

RESEARCH

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Structured Finance Investments – Key Considerations and Challenges for Classification and Measurement

An Introduction to Classification under IFRS 9

The classification and measurement guidelines of IFRS 9 register how and where the performance of a financial asset is recorded in the financial statements. To classify 'Structured Finance Securities' (SFS) accurately, institutions must determine, first, that the cash flows generated from the securities are 'Solely for Payments of Principal and Interest' (SPPI). Second, careful consideration must be given to the nature of the 'Business Model' (BM) in which the financial asset are booked. Depending upon the outcome of these validations, SFS are accounted for via 'Amortized Cost' (AC), 'Fair Value through Other Comprehensive Income' (FVOCI) or 'Fair Value through Profit and Loss' (FVPL).

Why Does the IFRS9 Classification Matter?

As we highlighted in last month's paper the adoption of the new IFRS 9 accounting standard would have ramifications upon capital management and volatility of provisioning.¹ The standard is even more pertinent when considering classification of SFS is typically a 'one off' exercise, this could in turn have a direct impact on Earnings per Share ('EPS') of investors' financial statements for the life of the SFS. On an investor's balance sheet, SFS can be carried at either 'Amortized Cost' or 'Fair Value' (FV). 'Amortized Cost' generally refers to the acquisition cost (purchase/book price as adjusted for amortization of premiums and discounts), minus provisions. FV is generally the price at which an asset can be sold in the marketplace, so equivalent to an Independent Price Valuation (IPV) mark, or mark-to-market (MTM) price. There are several income accounts impacted by IFRS 9. First, changes in provisions, along with any write-downs of SFS, would affect the 'Profit and Loss' (P&L) Statement. Second, interest income is also recognized as part of P&L based on the gross carrying amount of the SFS. If SFS are non-performing, interest is earned based on the gross carrying amount less any write-down and loss allowances.

Many institutions that currently classify as 'Available for Sale' (AFS) under IAS 39 include banks, insurance companies, and other active SFS investor demographics. These investors would typically classify part, if not all, of their SFS portfolio under FVOCI to ensure a 'like for like' classification under IFRS 9. Any FV movements less change in provisioning would be reported in Other Comprehensive Income (OCI), while changes in provisions due to any FV movements would be reported in the P&L Statement. FVOCI requires marking SFS at FV, while the changes in FV flow through the OCI

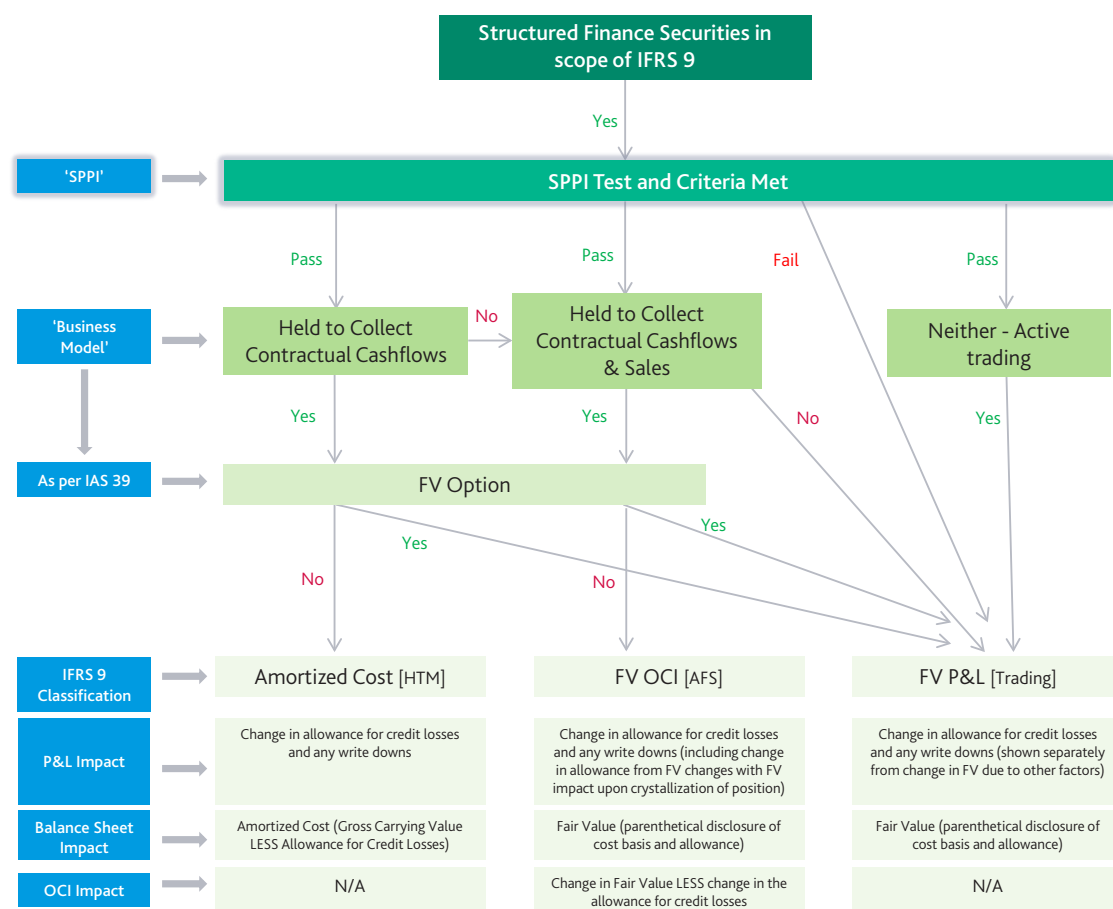
¹ See Moody's Analytics Structured Finance Publication (May 2016): "IFRS 9 Analytical and Reporting Solutions for Structured Finance"

statement. As this calculation is not included in earnings it does not impact volatility in EPS. This change means that the effect of the overall FV movement is presented in separate sections of the income statement. After an asset classified via FVOCI is liquidated, then any gain or loss on sale switches from OCI crystallizing into P&L.

A SFS book is typically accounted for at AC when the business objective of the unit holding the SFS is to collect contractually due 'Principal and Interest' (P&I), which again could conceivably include the types of institutions mentioned above. AC only accounts for the change in provisions through P&L, so the book value (equal to the amortized cost) is unaffected by market pricing, leading to smoother asset values with less volatility. The flowchart in Table 1 highlights the positioning of the SPPI test, the business model, and the impact on the financial statements under each classification.

In summary, SFS investors that currently benefit from AFS or HTM classifications and are invested in predominantly senior and Triple-A rated SFS would be introducing more risks and volatility into financial statements, if these positions are later classified under FVPL. Examples of these include market or credit risk in times of economic severity or volatility in terms of adjustments for fair value into earnings for SFS currently marked near to par, for instance under AC.

TABLE 1 CLASSIFICATION DECISION TREE



Given the lack of liquidity in the SF secondary markets relative to the more conventional fixed income markets, large demographics of the structured finance real money investor base are buy and hold focused, along with defensively managed books. This approach makes the SPPI test pivotal to continued classification. With SPPI, consideration is required for whether the contractual terms of a financial instrument "give rise on specified dates to cash flows that are solely for payments of principal and interest ("SPPI") on the principal amount outstanding" (Ref: 4.1.2(b) – IFRS 9 Financial Instruments). IFRS 9 acknowledges that SFS might pose unique challenges in testing for SPPI and thus provides extra guidance for SF investors. The criteria is complex in that it is applied at the deal, tranche, and underlying asset level across numerous asset classes that are each individually governed by unique transaction documentation. Often, there is no getting around the need to review the deal documents, surveillance reports and other documents to test for SPPI. The SPPI criteria include the categories in Table 2, which we explore further in the paper.

TABLE 2 SPPI CRITERIA LEVELS

Test/Level	Brief Description
Deal Level	<i>Derivatives that are often embedded within structured finance transactions typically mitigate credit risk on the underlying collateral, ensuring alignment of cash flows on the notes or to address interest rate or liquidity mismatches between assets and liabilities</i>
Tranche Level	<i>Contractual cash flows from the tranche are SPPI on the outstanding principal, and assessment is required for any contractual payments that violate the P&I requirement, for example interest rate reset term mismatches</i>
Collateral Level	<i>Contractual cash flows from the underlying portfolio are SPPI, for example the underlying assets can clearly be 'identified' as generating the contractual P&I cash flows</i>
Credit Risk Test	<i>'Credit risk in the underlying pool of financial instruments inherent in the tranche is equal to or lower than the exposure to credit risk of the underlying pool of financial instruments'. SF investors could take a prudent forward looking approach and compare the estimated probability weighted ECL of the underlying assets versus the comparable credit measures for the tranche</i>
Cash Flow Characteristics	<i>"Kicker" payments that are not tied to P&I typically have a 'de-minimis' effect on contractual cash flows per reporting period over the life, or are considered 'rare' events</i>

Notwithstanding a material change in the business model, investors in SFS would generally run any new investments through the SPPI criteria before recognition to check compliance with the IFRS 9 classification guidance. Furthermore, traders and investors in SFS will take comfort from understanding if a security complies with the SPPI criteria as this would implicitly suggest the security is more liquid given it opens up the investor base.

Next in the flowchart below the SPPI test is the 'Business Model'. The determination is generally not made on a security-by-security basis or at an aggregate entity-wide level. The determination typically is made at a business unit or book level by the institution. Thus the business model is ascertained by the manner in which the SFS are managed to meet specific business objectives. For this step, take into context the level of active/reactive sales, key performance targets, and form of management compensation. Depending on the business model of the desk, as long as they pass the SPPI test, the SFS can be classified accordingly. Reclassification, in reality, would be infrequent and typically depends on a change in business model – this situation happens rarely and is difficult to predict (sale, acquisition, or restructuring of a whole business, not just a shuffle in purpose).

Idiosyncratic Considerations of Structured Finance Securities that Impact SPPI

The guidance put out by IASB through IFRS 9 applies to all applicable financial instruments, which makes it difficult to apply to SFS, given the idiosyncratic features of SFS versus vanilla securities. These unique characteristics once again highlight the importance of understanding SF deal details, which can be gleaned from deal documents, surveillance reports and other reports. Some of the unique challenges include:

- » SF deals can be structured in almost 'infinite' ways, with various embedded instruments to manipulate the distribution of underlying cash flows; each transaction has its own unique terms and conditions.
- » Certain adverse credit shocks and events can logically increase the credit risk of certain tranches but can also trigger events that make senior bonds even less risky (for example, pro rata changes to sequential).
- » Each SF deal is backed by a unique and segregated pool – these pools of receivables would generally have been originated at different times with different concentrations reflecting a unique risk profile.
- » Collateral is not always purchased before bonds are sold (for example, CLO ramp-up periods). Certain asset classes (CLOs, credit cards, auto) could gain and lose collateral as the deal progresses (for example, contractual reinvestment or replenishment periods).
- » Non-financial assets can constitute an 'underlying portfolio' which can generate cash flows to be distributed to bonds (for example, Bowie bonds, toll roads), to the point where these assets could fail the SPPI test.

A General Overview on the SPPI Descriptive Criteria for Structured Finance

A major challenge of applying the SPPI test lies within the subjective criteria described in the IFRS 9 guidance. As mentioned, addressing these criteria involves validating data at the deal, tranche, and collateral levels. Despite the overall SPPI guidelines being general, one can identify specific characteristics of financial instruments that might jeopardize passing the SPPI test. With this challenge in mind, we provide some examples of criteria that appear to be rather clear-cut in nature from a structured finance point of view.

One of the main criteria is that financial instruments must provide cash flows that are solely payments of principal and interest which are consistent with a basic lending arrangement. A basic lending arrangement considers the time value of money, credit risk, liquidity risk, cost and profit margin. Most payment features outside this scope, such as cash flows tied to an equity index, would fail the basic lending arrangement criterion. For instance, the IFRS 9 guidelines specifically state some key characteristics of a financial instrument that would fail this criterion, for instance:

1. If the periodicity of the interest rate reset does not match the tenor of an interest rate that a financial instrument pays, then the time value of money aspect might be compromised. For example, for a bond with a three-month LIBOR index that resets monthly, a quantitative analysis should be conducted to see if the cash flows are significantly different than a similar bond that matches the payment frequency of the bond in question. This example is covered further in the quantitative criteria section.
2. There are index restrictions, such as no leveraged indices, no reserve floating indices, and no esoteric indices, for example, equity- or commodity-linked.
3. A bond must accrue interest on missed payments, otherwise the instrument fails the SPPI test because it does not consider the 'time value of money'.
4. External 'payments' are disallowed; any deal that increases cash flow through a kicker or equity payments that are not contractual principal and interest could jeopardize the SPPI test for a tranche.

5. Embedded derivatives might be included but only if they help align the cash flows from collateral to match payments to tranches; this inclusion generally could include currency swaps and interest rate swaps.
6. Pools of collateral must also follow the SPPI criteria so that the tranches they support could be classified as SPPI. Collateral that is generating aggregate cash flows from principal and interest payments would support the SPPI test whereas intangible esoteric asset classes like toll roads or other future flows transactions which have no direct principal payment obligations might fail the SPPI criteria.

Addressing some of the Subjective SPPI Criteria

Although the IFRS 9 guidelines provide specific examples of financial instruments which fail the SPPI test, the list is non-exhaustive. Some of the qualitative descriptive criteria are open to interpretation. We highlight the following points which reinforce the need to look deeper into deal structures and require SFS investors to assess these factors and apply reasonable judgment. Involvement of auditors in this decision-making process could also help in arriving at the most appropriate solution.

Call/prepayment problem: Although call options and prepayment options are allowable in SPPI testing, they are only allowable when principal, as IFRS 9 defines it, equals par. This scenario can be interpreted as occurring when an instrument is originated or purchased at par. If a bond is acquired at a premium or a discount, then unscheduled payments are not 'deemed' solely of principal and interest because the notional value of the bond which is due, does not technically equal 'principal'. However, there is an exemption made for bonds acquired at discount or premium as long as they follow two more criteria: (1) the prepayment or call amount has to be a 'significant' portion of principal and interest due (which can include fees), and (2) the value of the inherent 'option' must be 'insignificant'. Neither the term 'significant' nor the term 'insignificant' is defined by IFRS 9 explicitly in terms of these two criteria.

De minimis: If the effect of a contractual characteristic that would otherwise force a bond to fail SPPI is de minimis, then it does not affect the SPPI test. The complication lies in defining 'de minimis', which relates to an insignificant effect projected on cash flows over the life of the security. A cash flow characteristic is also regarded as de minimis if it is 'not genuine' which refers in turn to an event that is considered rare or unlikely, in which case it would pass SPPI. There are no concrete definitions of what is 'insignificant' or 'rare', which leaves room for interpretation.

Rare triggers or derivatives: As discussed previously, SF deals can be structured in almost infinite ways. Therefore, it is conceivable that deals might have a trigger or derivative that is not considered common in one deal, but could be structured so that it has a more than 'insignificant' effect on another deal. Such characteristics would probably fail the SPPI test. The added complexity is determining which deals have these unorthodox characteristics before they are even triggered. Thus, an exhaustive list of prohibited characteristics might become impractical in the structured finance industry.

Identifying collateral: IFRS 9 guidelines ask reporting institutions to be able to identify collateral. However, the guidelines do not specify how an institution would demonstrate they have appropriately identified underlying collateral. For instance, institutions can point to particular collateral replines, stratifications, or loan level identification data from period to period (for static deals).

Lease deals: According to SPPI requirements, all lease asset classes would fail the SPPI test because they do not include payments of principal on the collateral side, in contractual terms. It would be determined whether this asset class fits the broader parameters.

Key Quantitative SPPI Criteria

Although many SPPI criteria are qualitative in nature, there are two quantitative tests that are also included in the SPPI test: Cash flow comparison of deals with interest rate reset mismatches, and exposure to credit risk of a tranche compared to that of the underlying pool.

INTEREST RATE RESET MISMATCHES

Testing the cash flow delta for deals with interest rate reset mismatches is preferred for deals that fail the SPPI test. That is, a financial instrument that fails would pay according to an index that resets more or less often than the tenor of the interest rate, for example if a deal that paid a margin over a six-month LIBOR that resets quarterly. The IFRS 9 literature then states that an assessment must be made, which can sometimes be qualitative, other times quantitative (IFRS 9 B4.1.9B). To provide the best evidence whether a financial instrument would pass or fail, a quantitative method is more defensible and, therefore advisable.

For assets that fail this test, the lifetime and every reporting period cash flow from the financial instrument must be tested alongside another financial instrument which is comparable in all ways except that the index tenor and rate reset match. Projecting cash flows from even a hypothetical financial instrument or adjusting the rate reset on the same deal (in keeping with a simulation of compliance) would also be adequate to isolate the effect of a mismatch. If there is a significant difference between the cash flows, then the financial instrument fails the SPPI test. Note the level of significance is not explicitly defined in the guidelines and would be determined.

EXPOSURE TO CREDIT RISK: TRANCHE VS. COLLATERAL

The second quantitative test checks whether the tranche is riskier than the underlying collateral. Exposure to credit risk could be measured in many ways, including credit ratings and expected loss projections. The use of credit ratings is generic and includes internal credit ratings and external credit ratings. Internal credit ratings are developed by banks and other financial institutions and are used as part of their credit risk pricing and measurement, including for regulatory and financial reporting. These ratings are unique and proprietary to each bank and other financial institution. External credit ratings are provided by third-party credit rating firms.

The IFRS 9 guidelines provide an example of how credit ratings would be used in this context: *"the exposure to credit risk in the underlying pool of financial instruments inherent in the tranche is equal to or lower than the exposure to credit risk of the underlying pool of financial instruments (for example, the credit rating of the tranche being assessed for classification is equal to or higher than the credit rating that would apply to a single tranche that funded the underlying pool of financial instruments)"*. [IFRS 9 B4.1.21(c)]

An expected credit loss (ECL) approach, using past and current data along with future projections based on customizable economic scenarios can seamlessly assess credit risk and is most consistent with the IFRS 9 requirements. Table 3 illustrates a stylized example of the ECL approach with a securitized structure that factors in economic scenarios that capture the essence of the guidelines:

TABLE 3 SPPI QUANTITATIVE CREDIT RISK TEST STYLIZED EXAMPLE

ASSETS				LIABILITIES						
SF Deal Size (bn)				Cum	700	300	150	85	35	
				Tranche	Snr1	Snr2	Mezz	Sub	Equity	Total
				Size	400	150	65	50	35	700
				% Size	57%	21%	9%	7%	5%	
IFRS 9 Economic Scenario	Loss Amt	Probability	Wtd Avg Loss	Probability Weighted EL of tranche						
Stronger Recovery	8	29.9%	2.4						2.4	2.4
Baseline	35	40.0%	14.0						14.0	14.0
Double Dip	87	29.9%	26.0			0.6		15.5	10.5	26.0
Catastrophe	500	0.2%	1.0		0.4	0.3	0.1	0.1	0.1	1.0
Probability WA Loss of Collateral			43.4	Tranche EL	0.4	0.3	0.7	15.6	26.9	43.4
				Tranche EL %	0.1%	0.2%	1.1%	31.3%	76.9%	6.2%
				Tranche EL > Collateral EL	N	N	N	Y	Y	
				SPPI Test Passed	Y	Y	Y	N	N	

In this stylized example, we note that the “Sub” note has an expected loss that exceeds the collateral pool expected loss and would thus fail the SPPI test. This approach can be generated dynamically by SFS investors at any point in time. There are many reasons for advocating the ECL approach to calculating credit risk at both tranche and collateral levels, for instance:

- » **Customization:** An ECL approach is transparent and dynamically customized. Customization allows the institution to change how they approach expected loss calculation based on an agreed upon vision of the future economy. Such flexibility and transparency might be achieved via internal credit ratings, though some modifications to existing internal credit rating models might be necessary to comply with the IFRS 9 ECL approach.
- » **Idiosyncratic Features and Optionality Considerations:** Structured finance deals often have contingent characteristics, for example, triggers that depend on credit quality. Small changes in economic assumptions could change whether a contingent characteristic is triggered or not. These considerations might have a large effect on the credit quality of a tranche, as a deal might change from a pro rata waterfall structure to one that is sequential. Understanding the possibility of these effects and their impact is important so they can be correctly accounted for in credit quality comparisons. SF deals also incorporate other market-based optionality inherent in deals, such as call options, where a case-by-case analysis might need to be performed, for instance, for call likelihood. Any use of credit ratings to try to assess these factors might require close scrutiny of stated methodologies. Sometimes, an assessment of this risk might not be possible if stated methodologies do not address these factors.
- » **Economies of Scale:** Impairment calculations in IFRS 9 use scenarios and the same forward-looking lifetime ECL approach, and factor in the 12-month ECL. With an ECL approach for the exposure to credit risk test, a reporting firm can consistently adopt the forward looking approach in both SPPI testing and impairment calculations. As the ECL approach for impairment is already required, the same methods that would qualify for impairment would also be valid for evaluating exposure to credit risk.
- » **Lack of Pool Credit Ratings:** It will generally not be possible to assign all collateral pool groups with credit ratings. For most SFS reference obligations, the receivables are not individually or collectively rated given their illiquid and non-corporate characteristics. These reference obligations include, for instance, residential mortgage loans, commercial mortgage loans, auto loans, and other consumer finance debt. In these asset classes, a credit rating is not required at underwriting or on an ongoing basis, thus external credit rating exercises may not be conducted or results may not be available. For CLOs, given some of the collateral pool is rated, results in the concept of Weighted Average Rating Factor (WARF) which would act as an implied collateral rating. However, some of the private, unrated underlying credits are not rated so a point-in-time credit estimate is generated and may not be refreshed as frequently as publicly rated issuers that are rated periodically by the ratings agencies. To the extent collateral pool level credit losses are available, more detailed information, such as the distribution of credit losses, could be missing and might be relevant. It might also be difficult to remain consistent in applying IFRS 9 ECL methodologies, since the approach in assessing collateral risk might be inconsistent with the general ECL approach followed by the

SFS investor. Lastly, use of any credit ratings system should be assessed carefully, to ensure that the ratings system is more in line with a "point-in-time" credit risk measure as opposed to a "through-the-cycle" credit risk measure — discussed below.

- » **Recognition Date Classification and Qualification:** ECLs can also be generated dynamically upon date of recognition, upon date of classification or upon reclassification and fed directly and consistently into the SPPI testing framework. Essentially, this classification ensures that 'credit risk' measurement is captured timely and consistently along with its respective impairment processes that are also needed from this point onward.
- » **Tranche seniority, thickness, and homogeneity of collateral pool:** a subordinated or mezzanine tranche securitized by a heterogeneous portfolio could fail the SPPI since its credit risk might exceed the average risk of the underlying portfolio. These tranches would generally be impacted most by the credit risk of the riskiest assets in the pool, not the average credit risk of the pool. Conversely senior or second pay tranches on the same deal, for example, could pass the SPPI test, as the credit risk might be lower than in the underlying portfolio.
- » **PIT vs. TTC:** the IFRS 9 definition of credit risk is based on a point-in-time ("PIT") measure of credit risk. This definition of credit risk is different from other credit rating systems that use a through-the-cycle ("TTC") measure of credit risk. Credit ratings systems that are used for some regulatory reporting requirements are often based on TTC metrics, as are some external credit ratings systems. Absent some form of adjustment of the TTC credit ratings to a PIT equivalent rating, use of TTC ratings might not be suitable for IFRS 9 purposes.² Conversion calculators that provide such transformations might be generic in nature and thus might need to be assessed to determine their applicability for SFS.

Conclusion

Portfolios of SFS have unique contractual characteristics inherent within structures that are embedded within complex documentation. Classification is what distinguishes SFS from traditional vanilla securities. Furthermore these unique characteristics are required to conform in their entirety to each specific SPPI criterion, which itself is open to interpretation and careful consideration. We have attempted to clarify some of the key challenges and interpretations in this paper.

The other half of classification is the business model which is typically a consequence of the motivations and objectives of the portfolio manager or the institution holds the SFS book. The business model cannot be directly influenced, however, the specific characteristics of the business model direct that SFS, after passing the SPPI test, be classified into one of the three IFRS 9 accounting classifications. The accounting measurement of each classification type, in turn, has specific ramifications for financial statements.

² See Moody's Analytics Modeling Methodology Publication (December 2015): "IFRS 9 Impairment Regulations: Implementation Challenges and Potential Solutions"

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