevel = 0
```

```
.ShrinkToFit = False
.ReadingOrder = xlContext
.MergeCells = False
End With
Range("F1:I1").Select
With Selection
    .HorizontalAlignment = xlCenterAcrossSelection
    .VerticalAlignment = xlBottom
    .WrapText = False
    .Orientation = 0
    .AddIndent = False
    .IndentLevel = 0
    .ShrinkToFit = False
    .ReadingOrder = xlContext
    .MergeCells = False
End With
Range("J1:K1").Select
With Selection
    .HorizontalAlignment = xlCenterAcrossSelection
    .VerticalAlignment = xlBottom
    .WrapText = False
    .Orientation = 0
    .AddIndent = False
    .IndentLevel = 0
    .ShrinkToFit = False
    .ReadingOrder = xlContext
    .MergeCells = False
End With
Selection.Borders(xlDiagonalDown).LineStyle = xlNone
Selection.Borders(xlDiagonalUp).LineStyle = xlNone
With Selection.Borders(xlEdgeLeft)
    .LineStyle = xlContinuous
    .ColorIndex = 0
    .TintAndShade = 0
    .Weight = xlThin
End With
With Selection.Borders(xlEdgeTop)
    .LineStyle = xlContinuous
    .ColorIndex = 0
    .TintAndShade = 0
    .Weight = xlThin
End With
With Selection.Borders(xlEdgeBottom)
    .LineStyle = xlContinuous
    .ColorIndex = 0
    .TintAndShade = 0
    .Weight = xlThin
End With
With Selection.Borders(xlEdgeRight)
    .LineStyle = xlContinuous
    .ColorIndex = 0
    .TintAndShade = 0
```

```
.Weight = xlThin  
End With
```

```
Selection.Borders(xlInsideVertical).LineStyle = xlNone  
Selection.Borders(xlInsideHorizontal).LineStyle = xlNone  
Range("C14").Select  
ActiveCell.FormulaR1C1 = "=SUM(R[-10]C:R[-1]C)"  
Range("E14").Select  
ActiveCell.FormulaR1C1 = "=SUM(R[-10]C:R[-1]C)"  
Range("G14").Select  
ActiveCell.FormulaR1C1 = "=SUM(R[-10]C:R[-1]C)"  
Range("I14").Select  
ActiveCell.FormulaR1C1 = "=SUM(R[-10]C:R[-1]C)"  
Range("K14").Select  
ActiveCell.FormulaR1C1 = "=SUM(R[-10]C:R[-1]C)"  
Range("M15").Select
```

```
'//Formatting Static Summary
```

```
Range("C4").Select  
ActiveCell.FormulaR1C1 = "10"  
Range("E4").Select  
ActiveCell.FormulaR1C1 = "10"  
Range("G4").Select  
ActiveCell.FormulaR1C1 = "2"  
Range("G5").Select  
ActiveCell.FormulaR1C1 = "2"  
Range("G6").Select  
ActiveCell.FormulaR1C1 = "2"  
Range("G7").Select  
ActiveCell.FormulaR1C1 = "0"  
Range("I4").Select  
ActiveCell.FormulaR1C1 = "5"  
Range("I5").Select  
ActiveCell.FormulaR1C1 = "2"  
Range("I6").Select  
ActiveCell.FormulaR1C1 = "5"  
Range("I7").Select  
ActiveCell.FormulaR1C1 = "5"  
Range("I8").Select  
ActiveCell.FormulaR1C1 = "15"  
Range("I9").Select  
ActiveCell.FormulaR1C1 = "2"  
Range("K4").Select  
ActiveCell.FormulaR1C1 = "0"  
Range("K5").Select  
ActiveCell.FormulaR1C1 = "0"  
Range("K6").Select  
ActiveCell.FormulaR1C1 = "18"  
Range("K7").Select  
ActiveCell.FormulaR1C1 = "2"  
Range("K8").Select
```

```
ActiveCell.FormulaR1C1 = "0"  
Range("K9").Select  
ActiveCell.FormulaR1C1 = "0"  
Range("K10").Select  
ActiveCell.FormulaR1C1 = "5"  
Range("K11").Select  
ActiveCell.FormulaR1C1 = "0"  
Range("K12").Select  
ActiveCell.FormulaR1C1 = "0"  
Range("K13").Select  
ActiveCell.FormulaR1C1 = "0"  
Range("A2:K13").Select  
With Selection.Interior  
    .Pattern = xlSolid  
    .PatternColorIndex = xlAutomatic  
    .ThemeColor = xlThemeColorAccent4  
    .TintAndShade = 0.799981688894314  
    .PatternTintAndShade = 0  
End With
```

```
Columns("B:B").ColumnWidth = 15.4  
Columns("D:D").ColumnWidth = 15.4  
Columns("F:F").ColumnWidth = 15.4  
Columns("H:H").ColumnWidth = 15.4  
Columns("J:J").ColumnWidth = 15.4
```

```
Range("A1").Select
```

```
End Sub
```

### *Trigger and Error reports*

#### **' CONTROL\_MainImport Module**

```
' This class controls the main functionality of the SPV reporting  
' tool: opens a website, copies and pastes all of the data into excel  
' and then closes the website. In addition, the additional modules  
' are controlled by this module  
'  
' Requirements:
```

```
' Requires Visual Basic for Applications, Microsoft Excel 12.0 Object  
' Library  
' Microsoft Forms 12.0 Object Library  
'  
' Limitations:  
' Does not support Microsoft Excel 2007 due to the following error:  
' **Too many different cell formats**
```

```
Sub ImportHTMLtoSheet()
```

```
Application.ScreenUpdating = False '//Run this in the background
```

```
Dim IE As Object  
Dim log, getdate As String  
Dim logflow As Boolean  
log = "ASIA"  
logflow = True
```

```
'//Gets the report date from a cell in the control tab after it was  
'converted from the Calendar function  
getdate = Sheets("Control").Range("G33")
```

```
'//Clears all fields in Main and Sub Sheets
```

```
Sheets("Main").Select  
Cells.Select  
Selection.Delete Shift:=xlUp  
Sheets("Sub").Select  
Cells.Select  
Selection.Delete Shift:=xlUp
```

```
'//Generates reports for ASIA, EMEA and GLOBAL regions
```

```
Do Until logflow = False
```

```
'// Clears all fields in HTMLScrape sheet
```

```
Sheets("HTMLScrape").Select  
Cells.Select  
Selection.Delete Shift:=xlUp
```

```
'//Controls Internet Explorer application from MS Excel
```

```
Set IE = CreateObject("InternetExplorer.Application")
```

```
With IE
```

```
.Visible = True
```

```
'//Opens all the URLs where the date is mapped into the "getdate"  
field
```

```
If log = "ASIA" Then  
.navigate
```

```
"http://uswxapplexp01.lvt.us.ml.com:8081/aurora/trigger/" & getdate &  
"/TriggerReport-CREDIT_FLOW_ASIA.html" ' should work for any URL
```

```
End If

If log = "EMEA" Then
    .navigate
"http://uswxapplexp01.lvt.us.ml.com:8081/aurora/trigger/" & getdate &
"/TriggerReport-CREDIT_FLOW_EMEA.html"
End If

If log = "GLOBAL" Then
    .navigate
"http://uswxapplexp01.lvt.us.ml.com:8081/aurora/trigger/" & getdate &
"/TriggerReport-CREDIT_SCT_GLOBAL.html"
End If

'// Waits until Internet Explorer finishes loading the page
While IE.Busy
    DoEvents
Wend

Do
If IE.readyState = 4 Then
    Exit Do
Else
    DoEvents
End If
Loop

'//3 seconds wait time
Application.Wait Now + TimeValue("0:00:03")

End With

'// Identifies the Sub report embedded link entry name from
' the JavaScript of the Collateral Trigger application
' Once the entry name is found, the next assigned operation
' is executed and another function navigates to the assigned
' URLs which contain all six output Main and Sub reports.

For Each inpEntryButton In IE.Document.All
    If inpEntryButton.outerText = "Get All Sub Reports" Then
        If inpEntryButton.Name = "" Then inpEntryButton.Click
    End If
Next inpEntryButton

Do
If IE.readyState = 4 Then
    Exit Do
Else
    DoEvents
End If
Loop

While IE.Busy
```

```
        DoEvents
    Wend

Application.Wait Now + TimeValue("0:00:03")
    IE.ExecWB 17, 0 '// Select all

    While IE.Busy
        DoEvents
    Wend

    IE.ExecWB 12, 2 '// Copy selection
    Sheets("HTMLScrape").Select
    Range("A1").Select
    ActiveSheet.PasteSpecial Format:="HTML", link:=False,
DisplayAsIcon:=False
    Range("A1").Select
    IE.Quit

'//A loop is used for accessing all three different regions (ASIA,
EMEA and GLOBAL)

    If log = "GLOBAL" Then
        logflow = False
    End If

    If log = "EMEA" Then
        log = "GLOBAL"
    End If

    If log = "ASIA" Then
        log = "EMEA"
    End If

'//Module which modifies the HTMLScrape into main and sub reports
Application.Run "CreateReport" '//Runs the module

Loop

'//Clears HTMLScrape sheet
    Sheets("HTMLScrape").Select
    Cells.Select
    Selection.Delete Shift:=xlUp

'//Module which create Headers on Main and Sub sheets
Application.Run "CreateHeaders" '//Runs the module

'//Module which cleans the Main sheet
Application.Run "MainClean" '//Runs the module
```



```
'//Module which creates the Maturity Warning Tab
Application.Run "CreateMatWarning"

'//Module which creates the Error report
Application.Run "MakeErrors"

'//Module which creates the Trigger Report
Application.Run "Create_TR"

'//Module which saves the Error and Trigger reports, as well as the
Maturity Warning
'//tab sheet into a new workbook
Application.Run "SaveNew"

Application.ScreenUpdating = True '//Stops the background running

End Sub

' Create Trigger Report Module
    ' This class applies appropriate data mapping in order to produce the
    ' Trigger Report
    '

Sub MakeTriggerReport()

    Dim m, s, strm, strs As Integer
    Dim wtp As Integer
    Dim xdate As String
    strm = 1
    strs = 1
    wtp = 12

'//Creates the Triggers tab sheet
    Sheets("Triggers").Select
    Cells.Select
    Selection.Delete Shift:=xlUp

    Sheets("Main").Select
    Range("A2").Select
    Range(Selection, Selection.End(xlDown)).Select
    m = Selection.Rows.Count

For strm = 1 To m + 1
    If Range("B" & strm) = "TRIGGERED" Or Range("B" & strm) = "EARLY
WARNING" Or Range("B" & strm) = "TRIGGERED & ERROR" Then

'//Gets all triggered trades which contain CRVS
```

```
If Range("P" & strm).Interior.ColorIndex = 3 Or Range("P" &
strm).Interior.ColorIndex = 45 Then
    Range("A" & strm).Copy
    Sheets("Triggers").Select
    Range("B" & wtp).Select
    ActiveSheet.Paste

    Sheets("Main").Select
    Range("D" & strm).Copy
    Sheets("Triggers").Select
    Range("C" & wtp).Select
    ActiveSheet.Paste

    Sheets("Main").Select
    Range("E" & strm).Copy
    Sheets("Triggers").Select
    Range("D" & wtp).Select
    ActiveSheet.Paste

    Sheets("Main").Select
    Range("C" & strm).Copy
    Sheets("Triggers").Select
    Range("E" & wtp).Select
    ActiveSheet.Paste

    Sheets("Main").Select
    Range("L" & strm).Copy
    Sheets("Triggers").Select
    Range("G" & wtp).Select
    ActiveSheet.Paste

    Sheets("Main").Select
    Range("B" & strm).Copy
    Sheets("Triggers").Select
    Range("H" & wtp).Select
    ActiveSheet.Paste

    Sheets("Main").Select
    Range("R" & strm).Copy
    Sheets("Triggers").Select
    Range("J" & wtp).Select
    ActiveSheet.Paste

    Range("I" & wtp) = "CRVS"

    wtp = wtp + 1
    Sheets("Main").Select
End If
End If
Next
```

```
Sheets("Sub").Select
Range("A2").Select
Range(Selection, Selection.End(xlDown)).Select
s = Selection.Rows.Count

For str = 1 To s + 1
    If Range("B" & str) = "TRIGGERED" Or Range("B" & str) = "EARLY
WARNING" Or Range("B" & str) = "TRIGGERED & ERROR" Then

'Gets all triggered errors which contain Collateral Price

    If Range("O" & str).Interior.ColorIndex = 3 Or Range("O" &
str).Interior.ColorIndex = 45 Then
```

```
        Sheets("Sub").Select
        Range("A" & str).Copy
        Sheets("Triggers").Select
        Range("B" & str).Select
        ActiveSheet.Paste
```

```
        Sheets("Sub").Select
        Range("E" & str).Copy
        Sheets("Triggers").Select
        Range("C" & str).Select
        ActiveSheet.Paste
```

```
        Sheets("Sub").Select
        Range("D" & str).Copy
        Sheets("Triggers").Select
        Range("D" & str).Select
        ActiveSheet.Paste
```

```
        Sheets("Sub").Select
        Range("C" & str).Copy
        Sheets("Triggers").Select
        Range("E" & str).Select
        ActiveSheet.Paste
```

```
        Sheets("Sub").Select
        Range("F" & str).Copy
        Sheets("Triggers").Select
        Range("F" & str).Select
        ActiveSheet.Paste
```

```
        Sheets("Sub").Select
        Range("B" & str).Copy
        Sheets("Triggers").Select
        Range("H" & str).Select
        ActiveSheet.Paste
```

```
        Sheets("Main").Select
```

```
Range("R" & strm).Copy
Sheets("Triggers").Select
Range("J" & wtp).Select
ActiveSheet.Paste

Range("I" & wtp) = "Collateral Price"

wtp = wtp + 1
End If

Sheets("Sub").Select

'Gets all other triggered trades

If Range("B" & str) = "TRIGGERED" Or Range("B" & str) =
"EARLY WARNING" Or Range("B" & str) = "TRIGGERED & ERROR" Then
    If Range("F" & str).Interior.ColorIndex = 3 Or Range("F"
& str).Interior.ColorIndex = 45
        Or Range("Q" & str).Interior.ColorIndex = 3 Or Range("Q"
& str).Interior.ColorIndex = 45
            Or Range("S" & str).Interior.ColorIndex = 3 Or Range("S"
& str).Interior.ColorIndex = 45
                Or Range("U" & str).Interior.ColorIndex = 3 Or Range("U"
& str).Interior.ColorIndex = 45
                    Then
                        Sheets("Sub").Select
                        Range("A" & str).Copy
                        Sheets("Triggers").Select
                        Range("B" & wtp).Select
                        ActiveSheet.Paste

                        Sheets("Sub").Select
                        Range("E" & str).Copy
                        Sheets("Triggers").Select
                        Range("C" & wtp).Select
                        ActiveSheet.Paste

                        Sheets("Sub").Select
                        Range("D" & str).Copy
                        Sheets("Triggers").Select
                        Range("D" & wtp).Select
                        ActiveSheet.Paste

                        Sheets("Sub").Select
                        Range("C" & str).Copy
                        Sheets("Triggers").Select
                        Range("E" & wtp).Select
                        ActiveSheet.Paste

                        Sheets("Sub").Select
                        Range("F" & str).Copy
                        Sheets("Triggers").Select
```

```
Range("F" & wtp).Select
ActiveSheet.Paste

Sheets("Sub").Select
Range("B" & str).Copy
Sheets("Triggers").Select
Range("H" & wtp).Select
ActiveSheet.Paste

Sheets("Main").Select
Range("R" & str).Copy
Sheets("Triggers").Select
Range("J" & wtp).Select
ActiveSheet.Paste

Range("I" & wtp) = "Collateral Rating"

wtp = wtp + 1
End If
End If

Sheets("Sub").Select

End If
Next

'Trigger Report Formatting

Sheets("Triggers").Select
Range("B11:J" & wtp - 1).Select
With Selection.Interior
    .Pattern = xlSolid
    .PatternColorIndex = xlAutomatic
    .ThemeColor = xlThemeColorDark1
    .TintAndShade = 0
    .PatternTintAndShade = 0
End With
With Selection.Font
    .ThemeColor = xlThemeColorLight1
    .TintAndShade = 0
End With

Range("B11:J" & wtp - 1).Select
Selection.Borders(xlDiagonalDown).LineStyle = xlNone
Selection.Borders(xlDiagonalUp).LineStyle = xlNone
With Selection.Borders(xlEdgeLeft)
    .LineStyle = xlContinuous
    .ColorIndex = 0
    .TintAndShade = 0
    .Weight = xlThin
End With
```

```
With Selection.Borders(xlEdgeTop)
    .LineStyle = xlContinuous
    .ColorIndex = 0
    .TintAndShade = 0
    .Weight = xlThin
End With
With Selection.Borders(xlEdgeBottom)
    .LineStyle = xlContinuous
    .ColorIndex = 0
    .TintAndShade = 0
    .Weight = xlThin
End With
With Selection.Borders(xlEdgeRight)
    .LineStyle = xlContinuous
    .ColorIndex = 0
    .TintAndShade = 0
    .Weight = xlThin
End With
With Selection.Borders(xlInsideVertical)
    .LineStyle = xlContinuous
    .ColorIndex = 0
    .TintAndShade = 0
    .Weight = xlThin
End With
With Selection.Borders(xlInsideHorizontal)
    .LineStyle = xlContinuous
    .ColorIndex = 0
    .TintAndShade = 0
    .Weight = xlThin
End With
```

'Summary Table formatting at the top

```
Range("A3").Select
ActiveCell.FormulaR1C1 = "Report Name"
Range("A4").Select
ActiveCell.FormulaR1C1 = "CREDIT_SCT_GLOBAL"
Range("A5").Select
ActiveCell.FormulaR1C1 = "CREDIT_FLOW_ASIA"
Range("A6").Select
ActiveCell.FormulaR1C1 = "CREDIT_FLOW_EMEA"
Range("A7").Select
ActiveCell.FormulaR1C1 = "TOTAL"
Range("B3").Select
ActiveCell.FormulaR1C1 = "CRVS"
Range("B4").Select
ActiveCell.FormulaR1C1 = _
    "=COUNTIFS(R11C2:R" & wtp & "C2, ""*GLOBAL"", R11C9:R" & wtp &
"C9, R3C) "
Range("B5").Select
ActiveCell.FormulaR1C1 = "=COUNTIFS(R11C2:R" & wtp & "C2,
""*ASIA"", R11C9:R" & wtp & "C9, R3C) "
```

Global Credit Products Technology - SPV Reporting Tool  
Major Qualifying Project

```
Range("B6").Select
ActiveCell.FormulaR1C1 = "=COUNTIFS(R11C2:R" & wtp & "C2,
""*EMEA"", R11C9:R" & wtp & "C9, R3C) "
Range("B7").Select
ActiveCell.FormulaR1C1 = "=SUM(R[-3]C:R[-1]C) "
Range("C3").Select
ActiveCell.FormulaR1C1 = "Collateral Rating"
Range("C4").Select
ActiveCell.FormulaR1C1 = _
    "=COUNTIFS(R11C2:R" & wtp & "C2, ""*GLOBAL"", R11C9:R" & wtp &
"C9, R3C) "
Range("C5").Select
ActiveCell.FormulaR1C1 = "=COUNTIFS(R11C2:R" & wtp & "C2,
""*ASIA"", R11C9:R" & wtp & "C9, R3C) "
Range("C6").Select
ActiveCell.FormulaR1C1 = "=COUNTIFS(R11C2:R" & wtp & "C2,
""*EMEA"", R11C9:R" & wtp & "C9, R3C) "
Range("C7").Select
ActiveCell.FormulaR1C1 = "=SUM(R[-3]C:R[-1]C) "
Range("D3").Select
ActiveCell.FormulaR1C1 = "Collateral Price"
Range("D4").Select
ActiveCell.FormulaR1C1 = _
    "=COUNTIFS(R11C2:R" & wtp & "C2, ""*GLOBAL"", R11C9:R" & wtp &
"C9, R3C) "
Range("D5").Select
ActiveCell.FormulaR1C1 = "=COUNTIFS(R11C2:R" & wtp & "C2,
""*ASIA"", R11C9:R" & wtp & "C9, R3C) "
Range("D6").Select
ActiveCell.FormulaR1C1 = "=COUNTIFS(R11C2:R" & wtp & "C2,
""*EMEA"", R11C9:R" & wtp & "C9, R3C) "
Range("D7").Select
ActiveCell.FormulaR1C1 = "=SUM(R[-3]C:R[-1]C) "

Range("B9:D9").Select
ActiveCell.FormulaR1C1 = "Trigger Report"

'Creates the headers of the Trigger report table
Range("B11").Select
ActiveCell.FormulaR1C1 = "Report Name"
Range("C11").Select
ActiveCell.FormulaR1C1 = "CoPer ID"
Range("D11").Select
ActiveCell.FormulaR1C1 = "SPV ISIN"
Range("E11").Select
ActiveCell.FormulaR1C1 = "SPV Name"
Range("F11").Select
ActiveCell.FormulaR1C1 = "Collateral ISIN"
Range("G11").Select
ActiveCell.FormulaR1C1 = "Swap ID"
Range("H11").Select
```

```
ActiveCell.FormulaR1C1 = "Trigger Type"  
Range("I11").Select  
ActiveCell.FormulaR1C1 = "Reason"  
Range("J11").Select  
ActiveCell.FormulaR1C1 = "Transaction Description"  
Range("B11:J11").Select  
    With Selection.Font  
        .Name = "Calibri"  
        .Size = 10  
        .Strikethrough = False  
        .Superscript = False  
        .Subscript = False  
        .OutlineFont = False  
        .Shadow = False  
        .Underline = xlUnderlineStyleNone  
        .ColorIndex = 1  
        .TintAndShade = 0  
        .ThemeFont = xlThemeFontMinor  
    End With  
    'Background and font color  
    Selection.Font.Bold = True  
    With Selection.Interior  
        .Pattern = xlSolid  
        .PatternColorIndex = xlAutomatic  
        .ThemeColor = xlThemeColorDark1  
        .TintAndShade = -0.249977111117893  
        .PatternTintAndShade = 0  
    End With
```

```
'//Addition formatting
```

```
Cells.Select  
  
With Selection.Font  
    .Name = "Calibri"  
    .Size = 10  
    .Strikethrough = False  
    .Superscript = False  
    .Subscript = False  
    .OutlineFont = False  
    .Shadow = False  
    .Underline = xlUnderlineStyleNone  
    .TintAndShade = 0  
    .ThemeFont = xlThemeFontMinor  
End With  
  
Columns("A:A").ColumnWidth = 17.43  
Columns("B:B").ColumnWidth = 18.14  
Columns("C:C").ColumnWidth = 18.29  
Columns("C:C").ColumnWidth = 18.57  
Columns("D:D").ColumnWidth = 17.71
```



```
Columns("E:E").ColumnWidth = 35.86  
Columns("F:F").ColumnWidth = 17.57  
Columns("G:G").ColumnWidth = 17.43  
Columns("H:H").ColumnWidth = 17.57  
Columns("I:I").ColumnWidth = 13.71  
Columns("J:J").ColumnWidth = 93.57
```

```
Range("B11:J" & wtp - 1).Select
```

```
With Selection  
    .HorizontalAlignment = xlCenter  
    .VerticalAlignment = xlBottom  
    .WrapText = False  
    .Orientation = 0  
    .AddIndent = False  
    .IndentLevel = 0  
    .ShrinkToFit = False  
    .ReadingOrder = xlContext  
    .MergeCells = False  
End With
```

```
Rows("11:11").RowHeight = 24.75  
Range("B9").Select  
With Selection.Font  
    .ThemeColor = xlThemeColorDark1  
    .TintAndShade = 0  
End With  
Selection.Font.Bold = True  
With Selection.Interior  
    .Pattern = xlSolid  
    .PatternColorIndex = xlAutomatic  
    .Color = 128  
    .TintAndShade = 0  
    .PatternTintAndShade = 0  
End With
```

```
Range("A3:D3").Select  
With Selection.Font  
    .ThemeColor = xlThemeColorDark1  
    .TintAndShade = 0  
End With  
With Selection.Interior  
    .Pattern = xlSolid  
    .PatternColorIndex = xlAutomatic  
    .Color = 128  
    .TintAndShade = 0  
    .PatternTintAndShade = 0  
End With  
Selection.Font.Bold = True
```

```
Range("A1").Select
With Selection
    .HorizontalAlignment = xlLeft
    .VerticalAlignment = xlBottom
    .WrapText = False
    .Orientation = 0
    .AddIndent = False
    .IndentLevel = 0
    .ShrinkToFit = False
    .ReadingOrder = xlContext
    .MergeCells = False
End With
Selection.Font.Bold = True

Range("A3:D7").Select
Selection.Borders(xlDiagonalDown).LineStyle = xlNone
Selection.Borders(xlDiagonalUp).LineStyle = xlNone
With Selection.Borders(xlEdgeLeft)
    .LineStyle = xlContinuous
    .ColorIndex = 0
    .TintAndShade = 0
    .Weight = xlThin
End With
With Selection.Borders(xlEdgeTop)
    .LineStyle = xlContinuous
    .ColorIndex = 0
    .TintAndShade = 0
    .Weight = xlThin
End With
With Selection.Borders(xlEdgeBottom)
    .LineStyle = xlContinuous
    .ColorIndex = 0
    .TintAndShade = 0
    .Weight = xlThin
End With
With Selection.Borders(xlEdgeRight)
    .LineStyle = xlContinuous
    .ColorIndex = 0
    .TintAndShade = 0
    .Weight = xlThin
End With
With Selection.Borders(xlInsideVertical)
    .LineStyle = xlContinuous
    .ColorIndex = 0
    .TintAndShade = 0
    .Weight = xlThin
End With
With Selection.Borders(xlInsideHorizontal)
    .LineStyle = xlContinuous
    .ColorIndex = 0
    .TintAndShade = 0
    .Weight = xlThin
```

End With

```
Sheets("Main").Select
Range("S2").Select
xdate = Range("S2").Value
Sheets("Triggers").Select
Range("A1").Select
ActiveCell.FormulaR1C1 = "Report as of " & xdate
```

```
Range("B12:B" & wtp - 1).Select
ActiveWorkbook.Worksheets("Triggers").Sort.SortFields.Clear
ActiveWorkbook.Worksheets("Triggers").Sort.SortFields.Add
Key:=Range("B12"), _
    SortOn:=xlSortOnValues, Order:=xlAscending,
DataOption:=xlSortNormal
With ActiveWorkbook.Worksheets("Triggers").Sort
    .SetRange Range("B12:H" & wtp - 1)
    .Header = xlNo
    .MatchCase = False
    .Orientation = xlTopToBottom
    .SortMethod = xlPinYin
    .Apply
End With
```

```
Sheets("Main").Select
Selection.AutoFilter
```

```
Sheets("Sub").Select
Selection.AutoFilter
```

```
Sheets("HTMLScrape").Select
Cells.Select
Selection.Delete Shift:=xlUp
```

```
Sheets("Triggers").Select
```

End Sub

```
' Create Error Report Module
```

```
' This class applies appropriate data mapping in order to produce the
' Error report
'
```

```
Sub MakeErrors()
    Dim m, s, strm, strs As Integer
    Dim wtp As Integer
    Dim xdate As Date
```

```
strm = 1
strs = 1
wtp = 12

'//Clears Errors tab Sheet
Sheets("Errors").Select
Cells.Select
Selection.Delete Shift:=xlUp

Sheets("Main").Select
Range("A2").Select
Range(Selection, Selection.End(xlDown)).Select
m = Selection.Rows.Count

For strm = 1 To m + 1
  If Range("B" & strm) = "ERROR" Then
    'If Swap PV Price Error
    If Range("N" & strm).Interior.ColorIndex = 38 Then
      Range("A" & strm).Copy
      Sheets("Errors").Select
      Range("B" & wtp).Select
      ActiveSheet.Paste

      Sheets("Main").Select
      Range("D" & strm).Copy
      Sheets("Errors").Select
      Range("C" & wtp).Select
      ActiveSheet.Paste

      Sheets("Main").Select
      Range("E" & strm).Copy
      Sheets("Errors").Select
      Range("D" & wtp).Select
      ActiveSheet.Paste

      Sheets("Main").Select
      Range("C" & strm).Copy
      Sheets("Errors").Select
      Range("E" & wtp).Select
      ActiveSheet.Paste

      Sheets("Main").Select
      Range("L" & strm).Copy
      Sheets("Errors").Select
      Range("G" & wtp).Select
      ActiveSheet.Paste

      Sheets("Main").Select
      Range("R" & strm).Copy
      Sheets("Errors").Select
      Range("I" & wtp).Select
      ActiveSheet.Paste
```

```
Range("H" & wtp) = "Trade PV"

    wtp = wtp + 1
    Sheets("Main").Select
End If
End If
Next

Sheets("Sub").Select
Range("A2").Select
Range(Selection, Selection.End(xlDown)).Select
s = Selection.Rows.Count

For str = 1 To s + 1
    If Range("B" & str) = "ERROR" Or Range("B" & str) = "TRIGGERED &
ERROR" Then

'If Error downloading price is the reason for the error trades

        If Range("O" & str) = "Error downloading price" Then
            Range("A" & str).Copy
            Sheets("Errors").Select
            Range("B" & wtp).Select
            ActiveSheet.Paste

            Sheets("Sub").Select
            Range("E" & str).Copy
            Sheets("Errors").Select
            Range("C" & wtp).Select
            ActiveSheet.Paste

            Sheets("Sub").Select
            Range("D" & str).Copy
            Sheets("Errors").Select
            Range("D" & wtp).Select
            ActiveSheet.Paste

            Sheets("Sub").Select
            Range("C" & str).Copy
            Sheets("Errors").Select
            Range("E" & wtp).Select
            ActiveSheet.Paste

            Sheets("Sub").Select
            Range("F" & str).Copy
            Sheets("Errors").Select
            Range("F" & wtp).Select
            ActiveSheet.Paste
```

```
Sheets("Main").Select
Range("R" & str).Copy
Sheets("Errors").Select
Range("I" & wtp).Select
ActiveSheet.Paste

Range("H" & wtp) = "Collateral Price"

wtp = wtp + 1
End If

Sheets("Sub").Select

'If Error downloading rating is the reason for the error trades

If Range("Q" & str) = "Error downloading rating" Or Range("S"
& str) = "Error downloading rating" Or Range("U" & str) = "Error
downloading rating" Then
Range("A" & str).Copy
Sheets("Errors").Select
Range("B" & wtp).Select
ActiveSheet.Paste

Sheets("Sub").Select
Range("E" & str).Copy
Sheets("Errors").Select
Range("C" & wtp).Select
ActiveSheet.Paste

Sheets("Sub").Select
Range("D" & str).Copy
Sheets("Errors").Select
Range("D" & wtp).Select
ActiveSheet.Paste

Sheets("Sub").Select
Range("C" & str).Copy
Sheets("Errors").Select
Range("E" & wtp).Select
ActiveSheet.Paste

Sheets("Sub").Select
Range("F" & str).Copy
Sheets("Errors").Select
Range("F" & wtp).Select
ActiveSheet.Paste

Sheets("Main").Select
Range("R" & str).Copy
Sheets("Errors").Select
Range("I" & wtp).Select
ActiveSheet.Paste
```

```
Range("H" & wtp) = "Market Data"

wtp = wtp + 1
End If

Sheets("Sub").Select

'If Error in Fitch Current is the reason for error trades

If Range("Q" & str) <> "Error downloading rating" And
Range("S" & str) <> "Error downloading rating" And Range("U" & str)
<> "Error downloading rating" Then
    If Range("Q" & str).Interior.ColorIndex = 38 Or Range("S"
& str).Interior.ColorIndex = 38 Or Range("U" &
str).Interior.ColorIndex = 38 Then

        Range("A" & str).Copy
        Sheets("Errors").Select
        Range("B" & wtp).Select
        ActiveSheet.Paste

        Sheets("Sub").Select
        Range("E" & str).Copy
        Sheets("Errors").Select
        Range("C" & wtp).Select
        ActiveSheet.Paste

        Sheets("Sub").Select
        Range("D" & str).Copy
        Sheets("Errors").Select
        Range("D" & wtp).Select
        ActiveSheet.Paste

        Sheets("Sub").Select
        Range("C" & str).Copy
        Sheets("Errors").Select
        Range("E" & wtp).Select
        ActiveSheet.Paste

        Sheets("Sub").Select
        Range("F" & str).Copy
        Sheets("Errors").Select
        Range("F" & wtp).Select
        ActiveSheet.Paste

        Sheets("Main").Select
        Range("R" & str).Copy
        Sheets("Errors").Select
        Range("I" & wtp).Select
        ActiveSheet.Paste
```

```
        Range("H" & wtp) = "Market Data"

        wtp = wtp + 1

        End If
        End If
    End If
    Sheets("Sub").Select
Next

Sheets("Errors").Select
ActiveSheet.Hyperlinks.Delete

'Error report formatting

Range("B11:I" & wtp - 1).Select
    With Selection.Interior
        .Pattern = xlSolid
        .PatternColorIndex = xlAutomatic
        .ThemeColor = xlThemeColorDark1
        .TintAndShade = 0
        .PatternTintAndShade = 0
    End With
    With Selection.Font
        .ThemeColor = xlThemeColorLight1
        .TintAndShade = 0
    End With

Range("B11:I" & wtp - 1).Select
    Selection.Borders(xlDiagonalDown).LineStyle = xlNone
    Selection.Borders(xlDiagonalUp).LineStyle = xlNone
    With Selection.Borders(xlEdgeLeft)
        .LineStyle = xlContinuous
        .ColorIndex = 0
        .TintAndShade = 0
        .Weight = xlThin
    End With
    With Selection.Borders(xlEdgeTop)
        .LineStyle = xlContinuous
        .ColorIndex = 0
        .TintAndShade = 0
        .Weight = xlThin
    End With
    With Selection.Borders(xlEdgeBottom)
        .LineStyle = xlContinuous
        .ColorIndex = 0
        .TintAndShade = 0
        .Weight = xlThin
    End With
    With Selection.Borders(xlEdgeRight)
        .LineStyle = xlContinuous
        .ColorIndex = 0
```



```
.TintAndShade = 0
.Weight = xlThin
End With
With Selection.Borders(xlInsideVertical)
.LineStyle = xlContinuous
.ColorIndex = 0
.TintAndShade = 0
.Weight = xlThin
End With
With Selection.Borders(xlInsideHorizontal)
.LineStyle = xlContinuous
.ColorIndex = 0
.TintAndShade = 0
.Weight = xlThin
End With
```

'Make headers to the error report

```
Range("B11").Select
ActiveCell.FormulaR1C1 = "Report Name"
Range("C11").Select
ActiveCell.FormulaR1C1 = "CoPer ID"
Range("D11").Select
ActiveCell.FormulaR1C1 = "SPV ISIN"
Range("E11").Select
ActiveCell.FormulaR1C1 = "SPV Name"
Range("F11").Select
ActiveCell.FormulaR1C1 = "Collateral ISIN"
Range("G11").Select
ActiveCell.FormulaR1C1 = "Swap ID"
Range("H11").Select
ActiveCell.FormulaR1C1 = "Reason"
Range("I11").Select
ActiveCell.FormulaR1C1 = "Transaction Description"
Range("B11:I11").Select
With Selection.Font
.Name = "Calibri"
.Size = 10
.Strikethrough = False
.Superscript = False
.Subscript = False
.OutlineFont = False
.Shadow = False
.Underline = xlUnderlineStyleNone
.ColorIndex = 1
.TintAndShade = 0
.ThemeFont = xlThemeFontMinor
End With
'Background and font color
Selection.Font.Bold = True
```

```
With Selection.Interior
    .Pattern = xlSolid
    .PatternColorIndex = xlAutomatic
    .ThemeColor = xlThemeColorDark1
    .TintAndShade = -0.249977111117893
    .PatternTintAndShade = 0
End With
```

'Formatting for the Summary at the top

```
Range("A3").Select
ActiveCell.FormulaR1C1 = "Report Name"
Range("A4").Select
ActiveCell.FormulaR1C1 = "CREDIT_SCT_GLOBAL"
Range("A5").Select
ActiveCell.FormulaR1C1 = "CREDIT_FLOW_ASIA"
Range("A6").Select
ActiveCell.FormulaR1C1 = "CREDIT_FLOW_EMEA"
Range("A7").Select
ActiveCell.FormulaR1C1 = "TOTAL"
Range("B3").Select
ActiveCell.FormulaR1C1 = "Trade PV"
Range("B4").Select
ActiveCell.FormulaR1C1 = _
    "=COUNTIFS(R11C2:R" & wtp & "C2, ""*GLOBAL"", R11C8:R" & wtp &
"C8, R3C) "
Range("B5").Select
ActiveCell.FormulaR1C1 = "=COUNTIFS(R11C2:R" & wtp & "C2,
""*ASIA"", R11C8:R" & wtp & "C8, R3C) "
Range("B6").Select
ActiveCell.FormulaR1C1 = "=COUNTIFS(R11C2:R" & wtp & "C2,
""*EMEA"", R11C8:R" & wtp & "C8, R3C) "
Range("B7").Select
ActiveCell.FormulaR1C1 = "=SUM(R[-3]C:R[-1]C) "

Range("C3").Select
ActiveCell.FormulaR1C1 = "Market Data"
Range("C4").Select
ActiveCell.FormulaR1C1 = _
    "=COUNTIFS(R11C2:R" & wtp & "C2, ""*GLOBAL"", R11C8:R" & wtp &
"C8, R3C) "
Range("C5").Select
ActiveCell.FormulaR1C1 = "=COUNTIFS(R11C2:R" & wtp & "C2,
""*ASIA"", R11C8:R" & wtp & "C8, R3C) "
Range("C6").Select
ActiveCell.FormulaR1C1 = "=COUNTIFS(R11C2:R" & wtp & "C2,
""*EMEA"", R11C8:R" & wtp & "C8, R3C) "
Range("C7").Select
ActiveCell.FormulaR1C1 = "=SUM(R[-3]C:R[-1]C) "
Range("D3").Select
ActiveCell.FormulaR1C1 = "Collateral Price"
Range("D4").Select
ActiveCell.FormulaR1C1 = _
```

```
"=COUNTIFS(R11C2:R" & wtp & "C2, ""*GLOBAL"", R11C8:R" & wtp &
"C8, R3C) "
Range("D5").Select
ActiveCell.FormulaR1C1 = "=COUNTIFS(R11C2:R" & wtp & "C2,
""*ASIA"", R11C8:R" & wtp & "C8, R3C) "
Range("D6").Select
ActiveCell.FormulaR1C1 = "=COUNTIFS(R11C2:R" & wtp & "C2,
""*EMEA"", R11C8:R" & wtp & "C8, R3C) "
Range("D7").Select
ActiveCell.FormulaR1C1 = "=SUM(R[-3]C:R[-1]C) "

Range("B9:C9").Select
ActiveCell.FormulaR1C1 = "Error Report"

Range("B11:I11").Select
With ActiveCell.Characters(Start:=1, Length:=31).Font
.Name = "Calibri"
.FontStyle = "Bold"
.Size = 10
.Strikethrough = False
.Superscript = False
.Subscript = False
.OutlineFont = False
.Shadow = False
.Underline = xlUnderlineStyleNone
.ColorIndex = 1
.TintAndShade = 0
.ThemeFont = xlThemeFontNone
End With

Sheets("Main").Select
Range("S2").Select
xdate = Range("S2").Value
Sheets("Errors").Select
Range("A1").Select
ActiveCell.FormulaR1C1 = "Report as of " & xdate
```

```
'//Additional formatting
```

```
Cells.Select

With Selection.Font
.Name = "Calibri"
.Size = 10
.Strikethrough = False
.Superscript = False
.Subscript = False
.OutlineFont = False
```

```
.Shadow = False  
.Underline = xlUnderlineStyleNone  
.TintAndShade = 0  
.ThemeFont = xlThemeFontMinor  
End With
```

```
Columns("A:A").ColumnWidth = 17.43  
Columns("B:B").ColumnWidth = 18.14  
Columns("C:C").ColumnWidth = 18.29  
Columns("C:C").ColumnWidth = 18.57  
Columns("D:D").ColumnWidth = 17.71  
Columns("E:E").ColumnWidth = 35.86  
Columns("F:F").ColumnWidth = 17.57  
Columns("G:G").ColumnWidth = 17.43  
Columns("H:H").ColumnWidth = 12.71  
Columns("I:I").ColumnWidth = 93.57
```

```
Range("B11:I" & wtp - 1).Select
```

```
With Selection  
.HorizontalAlignment = xlCenter  
.VerticalAlignment = xlBottom  
.WrapText = False  
.Orientation = 0  
.AddIndent = False  
.IndentLevel = 0  
.ShrinkToFit = False  
.ReadingOrder = xlContext  
.MergeCells = False  
End With
```

```
Rows("11:11").RowHeight = 24.75  
Range("B9").Select  
With Selection.Font  
.ThemeColor = xlThemeColorDark1  
.TintAndShade = 0  
End With  
Selection.Font.Bold = True  
With Selection.Interior  
.Pattern = xlSolid  
.PatternColorIndex = xlAutomatic  
.Color = 128  
.TintAndShade = 0  
.PatternTintAndShade = 0  
End With
```

```
Range("A3:D3").Select  
With Selection.Font  
.ThemeColor = xlThemeColorDark1
```

```
.TintAndShade = 0
End With
With Selection.Interior
    .Pattern = xlSolid
    .PatternColorIndex = xlAutomatic
    .Color = 128
    .TintAndShade = 0
    .PatternTintAndShade = 0
End With
Selection.Font.Bold = True
Range("A1").Select
With Selection
    .HorizontalAlignment = xlLeft
    .VerticalAlignment = xlBottom
    .WrapText = False
    .Orientation = 0
    .AddIndent = False
    .IndentLevel = 0
    .ShrinkToFit = False
    .ReadingOrder = xlContext
    .MergeCells = False
End With
Selection.Font.Bold = True

Range("A3:D7").Select
Selection.Borders(xlDiagonalDown).LineStyle = xlNone
Selection.Borders(xlDiagonalUp).LineStyle = xlNone
With Selection.Borders(xlEdgeLeft)
    .LineStyle = xlContinuous
    .ColorIndex = 0
    .TintAndShade = 0
    .Weight = xlThin
End With
With Selection.Borders(xlEdgeTop)
    .LineStyle = xlContinuous
    .ColorIndex = 0
    .TintAndShade = 0
    .Weight = xlThin
End With
With Selection.Borders(xlEdgeBottom)
    .LineStyle = xlContinuous
    .ColorIndex = 0
    .TintAndShade = 0
    .Weight = xlThin
End With
With Selection.Borders(xlEdgeRight)
    .LineStyle = xlContinuous
    .ColorIndex = 0
    .TintAndShade = 0
    .Weight = xlThin
End With
With Selection.Borders(xlInsideVertical)
```

```
.LineStyle = xlContinuous
.ColorIndex = 0
.TintAndShade = 0
.Weight = xlThin
End With
With Selection.Borders(xlInsideHorizontal)
.LineStyle = xlContinuous
.ColorIndex = 0
.TintAndShade = 0
.Weight = xlThin
End With

'//Sorts all error trades

Range("B12:B" & wtp - 1).Select
ActiveWorkbook.Worksheets("Errors").Sort.SortFields.Clear
ActiveWorkbook.Worksheets("Errors").Sort.SortFields.Add
Key:=Range("B12"), _
SortOn:=xlSortOnValues, Order:=xlAscending,
DataOption:=xlSortNormal
With ActiveWorkbook.Worksheets("Errors").Sort
.SetRange Range("B12:I" & wtp - 1)
.Header = xlNo
.MatchCase = False
.Orientation = xlTopToBottom
.SortMethod = xlPinYin
.Apply
End With

Range("B11").Select

End Sub

' Filter 1 Module
' This class filters all triggered trades from the
' Main and Sub tab sheets and applies appropriate data
' mappings in order to produce the final Trigger report
'

Sub Filter()

'// Filters all trades which contain the following fields:
```

```
' "Early Warning"
' "TRIGGERED"

Sheets("Main").Select
Rows("1:1").Select
Selection.AutoFilter
ActiveSheet.Range("$A$1:$V$493").AutoFilter Field:=2, Criteria1:=
-      "=Early Warning", Operator:=xlOr, Criteria2:=""=TRIGGERED"

'// Filters all trades which contain the following fields:
' "ACTION TRIGGER"
' "EARLY WARNING"
' "EARLY WARNING & TRIGGER"

Sheets("Sub").Select
Rows("1:1").Select
Selection.AutoFilter
ActiveSheet.Range("$A$1:$V$574").AutoFilter Field:=2,
Criteria1:=Array( _
    "ACTION TRIGGER", "EARLY WARNING", "EARLY WARNING & TRIGGER"),
Operator:= _
    xlFilterValues

'//Replaces "Action Trigger" with "TRIGGERED" in the SUB sheet

Sheets("Sub").Select
ActiveWindow.SmallScroll Down:=-12
Cells.Replace What:="ACTION TRIGGER", Replacement:="TRIGGERED",
LookAt:= _
    xlPart, SearchOrder:=xlByRows, MatchCase:=False,
SearchFormat:=False, _
    ReplaceFormat:=False

Dim maincount, subcount, place As Integer
Dim LRow As Integer
Dim LColARange As String
Dim LContinue As Boolean

Dim rng As Range, c As Range, dest As Range
With Worksheets("Sub")
Set rng = Range(.Range("A2:V2"), .Range("A2:V2").End(xlDown))

For Each c In rng
If c = "EARLY WARNING & TRIGGER" Then
c.EntireRow.Copy
Else

GoTo line1
End If
With Worksheets("HTMLScrape")
Set dest = .Cells(Rows.Count, "a").End(xlUp).Offset(0, 0)
```

```
dest.PasteSpecial
End With
line1:

Next c
End With

Sheets("HTMLScrape").Select
Cells.Replace What:="Early warning & Trigger", Replacement:="EARLY
WARNING"
, LookAt:=xlPart, SearchOrder:=xlByRows, MatchCase:=False,
SearchFormat _
:=False, ReplaceFormat:=False

'// Filters all trades which contain the following fields:
' "TRIGGER"
' "EARLY WARNING"
' "EARLY WARNING & TRIGGER"

Sheets("Sub").Select
Selection.AutoFilter
Selection.AutoFilter
ActiveSheet.Range("$A$1:$V$574").AutoFilter Field:=2,
Criteria:=Array( _
"EARLY WARNING", "EARLY WARNING & TRIGGERED", "TRIGGERED"),
Operator:= _
xlFilterValues

'//Replaces "Early Warning" with "EARLY WARNING" in the SUB sheet

Sheets("Main").Select
Cells.Replace What:="Early Warning", Replacement:="EARLY WARNING"
, LookAt:=xlPart, SearchOrder:=xlByRows, MatchCase:=False,
SearchFormat _
:=False, ReplaceFormat:=False

End Sub

' Filter 2 Module
' This class filters all triggered trades from the
' Main and Sub tab sheets and applies appropriate data
' mappings in order to produce the final Trigger report
'

Sub CopyFilter()

Dim maincount, subcount, place As Integer
Dim LRow As Integer
Dim LColARange As String
```



```
Dim LContinue As Boolean

Dim rng As Range, c As Range, dest As Range
With Worksheets("HTMLScrape")
Set rng = Range(.Range("A1:V1"), .Range("A1:V1").End(xlDown))

For Each d In rng
If d = "EARLY WARNING" Then
d.EntireRow.Copy
Else

GoTo line1
End If
With Worksheets("Sub")
Set dest = .Cells(Rows.Count, "a").End(xlUp).Offset(1, 0)
dest.PasteSpecial
End With
line1:

Next d
End With

Sheets("Sub").Select
Cells.Replace What:="Early warning & Trigger",
Replacement:="TRIGGERED" _
, LookAt:=xlPart, SearchOrder:=xlByRows, MatchCase:=False,
SearchFormat _
:=False, ReplaceFormat:=False

End Sub
```

```
' Creates Maturity Warning Module
```

```
' This class creates the Maturity Warning tab
' which lists all trades that will mature in
' the next 10 business days
'
Sub CreateMatWarning()
Dim numtrades, i, vaccell, numdays As Integer
Dim xdate As String
i = 1
```

vacell = 12

'Clears Maturity Warning tab Sheet

```
Sheets("Maturity Warning").Select  
Cells.Select  
Selection.Delete Shift:=xlUp
```

```
Sheets("Main").Select  
Range("A2").Select  
Range(Selection, Selection.End(xlDown)).Select  
numtrades = Selection.Rows.Count
```

```
For i = 2 To numtrades + 1  
    If DateDiff("d", Now, Range("I" & i)) < 14 And DateDiff("d", Now,  
Range("I" & i)) >= 0 Then  
        numdays = DateDiff("d", Now, Range("I" & i))
```

```
        Sheets("Main").Select  
        Range("A" & i).Copy  
        Sheets("Maturity Warning").Select  
        Range("B" & vacell).Select  
        ActiveSheet.Paste
```

```
        Sheets("Main").Select  
        Range("C" & i).Copy  
        Sheets("Maturity Warning").Select  
        Range("C" & vacell).Select  
        ActiveSheet.Paste
```

```
        Sheets("Main").Select  
        Range("E" & i).Copy  
        Sheets("Maturity Warning").Select  
        Range("D" & vacell).Select  
        ActiveSheet.Paste
```

```
        Sheets("Main").Select  
        Range("E" & i).Copy  
        Sheets("Maturity Warning").Select  
        Range("E" & vacell).Select  
        ActiveSheet.Paste
```

```
        Sheets("Main").Select  
        Range("L" & i).Copy  
        Sheets("Maturity Warning").Select  
        Range("F" & vacell).Select  
        ActiveSheet.Paste
```

```
        Sheets("Main").Select  
        Range("I" & i).Copy  
        Sheets("Maturity Warning").Select  
        Range("G" & vacell).Select
```

```
ActiveSheet.Paste

Range("H" & vaccell) = numdays

Sheets("Main").Select
Range("R" & i).Copy
Sheets("Maturity Warning").Select
Range("I" & vaccell).Select
ActiveSheet.Paste

vaccell = vaccell + 1
Sheets("Main").Select
End If

Next

'Maturity Warning Formatting

Sheets("Maturity Warning").Select

Range("B11:I" & vaccell - 1).Select
  With Selection.Interior
    .Pattern = xlSolid
    .PatternColorIndex = xlAutomatic
    .ThemeColor = xlThemeColorDark1
    .TintAndShade = 0
    .PatternTintAndShade = 0
  End With
  With Selection.Font
    .ThemeColor = xlThemeColorLight1
    .TintAndShade = 0
  End With

Range("B11:I" & vaccell - 1).Select
  Selection.Borders(xlDiagonalDown).LineStyle = xlNone
  Selection.Borders(xlDiagonalUp).LineStyle = xlNone
  With Selection.Borders(xlEdgeLeft)
    .LineStyle = xlContinuous
    .ColorIndex = 0
    .TintAndShade = 0
    .Weight = xlThin
  End With
  With Selection.Borders(xlEdgeTop)
    .LineStyle = xlContinuous
    .ColorIndex = 0
    .TintAndShade = 0
    .Weight = xlThin
  End With
  With Selection.Borders(xlEdgeBottom)
    .LineStyle = xlContinuous
    .ColorIndex = 0
```

```
.TintAndShade = 0
.Weight = xlThin
End With
With Selection.Borders(xlEdgeRight)
.LineStyle = xlContinuous
.ColorIndex = 0
.TintAndShade = 0
.Weight = xlThin
End With
With Selection.Borders(xlInsideVertical)
.LineStyle = xlContinuous
.ColorIndex = 0
.TintAndShade = 0
.Weight = xlThin
End With
With Selection.Borders(xlInsideHorizontal)
.LineStyle = xlContinuous
.ColorIndex = 0
.TintAndShade = 0
.Weight = xlThin
End With
```

'Creates headers to the Maturity Warning tab sheet

```
Range("B9").Select
ActiveCell.FormulaR1C1 = "Maturity Warning Report"
Range("B11").Select
ActiveCell.FormulaR1C1 = "Report Name"
Range("C11").Select
ActiveCell.FormulaR1C1 = "SPV Name"
Range("D11").Select
ActiveCell.FormulaR1C1 = "CoPer ID"
Range("E11").Select
ActiveCell.FormulaR1C1 = "SPV ISIN"
Range("F11").Select
ActiveCell.FormulaR1C1 = "Swap ID"
Range("G11").Select
ActiveCell.FormulaR1C1 = "Maturity Date"
Range("H11").Select
ActiveCell.FormulaR1C1 = "Days Until Maturity"
Range("I11").Select
ActiveCell.FormulaR1C1 = "Transaction Description"

Range("B11:I11").Select
With Selection.Font
.Name = "Calibri"
.Size = 10
.Strikethrough = False
.Superscript = False
.Subscript = False
.OutlineFont = False
.Shadow = False
```

```
.Underline = xlUnderlineStyleNone  
.ColorIndex = 1  
.TintAndShade = 0  
.ThemeFont = xlThemeFontMinor  
End With
```

'Background and font color

```
Selection.Font.Bold = True  
With Selection.Interior  
.Pattern = xlSolid  
.PatternColorIndex = xlAutomatic  
.ThemeColor = xlThemeColorDark1  
.TintAndShade = -0.2499771111117893  
.PatternTintAndShade = 0  
End With
```

```
With Selection  
.HorizontalAlignment = xlCenter  
.VerticalAlignment = xlBottom  
.WrapText = False  
.Orientation = 0  
.AddIndent = False  
.IndentLevel = 0  
.ShrinkToFit = False  
.ReadingOrder = xlContext  
.MergeCells = False  
End With
```

```
Range("B9").Select  
Selection.Font.Bold = True  
Range("B9").Font.ColorIndex = 2  
With Selection.Font  
.Name = "Calibri"  
.Size = 10  
.Strikethrough = False  
.Superscript = False  
.Subscript = False  
.OutlineFont = False  
.Shadow = False  
.Underline = xlUnderlineStyleNone  
.ColorIndex = 2  
.TintAndShade = 0  
.ThemeFont = xlThemeFontMinor  
End With  
With Selection.Interior  
.Pattern = xlSolid  
.PatternColorIndex = xlAutomatic  
.Color = 153  
.TintAndShade = 0  
.PatternTintAndShade = 0  
End With
```

```
Rows("11:11").RowHeight = 25
Columns("A:A").ColumnWidth = 20
Columns("A:A").ColumnWidth = 20
Columns("B:B").ColumnWidth = 20
Columns("C:C").ColumnWidth = 20
Columns("D:D").ColumnWidth = 20
Columns("E:E").ColumnWidth = 20
Columns("F:F").ColumnWidth = 15
Columns("G:G").ColumnWidth = 15
Columns("H:H").ColumnWidth = 15
Columns("I:I").ColumnWidth = 90
```

'Creates the Summary at the top

```
Range("A3").Select
ActiveCell.FormulaR1C1 = "Report Name"
Range("B3").Select
ActiveCell.FormulaR1C1 = "Maturity Warnings"
Range("B4").Select
ActiveCell.FormulaR1C1 = "=COUNTIF(R[7]C:R" & vacell & "C,RC[-
1])"
Range("B5").Select
ActiveCell.FormulaR1C1 = "=COUNTIF(R[6]C[1]:R" & vacell & "C,RC[-
1])"
Range("B6").Select
ActiveCell.FormulaR1C1 = "=COUNTIF(R[5]C[1]:R" & vacell & "C,RC[-
1])"
Range("B7").Select
ActiveCell.FormulaR1C1 = "=SUM(R[-3]C:R[-1]C)"
Range("A4").Select
ActiveCell.FormulaR1C1 = "CREDIT_SCT_GLOBAL"
Range("A5").Select
ActiveCell.FormulaR1C1 = "CREDIT_FLOW_ASIA"
Range("A6").Select
ActiveCell.FormulaR1C1 = "CREDIT_FLOW_EMEA"
Range("A7").Select
ActiveCell.FormulaR1C1 = "TOTAL"
```

'Additional Formatting

```
Range("A3:B7").Select
Selection.Borders(xlDiagonalDown).LineStyle = xlNone
Selection.Borders(xlDiagonalUp).LineStyle = xlNone
With Selection.Borders(xlEdgeLeft)
    .LineStyle = xlContinuous
    .ColorIndex = 0
    .TintAndShade = 0
    .Weight = xlThin
End With
With Selection.Borders(xlEdgeTop)
    .LineStyle = xlContinuous
```

```
.ColorIndex = 0
.TintAndShade = 0
.Weight = xlThin
End With
With Selection.Borders(xlEdgeBottom)
.LineStyle = xlContinuous
.ColorIndex = 0
.TintAndShade = 0
.Weight = xlThin
End With
With Selection.Borders(xlEdgeRight)
.LineStyle = xlContinuous
.ColorIndex = 0
.TintAndShade = 0
.Weight = xlThin
End With
With Selection.Borders(xlInsideVertical)
.LineStyle = xlContinuous
.ColorIndex = 0
.TintAndShade = 0
.Weight = xlThin
End With
With Selection.Borders(xlInsideHorizontal)
.LineStyle = xlContinuous
.ColorIndex = 0
.TintAndShade = 0
.Weight = xlThin
End With

Range("A3:B3").Select
Range("A3:B3").Font.ColorIndex = 2
With Selection.Interior
.PatternColorIndex = xlAutomatic
.Color = 153
.TintAndShade = 0
.PatternTintAndShade = 0
End With
With Selection.Font
.Name = "Calibri"
.Size = 10
.Strikethrough = False
.Superscript = False
.Subscript = False
.OutlineFont = False
.Shadow = False
.Underline = xlUnderlineStyleNone
.ColorIndex = 2
.TintAndShade = 0
.ThemeFont = xlThemeFontMinor
End With
Selection.Font.Bold = True
```

```
'//Add the date in the beginning of the report
```

```
    Sheets("Main").Select  
    Range("S2").Select  
    xdate = Range("S2").Value  
    Sheets("Maturity Warning").Select  
    Range("A1").Select  
    ActiveCell.FormulaR1C1 = "Report as of " & xdate  
    Selection.Font.Bold = True
```

```
'//Additional Formatting
```

```
    Cells.Select  
    With Selection.Font  
        .Name = "Calibri"  
        .Size = 10  
        .Strikethrough = False  
        .Superscript = False  
        .Subscript = False  
        .OutlineFont = False  
        .Shadow = False  
        .TintAndShade = 0  
        .ThemeFont = xlThemeFontMinor  
    End With
```

```
End Sub
```

```
' Save New Workbook Module
```

```
    ' This class creates a new workbook and copies the Triggers and Errors  
    ' tabs, as well as the Maturity Warning tab  
    ' in new workbook.  
    '
```

```
Sub SaveNew()
```

```
    Sheets(Array("Errors", "Triggers", "Maturity Warning")).Select  
    Sheets("Errors").Activate  
    Cells.Select  
    Selection.Copy  
    Workbooks.Add  
    Cells.Select  
    ActiveSheet.Select  
    Range("A1").PasteSpecial Paste:=xlPasteValues, Operation:=xlNone,  
SkipBlanks _  
        :=False, Transpose:=False  
    Range("A1").PasteSpecial Paste:=xlPasteFormats, Operation:=xlNone,  
-  
        SkipBlanks:=False, Transpose:=False  
    Application.CutCopyMode = False
```



Global Credit Products Technology - SPV Reporting Tool  
Major Qualifying Project

```
Sheets("Sheet1").Activate  
Sheets("Sheet1").Name = "Errors"  
  
Sheets("Sheet2").Activate  
Sheets("Sheet2").Name = "Triggers"  
  
Sheets("Sheet3").Activate  
Sheets("Sheet3").Name = "Maturity Warning"
```

```
MsgBox "Report Completed Successfully."
```

```
End Sub
```

## Appendix C. Expansion of the financial transactions with an SPV

### Special Purpose Vehicle (SPV)

In the current Bank of America SPV structure, when a company is interested in creating an SPV, Bank of America will take control of the legal process that will establish the SPV entity. Establishing the SPV is the hardest and most complex part of the process, however, once it's set up, the parent company does not have to repeat the process for every new trade with the SPV. Additionally, this is a revenue generating process for Bank of America.

The next step is for the SPV to collect money from investors. An investor is exchanging a lump sum of money in return for a series of payments. They are not limited to giving the SPV only cash, any asset can be provided. In the Bank of America scenarios, cash is the most commonly traded item. The investor is interested in entering into a trade agreement with an SPV because they are given better coupon rates than if they purchased a bond otherwise.

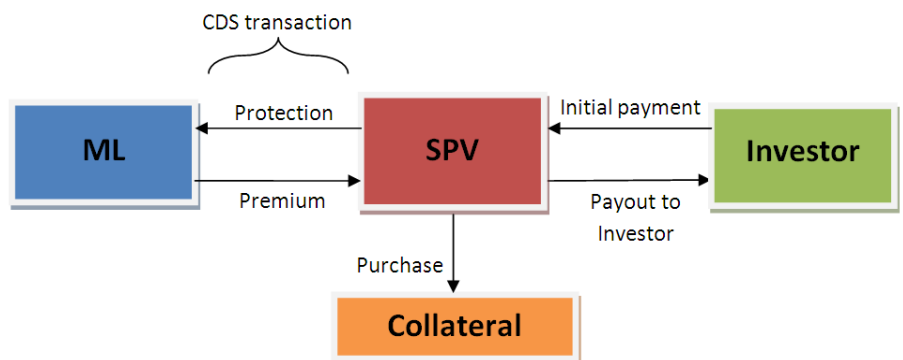
In order for the SPV to provide the promised coupon payments to the investor, it will sell a credit default swap (CDS) to Bank of America. In this CDS contract, Bank of America is buying protection from the SPV to protect against the chance of a bond defaulting. If the bond defaults, the SPV has

promised to pay the unfulfilled debt obligation. (See Credit Default Swap)

In order to back their

side of the CDS, the SPV will [Figure 33 SPV structure](#)

need to post collateral. This collateral acts as a reserve for the potential payout they need to



give to Bank of America. Collateral can be in the form of cash, bonds, or a syndicated loan. Regardless of the form the collateral is in, it needs to meet minimum value requirements that were agreed upon in the CDS contract. In most Bank of America contracts, the collateral needs to be high rated, the Mark to Market of the collateral at the deal level needs to exceed the present value of the CDS, and the collateral must cover the amount that needs to be paid to the investor in the event of a default.

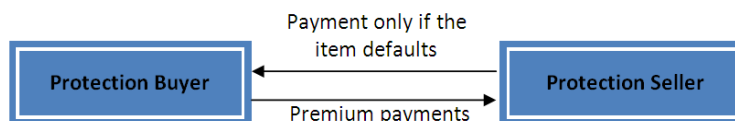
In order for the SPV to meet the coupon payments promised to the investor, the premium payments received from the Bank of America CDS is used along with coupon payments from the collateral being held. In the case that the value of these items does not add up to the necessary payment, the coupons received from the collateral are given to Bank of America to hedge in an asset swap (See Asset Swap). The premiums from the CDS and the bond coupons from the asset swap will now cover the spread paid to the investor. (See III. Asset Swaps)

In the end, the investor is attracted to SPV trades because of the higher coupon payments; the parent company is interested in setting up an SPV in order to engage in higher rated or more secure trades and Bank of America is interested in generating income through setting up the SPV, issuing trades for the SPV and entering into a CDS.

### *Credit Default Swap*

A credit default swap (CDS) is an exchange of financial protection in the event of a credit default for a specified fee (The New York Times). The protection seller is promising to provide the buyer a payment that is strictly contingent on the default of the credit item. In return, the protection buyer is paying a series of premiums for a defined period regardless of the item

defaulting or not. The contingent payment and the premium payments follow the standards agreed upon in the CDS settlement agreement.



There are many types of

financial instruments that are [Figure 34 General Credit Default Swap structure](#)

issued to promise a stream of payments to the owner. If the issuer defaults on these payments, the owner cannot do anything about it. Protection from defaulting payments is the market that credit default swaps have emerged from (Tavakoli, 2001). These instruments ultimately help investor diversify risk and limit their losses.

A CDS is beneficial for the buyer because they are protected against a major loss. While paying premiums may lower their profits, they have security. A CDS is also beneficial for the issuer because they are generating income through the premium payments they are receiving (Bank of America - Merrill Lynch, 2009). However, in the case that the debt instrument defaults, they are at a big loss. If the CDS issuer only entered into a single transaction it would be a very risky transaction. In order to divert from this occurrence, CDS issuers usually enter into multiple transactions. This way they can pool together the risk of default and use the collected premiums from the non defaulted loans to pay for any existing obligations. In the end, the goal is to have collected a higher amount of premiums than the amount that needs to be paid out (Barr, 2009).

### *Asset Swap*

An asset swap is a combination of a bond purchase with and interest rate swap (Pereira, 2003). Asset swaps are commonly used to trade out a bond with a fixed interest rate for a bond

that has a floating interest rate in order to profit off interest rate fluctuations (Investopedia) . However, investors are able to hedge currency and credit risk as well (yieldcurve.com). The purpose of engaging in an asset swap is for the investor to profit in the event that the

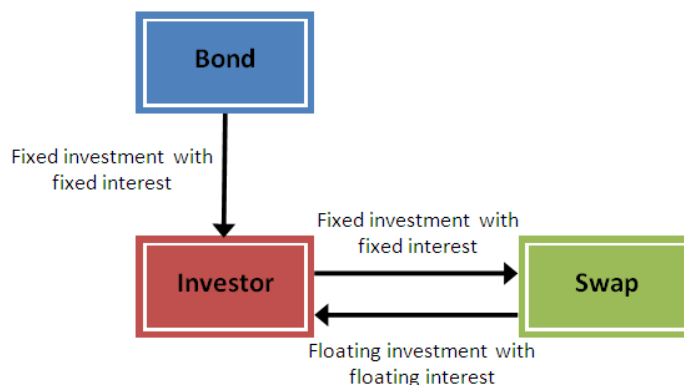


Figure 35 General Asset Swap structure

fixed rate is higher than the current market rate. In this event, the investor is trading the fixed interest investment for a floating investment with will be greater than the Libor rate (Barbican Consulting). Only fixed investments that have returns greater than the swap rate will provide returns that exceed Libor (Barbican Consulting). This event is causing a transformation of cash flows. Sometimes, while the asset swap is used to hedge off risk, it can be used to create a synthetic investments that have the desired cash flow characteristics (Cilia, 1996).

In the SPV scenario, asset swaps are used when the collateral bond coupons do not cover the necessary amount due to the investor. In this event, the collateral coupons are swapped out to a coupon that matches the note amount due to the investor. This allows the SPV to meet its debt obligations. Bank of America agrees to enter into an asset swap with the SPV because they are hoping to hedge the asset for higher rates of return. In essence, Bank of America is pooling risk when they are trying to profit from these asset swaps. Bank of America is paying for the opportunity to hedge and the SPV's asset in the hopes that the spread that the asset earns will ideally be greater than the cost of entering into these swaps.

## Appendix D. SPV Reporting Tool – User Guide

# SPV Reporting Tool User Guide

Last Updated: December 2009



### SPV Reporting Tool Overview

The SPV Reporting Tool produces the following two reports:

- Golden Copy
- Trigger and Error Reports

**Golden Copy Report**  
SPV Reporting Tool

The SPV Reporting Tool will compile data from the ASIA, EMEA, and GLOBAL Trigger reports of a certain date of your choice and it will create the Golden Copy Report.

*Note: Please enable all macros if they are not enabled on your computer.*  
You can change the macro security settings in the Trust Center (Microsoft Office Button, Excel Options button, Trust Center category, Trust Center Settings button, Macro Settings category, On/Off button tab, Code group, Macro Security button).

1. Enter the date of the report you want to create via the Show Calendar button or enter the date manually (YYYYMMDD)  
*Please note that there are no general reports on Saturday/Sunday and NYSE holidays*
2. Enter the FX rates under the FX rates tab.
3. Do not delete or rename any of the existing sheet tabs in the excel template.
4. Try to access less applications while the process runs.
5. When you see the pop-up window "Report Completed Successfully", you can view the report in the new excel spreadsheet.

The date you have been selected is:

Show Calendar

Create Golden Copy Report

**Trigger/Error Reports**  
SPV Reporting Tool

The SPV Reporting Tool will compile data from the ASIA, EMEA, and GLOBAL Trigger reports of a certain date of your choice and it will create the Trigger and Error Reports.

*Note: Please enable all macros if they are not enabled on your computer.*  
You can change the macro security settings in the Trust Center (Microsoft Office Button, Excel Options button, Trust Center category, Trust Center Settings button, Macro Settings category, On/Off button tab, Code group, Macro Security button).

1. Enter the date of the report you want to create via the Show Calendar button or enter the date manually (YYYYMMDD)  
*Please note that there are no general reports on Saturday/Sunday and NYSE holidays*
2. Do not delete or rename any of the existing sheet tabs in the excel template.
3. Try to access less applications while the process runs.
4. When you see the pop-up window "Reports Completed Successfully", you can view the reports in the new excel spreadsheet.

The date you have been selected is:

Show Calendar

Create reports

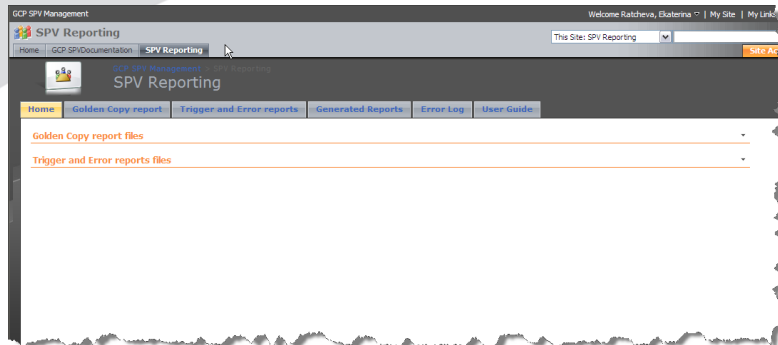
# SPV Reporting Tool SharePoint Functionalities



The SPV Reporting Tool SharePoint was created to provide access to all users to the SPV Reporting Tool.

The site contains the following worksites:

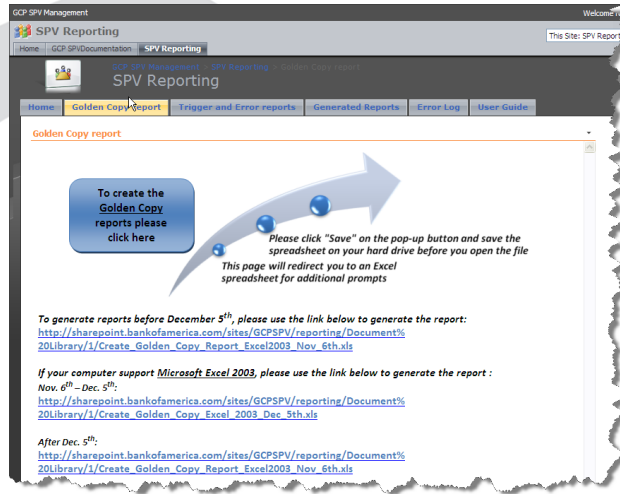
- Golden Copy Report
- Trigger and Error Reports
- Generated Reports
- Error Log
- User Guide



## SharePoint Button Functionalities – Golden Copy

The following section describes the procedure to access the SPV Reporting Tool, which creates the Golden Copy report, from the SharePoint site below:

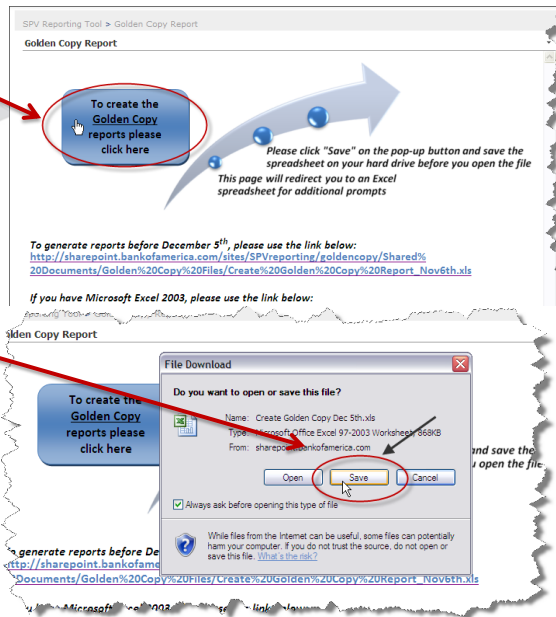
<http://sharepoint.bankofamerica.com/sites/GCPSPV/reporting/pages/Golden%20Copy%20report.aspx>



1. Click on the blue button to generate the report.

1. A pop-up window will appear. Select **“SAVE”** to save the MS Excel spreadsheet on your hard drive.

**Note: If you select **“OPEN”** You will not be able to run the report due to security and change control standards**





1. If your computer does not support Microsoft 2007, please click on the following two links below to run reports before December 5<sup>th</sup> and after December 5<sup>th</sup> :

To create the Golden Copy reports please click here

Please click "Save" on the pop-up button and save the spreadsheet on your hard drive before you open the file  
This page will redirect you to an Excel spreadsheet for additional prompts

To generate reports before December 5<sup>th</sup>, please use the link below to generate the report:  
[http://sharepoint.bankofamerica.com/sites/SPVreporting/goldencopy/Shared%20Documents/Golden%20Copy%20Files/Create%20Golden%20Copy%20Report\\_Nov6th.xls](http://sharepoint.bankofamerica.com/sites/SPVreporting/goldencopy/Shared%20Documents/Golden%20Copy%20Files/Create%20Golden%20Copy%20Report_Nov6th.xls)

If your computer support Microsoft Excel 2003, please use the link below to generate the report :  
Nov. 6<sup>th</sup> – Dec. 5<sup>th</sup>:  
[http://sharepoint.bankofamerica.com/sites/SPVreporting/goldencopy/Shared%20Documents/Golden%20Copy%20Files/Golden%20Copy%20report%20for%20Excel%202003/Create%20Golden%20Copy%20Report\\_Excel2003\\_Nov%206th.xls](http://sharepoint.bankofamerica.com/sites/SPVreporting/goldencopy/Shared%20Documents/Golden%20Copy%20Files/Golden%20Copy%20report%20for%20Excel%202003/Create%20Golden%20Copy%20Report_Excel2003_Nov%206th.xls)

After Dec. 5<sup>th</sup>:  
[http://sharepoint.bankofamerica.com/sites/SPVreporting/goldencopy/Shared%20Documents/Golden%20Copy%20Files/Golden%20Copy%20report%20for%20Excel%202003/Create%20Golden%20Copy\\_Excel%202003\\_Dec%205th.xls](http://sharepoint.bankofamerica.com/sites/SPVreporting/goldencopy/Shared%20Documents/Golden%20Copy%20Files/Golden%20Copy%20report%20for%20Excel%202003/Create%20Golden%20Copy_Excel%202003_Dec%205th.xls)

1. If you wish to run reports before December 5<sup>th</sup>, please the link below the button feature:

To create the Golden Copy reports please click here

Please click "Save" on the pop-up button and save the spreadsheet on your hard drive before you open the file  
This page will redirect you to an Excel spreadsheet for additional prompts

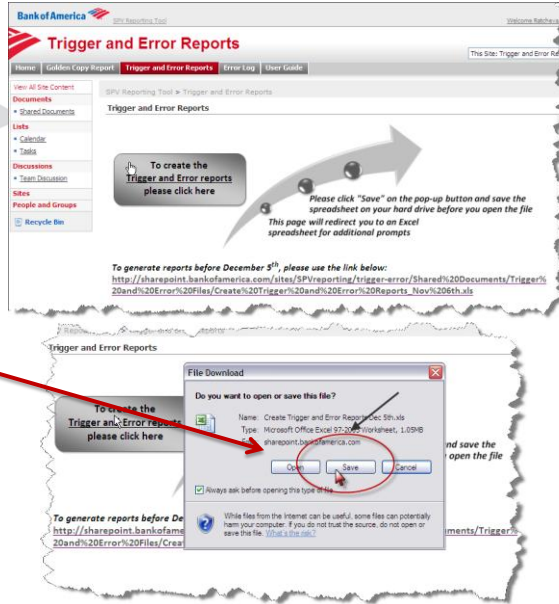
To generate reports before December 5<sup>th</sup>, please use the link below:  
[http://sharepoint.bankofamerica.com/sites/SPVreporting/goldencopy/Shared%20Documents/Golden%20Copy%20Files/Create%20Golden%20Copy%20Report\\_Nov6th.xls](http://sharepoint.bankofamerica.com/sites/SPVreporting/goldencopy/Shared%20Documents/Golden%20Copy%20Files/Create%20Golden%20Copy%20Report_Nov6th.xls)

If you have Microsoft Excel 2003, please use the link below:

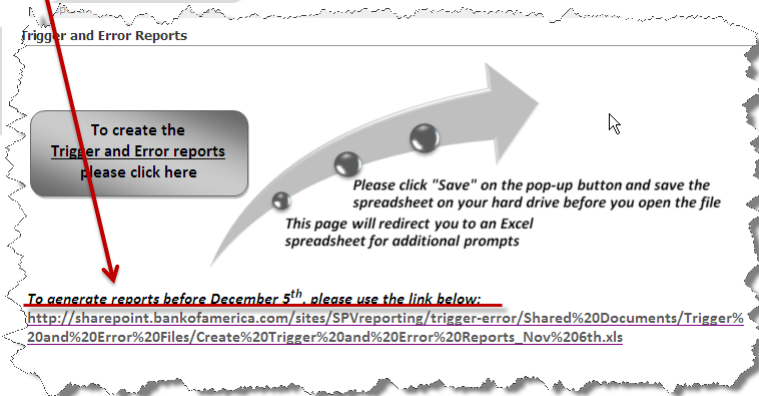
1. Click on the gray button to generate the report.

2. A pop-up window will appear. Select **"SAVE"** to save the MS Excel spreadsheet on your hard drive.

**Note: If you select "OPEN" You will not be able to run the report due to security and change control standards**



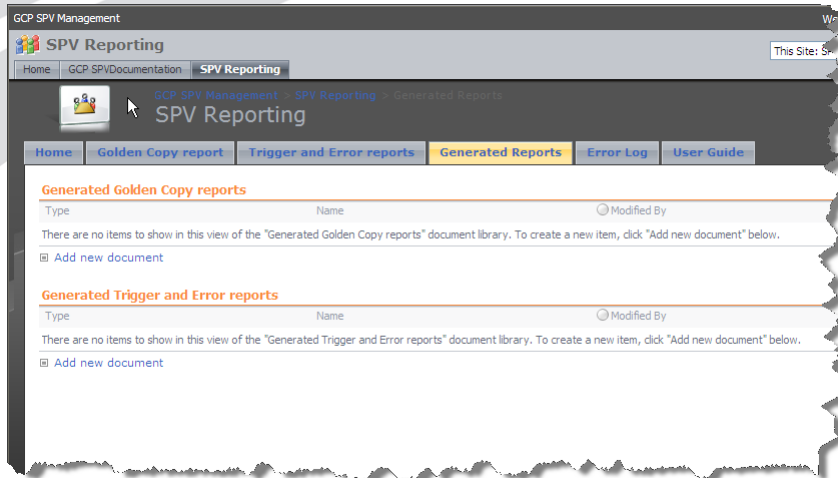
1. If you wish to run reports before December 5<sup>th</sup>, please the link below the button feature:



## SharePoint Functionalities – Generated Reports

The workspace was created for storing all generated reports from past dates on the SharePoint site. In order to access this Workspace please click on the link below:

<http://sharepoint.bankofamerica.com/sites/GCPSPV/reporting/pages/Generated%20Reports.aspx>



## SharePoint Functionalities – Error Log

This workspace is used to store the errors and the progress made resolving them in a central location that can be updated by all contributors. The headings are set up and the text fields are provided, however, these logs will be completely inputted by the user. In order to access this Workspace please click on the link below:

<http://sharepoint.bankofamerica.com/sites/GCPSPV/reporting/pages/Error%20Log.aspx>

Colateral ISIN	BBG ID	Collateral Name	Book	Comments	Assigned	Resolution ETA
X50197994337	PPSQ0EUE3	Merrill Lynch & Co Inc	SPVJ	Needs to be set up and Priced	Eme/Paul	
X50216094478	PPSNQVY45	Merrill Lynch & Co Inc	SPVJ	Needs to be set up and Priced	Eme/Paul	
X50287534448	PPLV0H921	Merrill Lynch & Co Inc	SPVJ	Needs to be set up and Priced	Eme/Paul	
X50173509430	PPSD0H157	Merrill Lynch & Co Inc	SPVJ	Needs to be set up and Priced	Eme/Paul	
X50349632157	PPST0B109	Merrill Lynch & Co Inc	SPVJ	Needs to be set up and Priced	Eme/Paul	
X50224392430	PPANQ43J2	Merrill Lynch & Co Inc	SPVJ	Needs to be set up and Priced	Eme/Paul	
X50227053344	PPS30NNU6	Merrill Lynch & Co Inc	SPVJ	Needs to be set up and Priced	Eme/Paul	
X50194979146	PPS3W0EEL4E	Merrill Lynch & Co Inc	SPVJ	Needs to be set up and Priced	Eme/Paul	

# SPV Reporting Tool

## Golden Copy Functionalities



### Golden Copy Control Tab Functionalities

**Golden Copy Report**  
SPV Reporting Tool

Bank of America  
Merrill Lynch

The SPV Reporting Tool will compile data from the ASIA, EMEA, and GLOBAL Trigger reports of a certain date of your choice and it will create the Golden Copy Report.

*Note: Please enable all macros if they are not enabled on your computer.*  
*You can change the macro security settings in the Trust Center (Microsoft Office Button, Excel Options button, Trust Center category, Trust Center Settings button, Macro Settings category, Or Developer tab, Code group, Macro Security button).*

1. Enter the date of the report you want to create via the Show Calendar button or enter the date manually (YYYYMMDD)  
Please note that there are not generated reports on Saturday/Sunday and NYSE holidays
2. Enter the FX rates under the FX rates tab.
3. Do not delete or rename any of the existing sheet tabs in the excel template.
4. Try to access less applications while the process runs.
5. When you see the pop-up window "Report Completed Successfully", you can view the report in the new excel spreadsheet.

 *The date you have been selected is:* 

1. Enter the FX rates under the FX tab sheet
2. Do not delete or rename any of the existing tabs

1. Enter the date of the report you want to create via the Show Calendar button or enter the date manually (YYYYMMDD)  
*Please note that there are no reports generated on Saturday/Sunday and NYSE holidays*

2. Enter the FX rates under the FX rates tab.

3. Do not delete or rename any of the existing sheet tabs in the excel template.

4. Try to access less applications while the process runs.

5. When you see the pop-up window "Report Completed Successfully", you can view the report in the new excel spreadsheet.

**Show Calendar**

The date you have been selected is: 20091125

**Create Golden Copy Report**

**Enter the FX rates HERE**

Control Main Sub HTMLScope FX SPV LU Golden Copy Matured

1. Enter the date of the report you want to create via the Show Calendar button or enter the date manually (YYYYMMDD)

**NOTE: Please note that reports are not generated on Saturday/Sunday and NYSE holidays**

2. Select a date from the Calendar
3. Select "OK"

Calendar

Please select the date of the report you wish to create.

*Please note that there are no reports generated on Saturday/Sunday and NYSE holidays.*

1. Enter the date of the report you wish to create via the Show Calendar button or enter the date manually (YYYYMMDD).  
*Please note that there are no reports generated on Saturday/Sunday and NYSE holidays.*

2. Enter the FX rates under the FX rates tab.

3. Do not delete or rename any of the existing sheet tabs in the excel template.

4. Try to access less applications while the process runs.

5. When you see the pop-up window "Report Completed Successfully", you can view the report in the new excel spreadsheet.

**Show Calendar**

The date you have been selected is: 20091125

**Go**

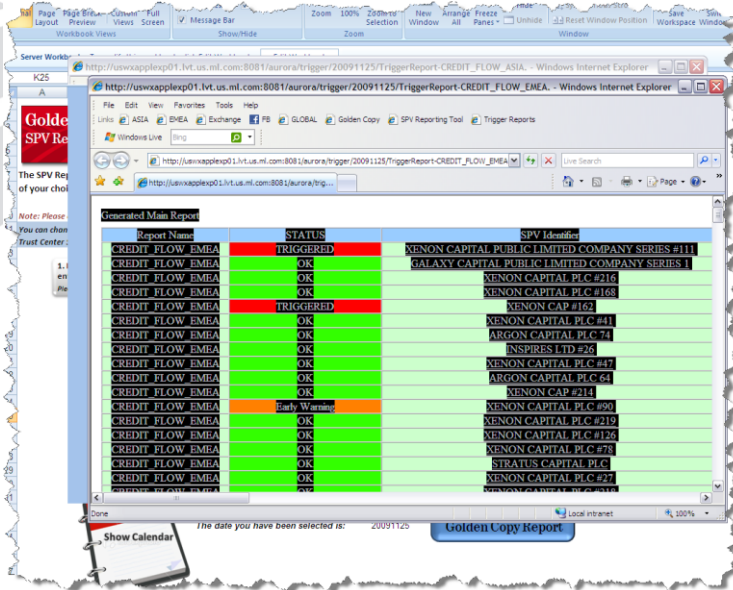
Control Main Sub HTMLScope FX SPV LU Golden Copy Matured

4. Select the blue button to run the report

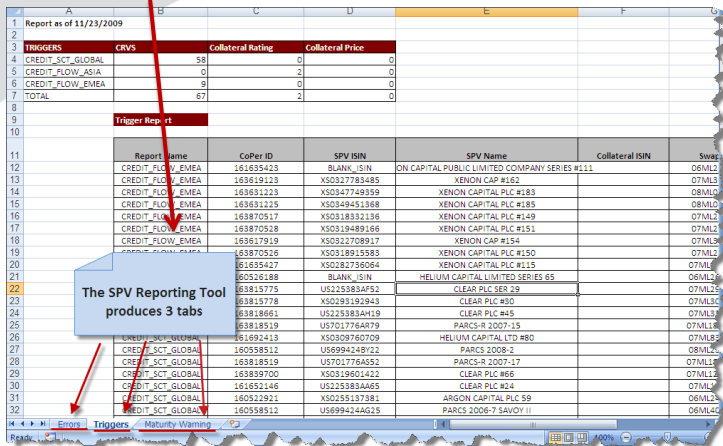
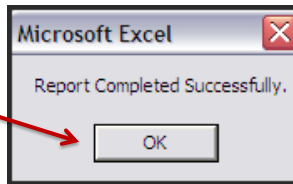
**Create Golden Copy Report**

Global Credit Products Technology - SPV Reporting Tool  
Major Qualifying Project

1. When the report starts compiling the data you will see this screen. You will be able to access other applications but for better performance of the tool, please access as few applications as possible.



1. When you see the pop-up window "Report Completed Successfully", you can view the report which will appear on a separate sheet
2. Select "OK" to view the Golden Copy report
3. The Trigger and Error reports along with the Maturity Warning tab will appear in a separate sheet for additional modifications if needed



# SPV Reporting Tool

## Trigger and Error Reports

### Functionalities



### Trigger/Error Reports Control Tab

#### Functionalities


**Trigger/Error Reports**  
SPV Reporting Tool

Bank of America  
Merrill Lynch

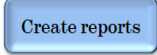
The SPV Reporting Tool will compile data from the ASIA, EMEA, and GLOBAL Trigger reports of a certain date of your choice and it will create the Trigger and Error Reports.

*Note: Please enable all macros if they are not enabled on your computer.*  
*You can change the macro security settings in the Trust Center (Microsoft Office Button, Excel Options button, Trust Center category, Trust Center Settings button, Macro Settings category, Or Developer tab, Code group, Macro Security button).*

1. Enter the date of the report you want to create via the Show Calendar button or enter the date manually (YYYYMMDD)  
*Please note that there are not generated reports on Saturday/Sunday and NYSE holidays*
2. Do not delete or rename any of the existing sheet tabs in the excel template.
3. Try to access less applications while the process runs.
4. When you see the pop-up window "Reports Completed Successfully", you can view the reports in the new excel spreadsheet.

 Show Calendar

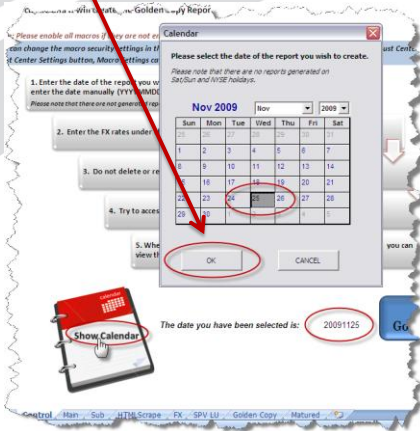
The date you have been selected is:

 Create reports

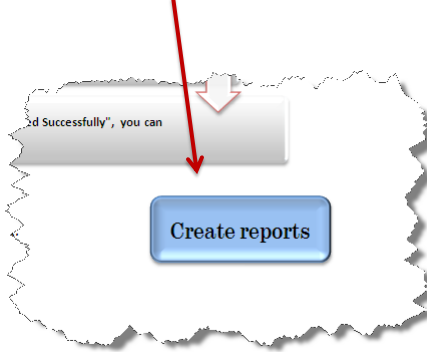
1. Enter the date of the report you want to create via the Show Calendar button or enter the date manually (YYYYMMDD)

**NOTE: Please note that reports are not generated on Saturday/Sunday and NYSE holidays**

2. Select a date from the Calendar
3. Select "OK"



4. Select the blue button to run the report



1. Enter the FX rates under the FX tab sheet
2. Do not delete or rename any of the existing tabs

1. Enter the date of the report you want to create via the Show Calendar button or enter the date manually (YYYYMMDD)  
*Please note that there are not generated reports on Saturday/Sunday and NYSE holidays*
2. Enter the FX rates under the FX rates tab.
3. Do not delete or rename any of the existing sheet tabs in the excel template.
4. Try to access less applications while the process runs.
5. When you see the pop-up window "Report Completed Successfully", view the report in the new excel spreadsheet.

The date you have been selected is: 20091125

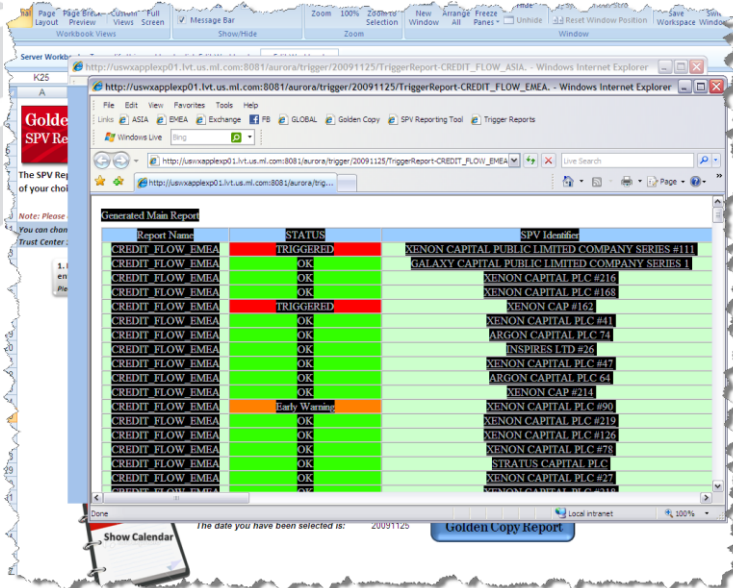
**Enter the FX rates HERE**

Control / Main / Sub / HTMLScrape / FX / SPV LU / Golden Copy / Matured

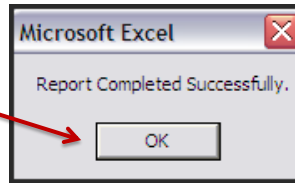


Global Credit Products Technology - SPV Reporting Tool  
Major Qualifying Project

1. When the report starts compiling the data you will see this screen. You will be able to access other applications but for better performance of the tool, please access as few application as possible.



1. When you see the pop-up window "Report Completed Successfully", you can view the report which will appear on a separate sheet
2. Select "OK" to view the Golden Copy report
3. The Trigger and Error reports along with the Maturity Warning tab will appear in a separate sheet for additional modifications if needed



Report as of 11/23/2009

TRIGGERS	CRVS	Collateral Rating	Collateral Price
CREDIT_SCT_GLOBAL	58	0	0
CREDIT_FLOW_ASIA	0	0	0
CREDIT_FLOW_EMEA	9	0	0
TOTAL	67	2	0

Report Name	CoPer ID	SPV ISIN	SPV Name	Collateral ISIN	Swaps
CREDIT_FLOW_EMEA	1616354123	BLANK_ISIN	ON CAPITAL PUBLIC LIMITED COMPANY SERIES #111		08ML2
CREDIT_FLOW_EMEA	1636191223	XS0327783485	XENON CAP #162		07ML3
CREDIT_FLOW_EMEA	163631223	XS0347749359	XENON CAPITAL PLC #183		08MLD
CREDIT_FLOW_EMEA	163631225	XS0349451368	XENON CAPITAL PLC #185		08MLD
CREDIT_FLOW_EMEA	1638705127	XS0318332136	XENON CAPITAL PLC #149		07ML2
CREDIT_FLOW_EMEA	163870528	XS0319489166	XENON CAPITAL PLC #151		07ML2
CREDIT_FLOW_EMEA	163617919	XS0321708917	XENON CAP #154		07ML3
CREDIT_FLOW_EMEA	163870526	XS0318915583	XENON CAPITAL PLC #150		07ML2
CREDIT_FLOW_EMEA	1616354127	XS0282736054	XENON CAPITAL PLC #115		07ML2
CREDIT_FLOW_EMEA	160526188	BLANK_ISIN	HELIUM CAPITAL LIMITED SERIES 65		08MLD
CREDIT_FLOW_EMEA	163819775	US2253834F52	CLEAR PLC SER 29		07ML25
CREDIT_FLOW_EMEA	163819778	XS0293192943	CLEAR PLC #30		07ML3C
CREDIT_FLOW_EMEA	163818661	US225383AH19	CLEAR PLC #45		07ML3
CREDIT_FLOW_EMEA	163818519	US7021776879	PARCS-R 2007-13		07ML3
CREDIT_FLOW_EMEA	161692413	XS0309760709	HELIUM CAPITAL LTD #80		07MLB3
CREDIT_SCT_GLOBAL	160558512	US6994248Y22	PARCS 2008-2		08ML2
CREDIT_SCT_GLOBAL	163818519	US701776A552	PARCS-R 2007-17		07ML1B
CREDIT_SCT_GLOBAL	161639700	XS0319051423	CLEAR PLC #66		07ML3
CREDIT_SCT_GLOBAL	161652146	US225383AA65	CLEAR PLC #24		07ML1
CREDIT_SCT_GLOBAL	160522921	XS0285137381	ARGON CAPITAL PLC 59		06ML25
CREDIT_SCT_GLOBAL	160558512	US6994244G25	PARCS 2006-7 SAVOY II		06ML4G



# SPV Reporting Tool

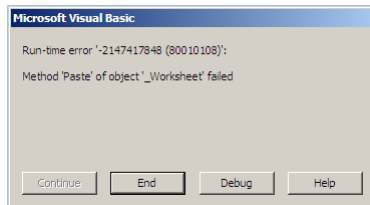
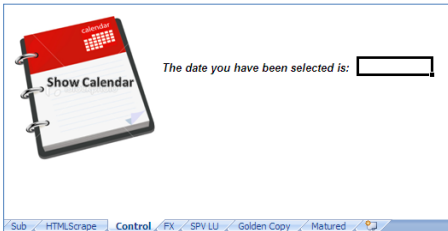
## User Performance Errors

The following slides display errors that can occur if the user does not run the program correctly or alters certain conditions of the program.



### Error 1

When the program runs with no date entered in the date field, the program will navigate to a nonexistent page and copy incorrect data into Excel. This will cause an error when the program tries to reformat the data. Excel will either hang, do nothing, or the following error message will prompt.

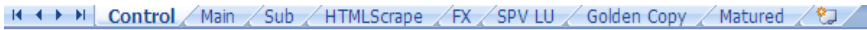
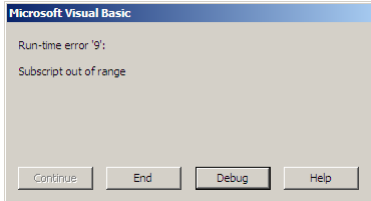


**Note: This error also occurs when a date when no reports are created is selected such as weekends and NYSE holidays.**

### Error 2

If the tabs are renamed or deleted, when the program runs it will try to find an open tab that had the original name. When it cannot locate that tab, the error message as seen on the left will appear.

It is necessary for the tabs to keep their original names (as seen below). However, when the program completes, a new workbook will open with only the Golden Copy, Matured, and Summary tab. In this workbook, the sheets can be renamed.



### Error 3



	S	T	U	V	W	X	Y	Z
1	Collat Notional (USD)	Collat Notional at Deal	Collat Price	Collateral MTM (USD)	Collateral MTM	Average Co Trader		FX Rates
2	#N/A	#N/A		86.67%	ERROR	0	92.94% Li-woon Lim	#N/A
3	#N/A	#N/A		92.15%	ERROR	0	92.94% Li-woon Lim	#N/A
4	#N/A	#N/A		92.34%	ERROR	0	92.94% Li-woon Lim	#N/A
5	#N/A	#N/A		100.59%	ERROR	0	92.94% Li-woon Lim	#N/A
6	#N/A	#N/A	ERROR	ERROR	ERROR	0	100.13% Manish Srivasta	#N/A
7	#N/A	#N/A	ERROR	ERROR	ERROR	0	100.13% Manish Srivasta	#N/A
8	#N/A	#N/A		100.13%	ERROR	0	112.12% Kazuya Ichikawa	#N/A
9	#N/A	#N/A		112.12%	ERROR	0	112.12% Kazuya Ichikawa	#N/A
10	#N/A	#N/A	ERROR	ERROR	ERROR	0	ERROR Kazuya Ichikawa	#N/A

Columns S-W of the Golden Copy attempts to convert each collateral value to USD. This requires a look up table which is placed in the FX tab. If the FX rates are not reported or incorrectly placed, the formulas will fail. Note: The program will not error but there will be errors in the Golden Copy and Matured tabs as seen in the highlighted portions of the figure above.

The correct placement of FX rates are shown in the image to the right.

	A	B	C	D	E
1	Currency	FX Rate			
2	ADP	0.005312			
3	AED	272264			
4	ALL	0.018732			
5	AMD	0.002589			
6	ANG	0.588235			
7	ARC	0.263505			
8	ARS	0.261849			
9	ATS	0.107033			
10	AUD	0.9004			
11	AWG	0.561798			
12	AZM	0.000204			
13	BBD	0.502513			
14	BDT	0.014519			
15	BEF	0.03651			
16	BHD	2.65252			
17	BIF	0.000825			
18	BMD	1			
19	BND	0.716692			
20	BOB	0.14245			
21	BRL	0.567118			
22	BSD	1			
23	BTN	0.021286			
24	BWP	0.148			
25	BZD	0.510204			
26	CAD	0.925926			
27	CHF	0.975515			
28	CLP	0.001883			
29	CNY	0.146462			
30	COP	0.0005			
31	CRC	0.001736			
32	CUP	1			

First Currency Rate should be placed in Cells A2 and B2

**Error 4**



As the HTML SPV reports are constantly being changed to meet the needs of Credit Risk Management and Trade Support, the Golden Copy program needs to realign with it to accommodate the changes. If not, the program will not fail but the data in the Golden Copy fields will be incorrectly mapped.

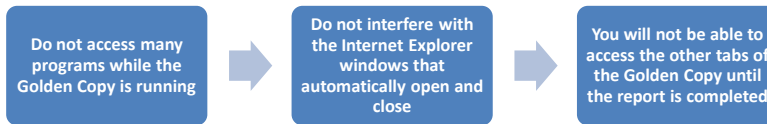
The summary table below outlines two release changes. This means that the Golden Copy program is different for reports run before 11/5/2009, after 11/5/2009, and after 12/5/2009. The date of the report being run needs to be created with the correct Golden Copy Version.

Release Date	Report Changes
November 5, 2009	<ul style="list-style-type: none"> <li>*Added Report Name, Book, Trader, and Report Date to the Main report</li> <li>*Added Report Name, Collateral CUSIP, and Security Description to the Sub report</li> </ul>
December 4, 2009	<ul style="list-style-type: none"> <li>*Added Issue Date to the Main report</li> </ul>

**Error 5**



This program has varying performance reports. In general, it depends what machine the program is being run on. On a high performance machine, the report can be created while the user is running other programs or activating other windows. However, on a low performance machine, if the user accesses too many programs, this may cause the Golden Copy to fail.

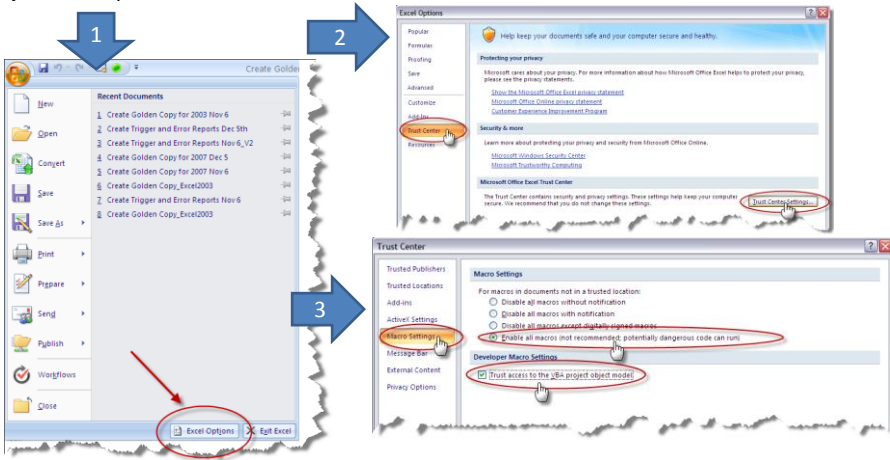


### Error 6



If Excel macros are disabled the SPV Reporting Tool cannot execute the operations and an error will occur:

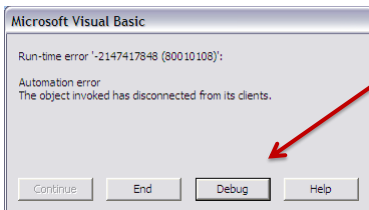
You can change the macro security settings in the Trust Center (Microsoft Office Button , Excel Options button, Trust Center category, Trust Center Settings button, Macro Settings category, Or Developer tab, Code group, Macro Security button). Please follow these steps.



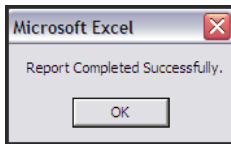
### Error 7



If the process is interrupted while the reporting tool is running, the following error will occur.



Do not close any pop-up windows until the report completes. You will get the following message to notify you that the report is successfully completed.



**Error 8**



A pop-up window will appear.  
Select **"SAVE"** to save the MS Excel spreadsheet on your hard drive.

*Note: If you select **"OPEN"** You will not be able to run the report due to security and change control standards*

