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ANALYTICS



THOMSON REUTERS

Fixed Income SPPI Solution Methodology and Delivery

April 2018

Introduction

David Berbner, Thomson Reuters, Head of Financial Markets & Regulation Continental Europe

- Heading the financial and regulatory engineering for Continental Europe, including development and advisory on regulatory solutions for IFRS9/SPPI and Basel3/CRR LCR/HQLA and NSFR analytics and reporting
- Developed IFRS 9 (SPPI) methodology and automated solution for Core securities
- Expertise in global FICC markets (modeling, pricing and valuation), key financial regulations (mainly risk and liquidity management) and global data markets
- M.Sc. in Quantitative and Empirical Finance and Economics from University of Cologne

Domitille de Coincy, Moody's Analytics, Associate Director, EMEA Regulatory & Risk

- Responsible for EMEA Regulatory and Risk solutions for Structured Finance, including development and support of regulatory solutions for PRA annual stress testing, IFRS 9 and Basel reporting.
- Developed IFRS 9 (SPPI and impairment) methodology and automated solution for Structured Finance securities
- Expertise in loan level credit models and ABS cashflow models for many asset classes including US RMBS and SLABS and EMEA-APAC CLOs, RMBS and ABS
- MA in Mathematics of Finance from Columbia University

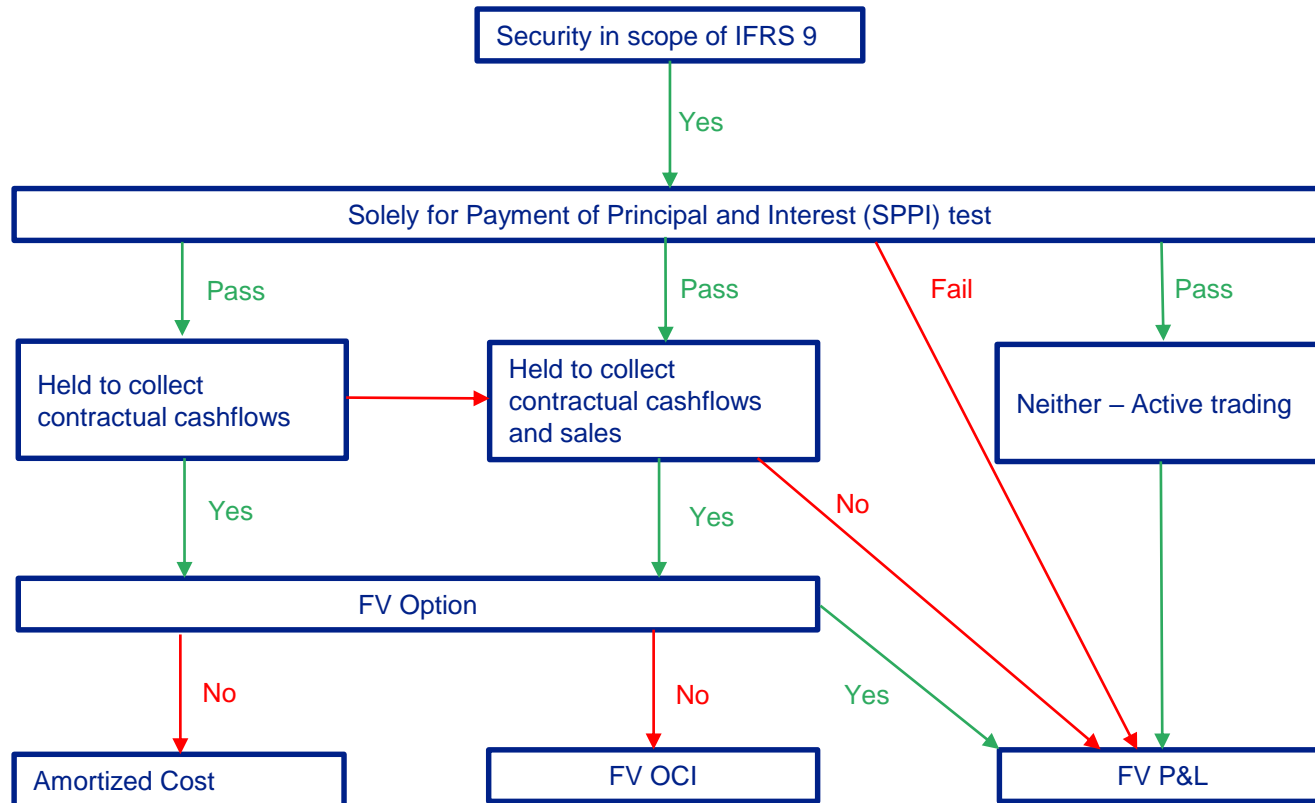
Agenda

1. SPPI Background and Partnership
 - » What is SPPI?
 - » MA and TR joint solution
 - » SPPI Delivery options
2. IFRS 9 Core Asset Classes (EQ, GovCorp)
3. SPPI Test for Structured Finance Securities
 - » Criteria and Interpretations
 - » Credit Risk comparison
 - » Benchmark Test
4. QA

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SPPI Background
and Partnership

IFRS 9 Classification Decision Tree



What is SPPI?

- The SPPI-test follows the idea of a basic lending agreement.
- Eligible elements consistent with a basic lending agreement are:
 - ✓ Time value of money
 - ✓ Credit risk
 - ✓ Other risks or costs compliant with basic lending (inflation risk, administrative costs, etc.).
- This assessment requires extensive information on each instrument:
 - ✓ Nature of the instrument itself, the principal/interest rate payments
 - ✓ Any embedded performance linkage in the instrument (compliant or non-compliant)
 - ✓ Payment and term structure of the coupons/interests
 - ✓ Test compliant or non-compliant leverage within the coupon/interest payments
 - ✓ Assessment of any non-compliant features
- The required analysis creates an extensive set of around 30 new SPPI specific value fields.

TR and MA Partnership

- In 2017 a large number of opportunities and client interactions across Europe showed the need for a competitive and holistic solution in all asset classes:
 - ✓ Core (Equities, Governments, Supras, Sub-Sovereigns, Agencies, Corporates)
 - ✓ Structured Finance (ABS, MBS, Pools, ...)
- Moody's Analytics & Thomson Reuters Partnership:
 - ✓ Combining two leading competences in the market with a broad coverage, historical data and key expertise in core asset classes and securitized products
 - ✓ Offering the most competitive approach in the market in terms of instrument coverage and functionality.
- The data is available either via feed or intraday accessibility due to the natures of the business:
 - ✓ feed/end of day requirement for accounting/reporting
 - ✓ intraday requirement for trading/ad-hoc

Moody's and Thomson Reuters joint SPPI solution



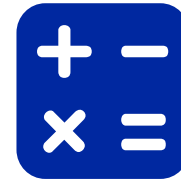
700K

Fixed Income
Securities



300K

Asset Backed
Securities



1M

Mortgage Backed
Security Pools

Clients will benefit from more than 30 SPPI related value and transparency fields and documentation for all their securities within one auditable solution delivered by Moody's Analytics and Thomson Reuters.

Key Selling Points

- Meet IFRS 9 standards with an **auditable** and **transparent** solution
- Streamline the accounting team's workflow with an **automated process**
- Enhanced due diligence on over **2 million securities** globally
- Improves **cost efficiency** associated with internal investment and maintenance
- **Integrated approach** using performance data and cashflow models
- Easily retrieve pass/fail results for **pre-traded securities**
- **No terminal** needed, access to data feed or online platform

SPPI Delivery Options



Web Portal



Data Feeds



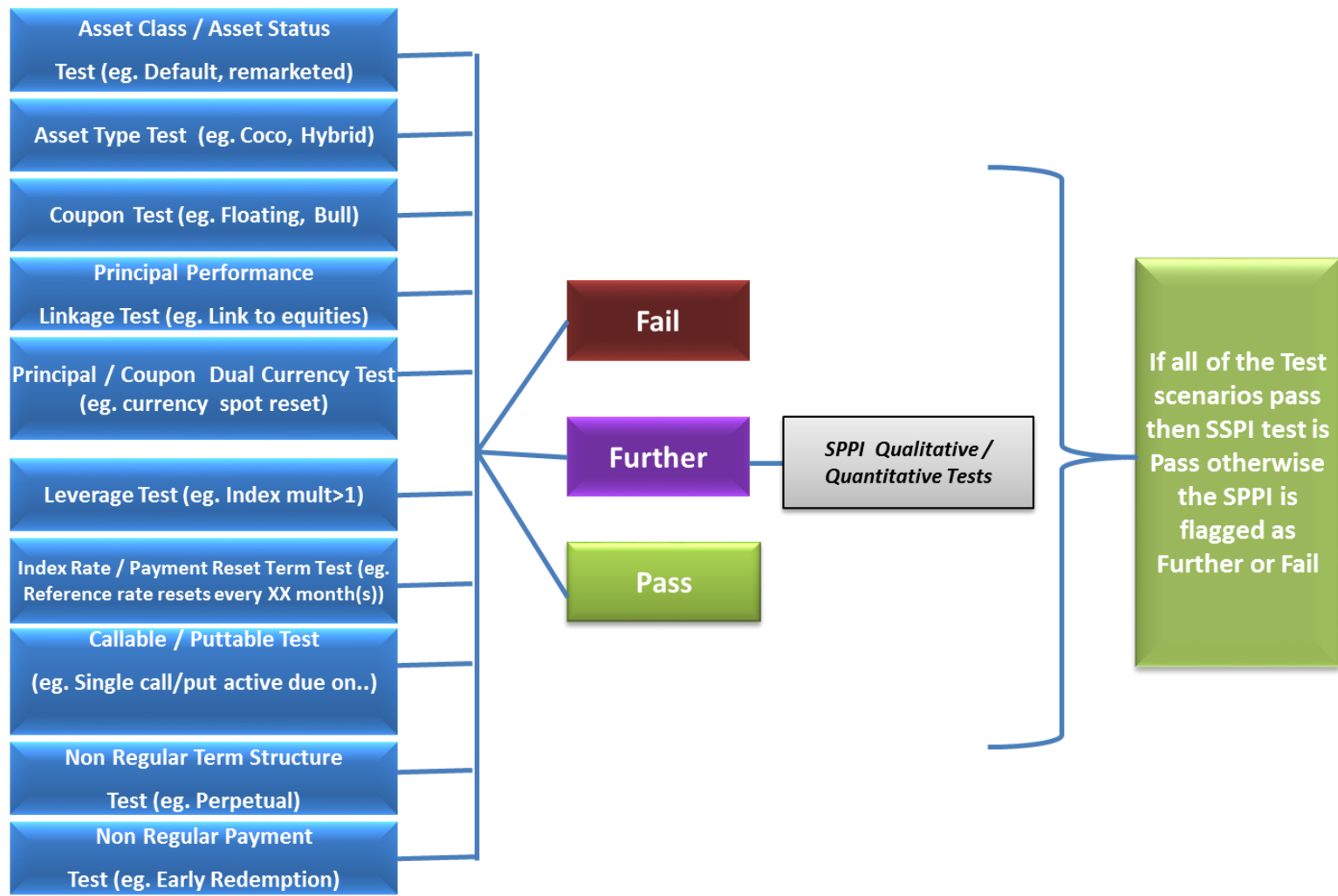
APIs



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SPPI Test for
Gov/Corp bonds

SPPI Test scenario summary

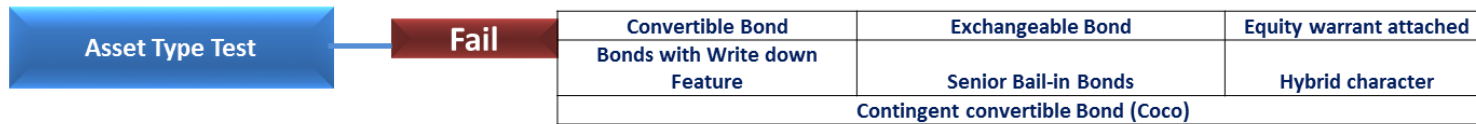


Gov/Corp methodology: SPPI test result

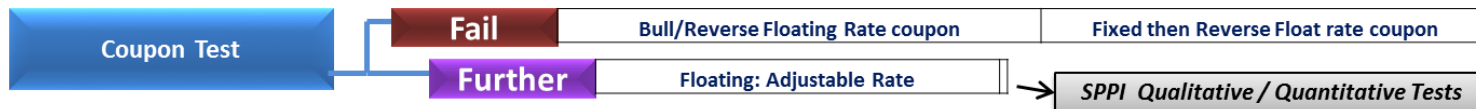


ISIN	Asset Class/Status Test	Asset Class/Status Explanation
US29357P2011	FAIL	SECURITY IN DEFAULT MODE;

ISIN	Asset Class/Status Test	Asset Class/Status Explanation
US931142BB84	FURTHER	SECURITY HAS BEEN REMARKETED;



ISIN	Hybrid Character Test	Hybrid Character Explanation
US92828Q2084	FAIL	CONVERTIBLE INTO EQUITY;HYBRID/MEZZANINE INSTRUMENT;

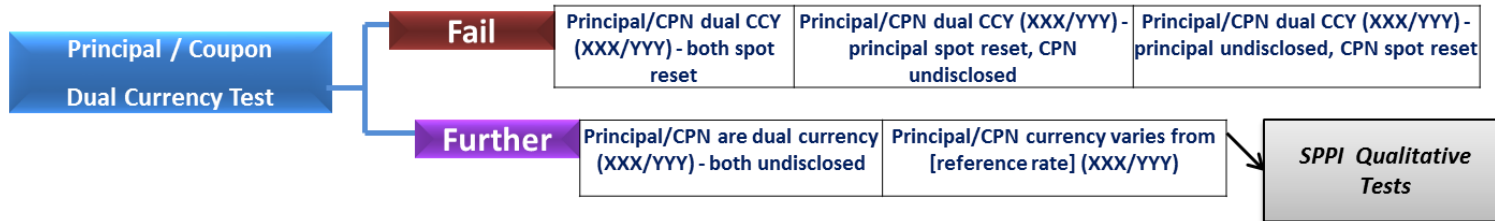


ISIN	Coupon Test	Coupon Explanation
XS0167733103	FAIL	FLOATING: FIXED THEN REVERSE FLOAT

Gov/Corp methodology: SPPI test result



ISIN	Principal Performance Linkage Test	Principal Performance Linkage Explanation
XS1772365869	FAIL	PRINCIPAL IS LINKED TO PREFERENCE SHARE PERFORMANCE



ISIN	Principal/Coupon Dual CCY Test	Principal/Coupon Dual CCY Explanation
XS1377496457	FAIL	PRINCIPAL/CPN ARE DUAL CCY (IDR/USD) - BOTH SPOT RESET

ISIN	Principal/Coupon Dual CCY Test	Principal/Coupon Dual CCY Explanation
ARGALIS60229	FURTHER	PRINCIPAL/CPN CCY VARIES FROM RATE INDEX CCY (USD/ARS)

Gov/Corp methodology: SPPI test result

Leverage Test **Fail** Interest rate formula implies leverage of 'xxx' (Index multiplier>1)

ISIN	Leverage Test	Leverage Explanation
XS0106776536	FAIL	INTEREST RATE FORMULA IMPLIES LEVERAGE OF 1.2

Index Rate / Payment Reset Term Test **Further** [Reference rate] resets every XX month(s) [Reference rate] pays every XX month(s) vs resets every YY month(s) *SPPI Quantitative Assessment (Benchmark Test)*

East/West Europe clients are offered this service as a separate solution (priced)

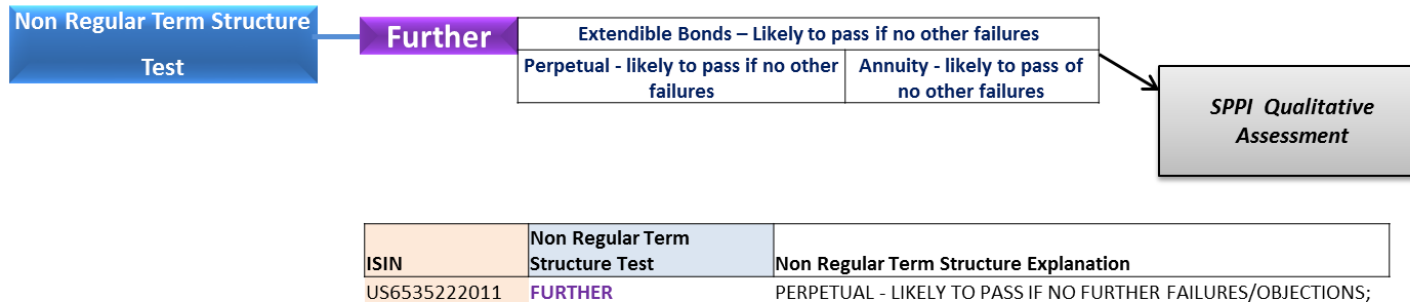
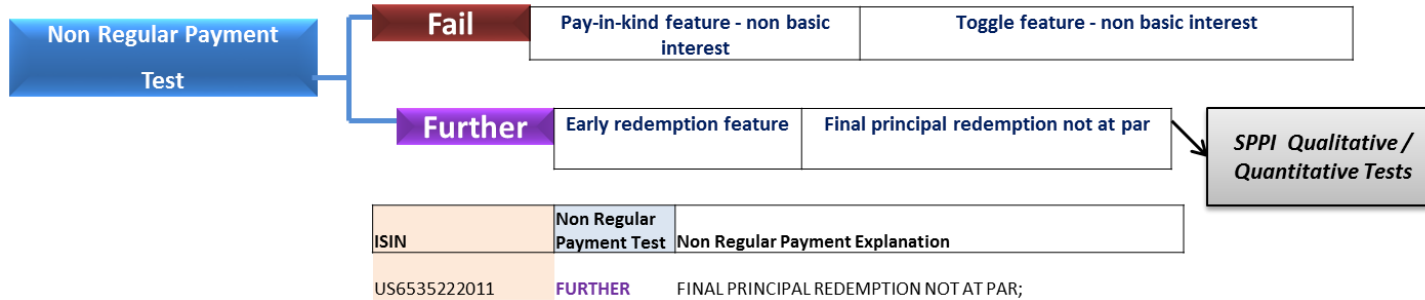
ISIN	Index Rate Term/Payment/Reset Test	Index Rate Term/Payment/Reset Explanation
US3130ABS494	FAIL	USD6MFSR= RESETS EVERY 365 DAYS

Callable / Puttable Test **Further** Single call/put active - due on [Date] Multiple calls/puts active - next due on [Date] *SPPI Qualitative Assessment*

We are currently working on Automating the SPPI assessment on Further cases to let them Pass or Fail

ISIN	Callable/Putable Test	Callable/Putable Explanation
US219350BF12	FURTHER	SINGLE CALL/PUT ACTIVE - DUE ON 19.05.2057; OPTION PREMIUM 0.00%

Gov/Corp methodology: SPPI test result

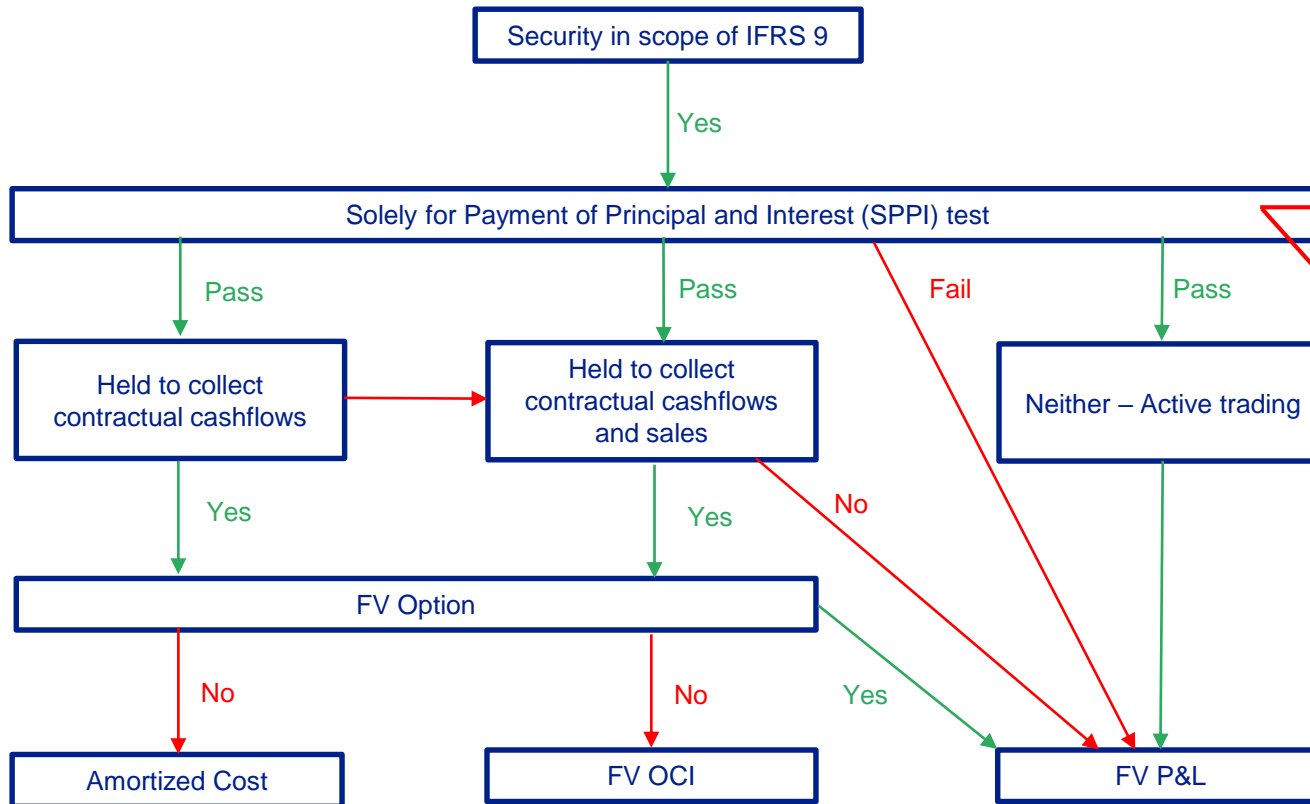


If all of the Above scenarios pass then SPPI test is Pass otherwise the SPPI is flagged as Further or Fail

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IFRS 9 Methodology for Structured Finance

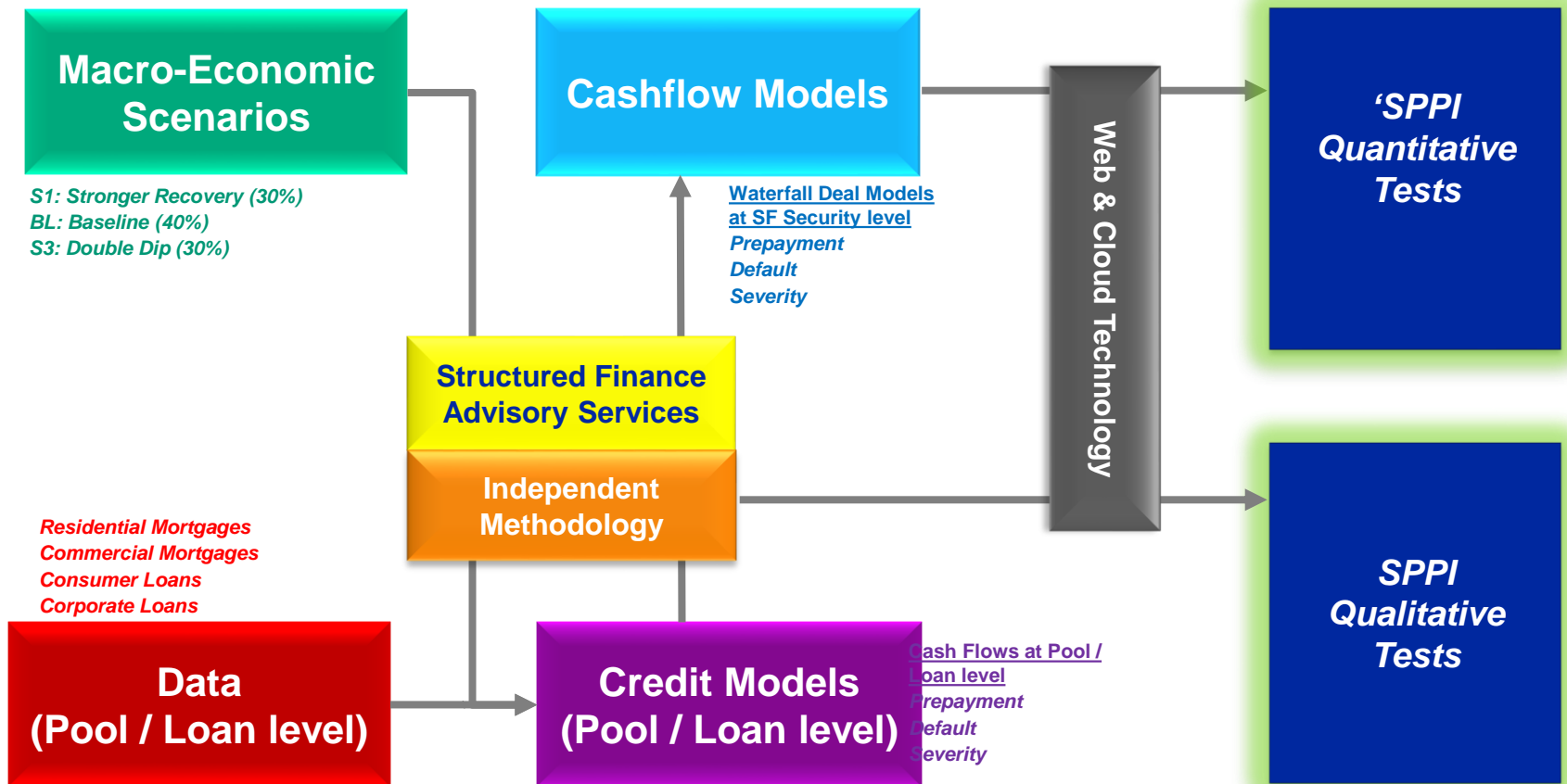
IFRS 9 Classification Decision Tree



SPPI Qualitative Test :
 Contractual terms “give rise on to cash flows that are solely for payments of principal and interest (‘SPPI’) on the principal amount outstanding”.

SPPI Quantitative Test :
 “credit risk in the tranche is equal to or lower than the exposure to credit risk of the underlying pool of financial instruments”.

MA Integrated IFRS 9 Approach for Structured Finance



SPPI Qualitative Test

CRITERIA TYPE	TEST TYPE	VALUES EXAMPLES & EXPLANATIONS
Bond Characteristics	Bond Leveraged Index	Coupon = 3.5% - 5 * LIBOR 3 MO
Pool Characteristics	Asset Index Reset Mismatch	LIBOR 1 MONTH resetting Quarterly
Deal Characteristics	Trigger Purpose	Credit or Liquidity related
	Derivative Test	Currency Swap to adjust for collateral-Liabilities differences
	Other Accounts	Reserve Account to hold Monthly funds for Quarterly payments

CRITERIA TYPE	TEST TYPE	ADDITIONAL CONSIDERATIONS
Bond Characteristics	Payment of Interest on Arrears	EOD Trigger for senior tranches Insured Interest Payments

SPPI Quantitative Test

- Credit risk in the tranche is lower than the credit risk in the underlying pool of assets
- Compare credit risk of the tranche and its underlying pool by deriving their expected loss % under Moody's Analytics scenarios using our credit models and waterfall models

		Assets		A1	A2	B	C	Equity
		700		400	150	65	50	35
IFRS 9 scenarios	Probability	Loss Amount	Weighed Loss Amount	Weighed Loss Amount				
Stronger recovery	29.90%	8	2.4					2.4
Baseline	40.00%	35	14					14
Double dip	29.90%	87	26			0.6	15.0	10.5
Catastrophe	0.20%	500	1	0.4	0.3	0.1	0.1	0.1
		WA Loss	43.4	0.4	0.3	0.7	15.1	27
		Loss %	6.2%	0.1%	0.2%	1.1%	30.2%	77.1%
				Pass	Pass	Pass	Fail	Fail


 Cliff effect

Benchmark Test

Create dummy transaction

A dummy deal/transaction is created with the exact same characteristics but the failing criteria. That criteria is modified to pass the test.

Compare cash flows

Cash flows are run and compared for both the original and the dummy deal under a baseline scenario.

If no significant change, as agreed with the customer, is found then the criteria will be modified to pass.

Documentation is provided on the analysis performed.

SPPI Test – Data Points Results

Solely for payments of Principal and Interest (SPPI) Metrics

⚠ (7)

As-Of Date 2018-08-31

Get SPPI Metrics

Show 5 Items

Search

ISIN	SPPI Test Result	Number of Failures	Asset Class	Tranche vs Pool Credit Risk Test	Tranche vs Pool Credit Risk Explanation	BOND Interest on Arrears Test	BOND Interest on Arrears Explanation	BOND Remarketing Test	BOND Remarketing Explanation	BOND Equity Test	BOND Equity Explanation	BOND Index Test	BOND Index Test Explanation	BOND Leverage Test	BOND Leverage Test Explanation
-	FAIL	1	RMBS (MBS)	PASS	0%, 1.23706%	FAIL	No IntArrears Payments	PASS	N/A	PASS	JUNIOR	PASS	LIBOR 3MO	PASS	1
-	FAIL	1	RMBS (MBS)	PASS	0%, 0.494952%	FAIL	No IntArrears Payments	PASS	N/A	PASS	JUNIOR	PASS	LIBOR 3MO	PASS	1
-	FAIL	1	RMBS (MBS)	PASS	0%, 1.15222%	FAIL	No IntArrears Payments	PASS	N/A	PASS	MEZZANINE	PASS	LIBOR 3MO	PASS	1
-	PASS	0	CDO	PASS	0%, 2.09694%	PASS	IntArrears Payments	PASS	N/A	PASS	SENIOR	PASS	LIBOR 3MO	PASS	1
-	PASS	0	RMBS (MBS)	PASS	0%, 0.0371574%	PASS	IntArrears Payments	PASS	N/A	PASS	MEZZANINE	PASS	LIBOR 3MO, LIBOR 3MO	PASS	1, 1



Tranche Information

SPPI Test Result

Quantitative Test: ECL

Qualitative Test - Identified Criteria: Criteria results and values

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Q&A

Summary of the Solution

- One **automated, auditable** and **transparent** SPPI solution
- Instantly obtain PASS / FAIL result for over 2 million securities globally
- Access to **intraday** SPPI result for pre-traded securities
- Access 30+ SPPI test related fields for detailed explanation
- Ability to **integrate** SPPI results using our API
- **Benchmark test** performed on requested securities to obtain the cash flow differential to justify results
- Personal **client support** to discuss results with our SPPI experts