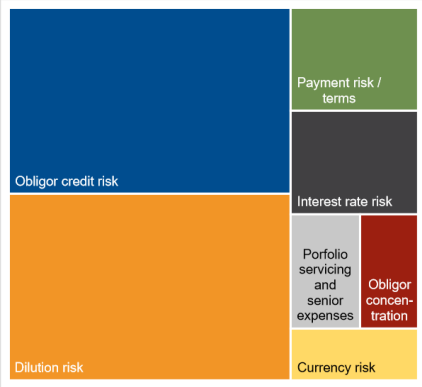
Measuring performance risks in trade receivables securitisation

The performance of trade receivables securitisations has historically been good. Particularly in Europe, almost no rated notes have been downgraded since the Global Financial Crisis. This strength is mainly attributable to conservative credit enhancement levels provided by reserves which often rely on prescriptive, formulaic methodological approaches.

Securitisation investors are exposed to the performance of underlying trade receivables, or portfolio risk. Reserves provide over-collateralisation (OC) and define the *advance rate*, which is equal to the amount of funding provided by the securitisation structure relative to the amount of eligible receivables (also referred to as the *borrowing base*). Noteholders can also benefit from OC provided by ineligible receivables that do not form part of the borrowing base.

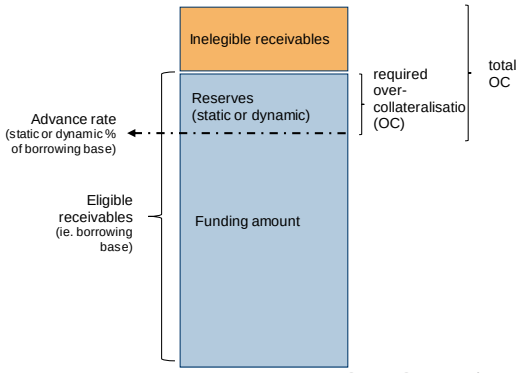
Figures 1 and 2 summarise main sources of portfolio risk and structural protection, respectively. In section 3 of this report, we provide a full summary of the structural features and risk drivers of trade receivables securitisations, including seller-related, tax, legal and structural risks (see Figure 18). Readers unfamiliar with trade receivables securitisation may choose to read that section of the report first.

Fig 1: Key sources of portfolio risk



Source Scope Ratings

Fig 2: Structural protection



Source Scope Ratings

Trade receivables typically bear low portfolio risk because of their very short-term nature. However, most trade receivables securitisations are structured with long or indefinite revolving periods, potentially exposing them to a long risk horizon. Therefore, an essential element of any credit analysis is to determine how well structural features, such as performance-based amortisation triggers or seller quality deterioration amortisation triggers, protect noteholders against worsening credit conditions in the context of a revolving portfolio.

The remainder of this report is structured into four sections. In section 1 we highlight the key challenges of analysing obligor credit risk and dilution risk (i.e. repayment shortfalls for other reasons than obligor credit risk), which are typically the main sources of portfolio risk. In section 2 we discuss the analytical implications of two notable transaction features – static vs. dynamic reserves – in the context of measuring obligor credit risk under an expected-loss framework. Section 3 expands the analysis to other relevant sources of risk and key structural features of trade receivables securitisations. In the Appendix, we discuss data evidence on the performance of trade receivables across European countries.

To rate transactions with this type of collateral, Scope applies its General Structured Finance Methodology and its Methodology for Counterparty Risk in Structured Finance.

Analysts

Antonio Casado
+49 30 27891 228
a.casado@scoperatings.com

Olivier Toutain
+33 1 82882 356
o.toutain@scoperatings.com

Team leader

David Bergman
+39 2 30315 838
d.bergman@scoperatings.com

Related Methodologies

General Structured Finance Rating Methodology

Methodology for Counterparty Risk in Structured Finance

Related Research

Idealised expected loss and default probability tables explained

Scope Ratings GmbH

Lennéstraße 5
10785 Berlin

Tel. +49 30 27891-0
Fax +49 30 27891-100

info@scoperatings.com
www.scoperatings.com

Bloomberg: SCOP

Below we summarise our main analytical highlights from this report:

Heterogenous asset class

- Collateral performance analysis should be transaction-specific and non-mechanistic, because the realised performance of trade receivables tends to be very heterogenous across industries, originators, products, and regions.

Trigger breach timing and likelihood

- The timing and likelihood of breaches of amortisation triggers is a very important element of the analysis, because trade receivables securitisations tend to have very long or indefinite revolving periods and the timing of triggers critically impacts the time value of expected losses.

Economic cycle analysis

- Analysing the economic cycle is paramount in deriving assumptions about the timing of trigger breaches, particularly in transactions structured with static reserves, because their amortisation triggers are more closely linked to systemic risks.

Seller risk analysis

- Assessing the idiosyncratic risk of sellers is key in deriving assumptions about the timing of trigger breaches in dynamic-reserve transactions. This is because their revolving structures depend on their willingness and ability to maintain a sufficient borrowing base.

Dilution risk analysis

- Dilution risk should not necessarily be added to obligor default risk, because some dilutive elements are countercyclical and uncorrelated to obligor performance. Analysis should, however, account for the fungibility of reserves.

Performance conditionality

- Portfolio performance expectations during the amortisation period are conditional on knowing that a trigger will have been breached. The level of dependency between performance and trigger breaches depends on the nature and scope of transaction triggers, which can be very different between static-reserve and dynamic-reserve transactions.

Obligor behaviour analysis

- As opposed to financial debt, trade receivables delinquencies sometimes capture more information about the balance of power between obligor and the seller than about the credit quality of the obligor.

Recovery rate drivers

- Trade receivables securitisations with early charge-off definitions typically exhibit high recovery rates on charged-off receivables. This is because delaying payment on received invoices is a common working capital management practice, and sellers exhaust all recovery possibilities before writing off the receivables.

Final loss rate analysis

- A better estimate of credit risk in trade receivables is the proportion of uncollected receivables, which is the proportion of ultimate losses on receivables on the total receivables portfolio and not so much the usual Basel III default definition.

1. Measuring obligor performance risks

1.1. Transaction-specific assumptions should be derived

A bottom-up transaction-specific analysis is needed

Measuring obligor credit risk and dilution risk requires a transaction-specific approach, because the performance of trade receivables obligors varies, depending on factors such as industry standards, regional distribution, seller and obligor interdependence, and product features. A bottom-up analysis that does not exclusively rely on generic benchmarks is therefore best suited.

Seller-based probability distributions for obligor delinquency and portfolio dilutions can be derived using either a line-by-line simulation framework or a statistical approach, subject to the granularity of the portfolio.

Ultimate portfolio losses are primarily driven by the credit strength of obligors, but their payment behaviour can be also affected by other factors such as their bargaining power, their strategic dependency on the seller, the recurrence on seller-obligor transactions etc. In turn, the business strategy and performance of the seller will directly impact dilution risk, which it partially controls in the context of the industry standards and the competitive landscape. For instance, the seller decides upon rebate policies and directly controls the quality of the goods or services provided, to name a few possible sources of dilution risk.

1.2. Short performance track-record needs to be assessed qualitatively

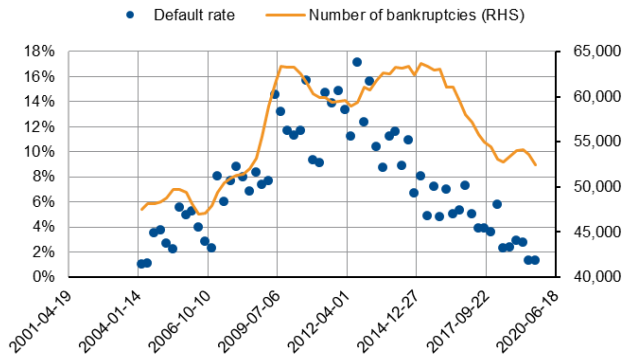
Track-record needs to a be assessed against a full credit cycle

Limited historical track-record is another challenge. Sellers can build significant datapoints in a short period of time because of the high turnover rates of trade receivables. But observed performance needs to be assessed against the backdrop of the then-current macroeconomic environment versus a full credit cycle.

Seller-specific long-term assumptions are easier to derive when the seller has been active across a full economic cycle. In case of an insufficient historical track record, analysis regularly published by credit insurance companies can help complement the necessary assumptions.

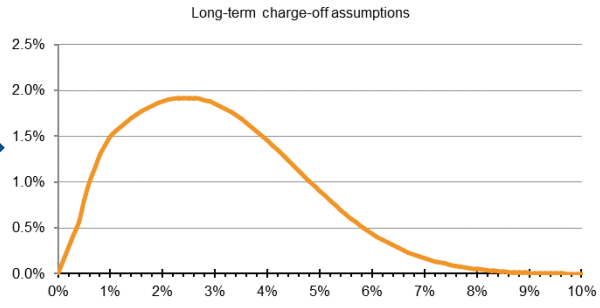
For instance, Figure 3 shows an example of a seller that has been active for almost a full economic cycle. In this example, obligor performance was strongly driven by systemic risk, highlighted by the high correlation between obligor default rates and number of country-wide corporate bankruptcies. Systemic risk exposure can inform forward-looking assumptions about obligor performance. For instance, the monthly charge-off rate distribution of long-term receivables depicted in Figure 4 is a plausible representation of a forward-looking distribution, based on mean and volatility analysis of historical obligor defaults, and assuming consistent macroeconomic behaviour.

Figure 3: Obligor performance driven by systemic risk



Source Scope Ratings

Figure 4: Implied long-term charge-off rate distribution of monthly receivables



Source Scope Ratings

Qualitative judgement is unavoidable when performance data only covers a short period of time, for instance with regards to how an economic downturn would impact seller and obligor behaviour. A qualitative approach may embed a high degree of uncertainty compared to strong data-driven analysis. To address this limitation, portfolio charge-off and dilution-rate distributions should factor in stressed mean and volatility parameters, depending on the reliability of the data provided.

1.3. Fungibility of reserves

Correlation between credit and dilution risk needs to be assessed

Because transaction reserves are typically fungible, it is important to account for the degree of correlation of the underlying risk drivers. For instance, a weak historical correlation between dilution amounts and obligor delinquencies would be credit-positive. These risks cannot be simply added up, which would imply a 100% dependency.

Dilution risk is the risk of credit losses that arise from reductions in the amounts invoiced for other reasons than obligor impairment. It may arise from a variety of reasons, such as, contractual fast-pay rebates, retrospective rebates which accrue based upon the volume of purchases, marketing contributions, invoicing errors, product returns or disputes over product quality or standard pricing terms.

Dilution risk tends to be less systemic than credit risk

Dilution-risk volatility is mainly seller driven. It is likely to exhibit less correlation to systemic risks than obligor default risk, because it is driven by a variety of factors which are not unequivocally connected with the business cycle. The analysis of reserves should factor this in. Some elements of dilution risk may even be inversely correlated with obligor credit risk. For instance, it is plausible that obligors may be willing but unable to exhaust fast-payment rebates if they face liquidity constraints in a recessionary environment.

2. Measuring obligor credit risk under static vs. dynamic reserve structures

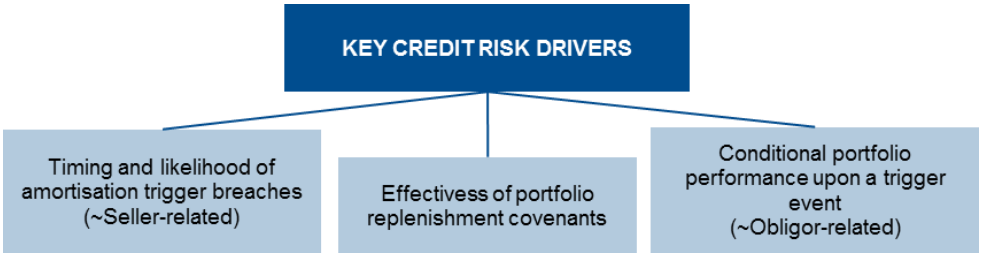
Trade receivables securitisations require a differentiated analytical approach

Expected-loss rating frameworks attempt to measure the expected loss of an instrument over the weighted average life of its underlying cash flows. In such a context, trade receivables securitisations exhibit three peculiarities which require a differentiated analytical approach relative to standard securitisations.

First, the length of the revolving period is potentially indefinite, subject to compliance with certain portfolio replenishment covenants. Second, if an early amortisation trigger is breached, trade receivables amortise very fast. This implies that the weighted average life of the cash flows is mainly a function of the length of the (uncertain) revolving period. Third, obligor performance during the amortisation period is conditional on the breach of an amortisation trigger.

These peculiarities pose three key questions, which are interconnected: First, what is the likelihood of a trigger breach at each period in time? Second, how tightly defined and effective are the portfolio replenishment covenants? Third, what is the dependency of portfolio performance with trigger events?

Figure 5: Key credit risk drivers of continuously-revolving trade receivables securitisations



Source Scope Ratings

Core risk drivers differ between static and dynamic reserve structures

The core underlying risks will differ for static reserve vs. dynamic reserve structures. In the case of a static reserve, investors are mainly exposed to obligor risk, whereas with dynamic reserves the main risk will be with the seller, given that the dynamic nature of the reserve dampens the impact of obligor performance risk.

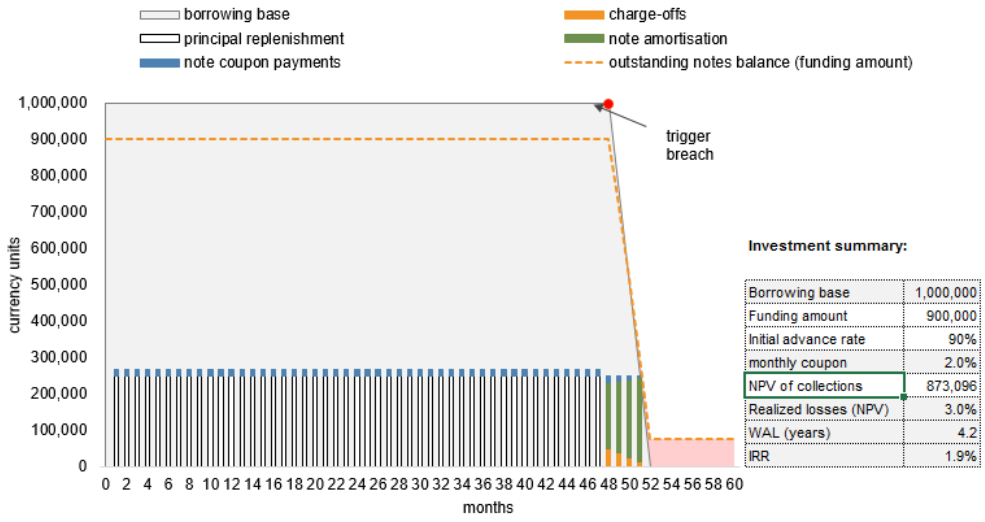
2.1. Timing of amortisation trigger breaches critically affects expected losses

Figures 6 to 7 illustrate the relevance of the timing of amortisation trigger breaches under an expected-loss framework. The examples assume a single-tranche fully pass-through securitisation with an initial advance rate of 90% generated by static reserves, and 2% monthly coupon payments on the notes. During the revolving period, the replenishment receivables are purchased at a discount, generating excess spread sufficient to cover for the cost-of-carry plus a monthly charge-off rate up to 0.5%, so the borrowing base remains constant at 1,000.00 currency units. A performance amortisation trigger is assumed to kick in as soon as an impairment of the portfolio leads to a reduction of the borrowing base. The receivables have a weighted average life of 60 days.

All things being equal, long revolving periods dampen expected losses

The example in Figure 6 furthermore assumes that the portfolio will perform well for a relatively long benign period of 48 months, after which the monthly charge-off rate suddenly spikes, immediately triggering the amortisation of the portfolio. During the amortisation period, the impairment of the portfolio accrues at a constant monthly rate of 5%. In this example, the discounting of interest collections and of principal amortisation payments at a discount rate equivalent to the coupon rate of the notes (blue and green bars) leads to a realised loss of 3% over a weighted average life (WAL) of 4.2 years. This is commensurate with an internal rate of return (IRR) of 1.9%.

Figure 6 – Expected performance with a long revolving period

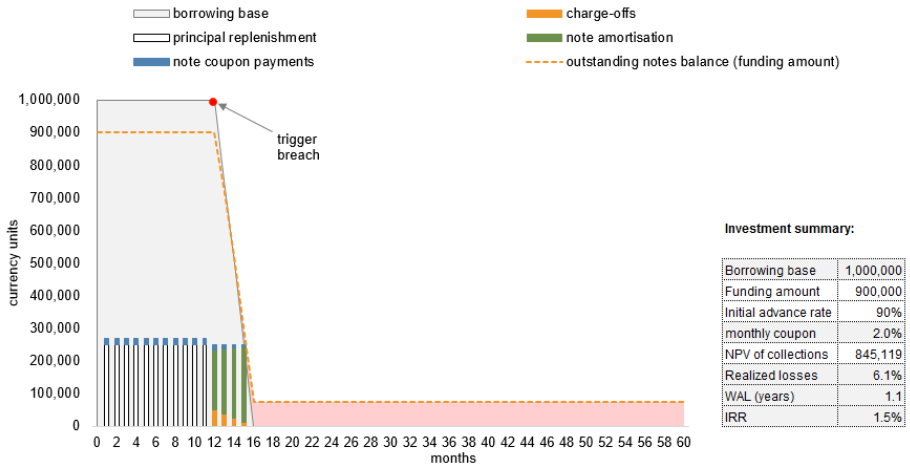


Source Scope Ratings

All else equal, short revolving periods exacerbate expected losses

Figure 7 illustrates a situation where the performance trigger is hit already in month 12. All other assumptions are the same as per figure 6. The result is a significant increase in the realised loss rate to 6.1% from 3% over a shortened weighted average life of 1.0 years. This is commensurate with an IRR of 1.5%.

Figure 7 – Expected performance with a short revolving period



Source Scope Ratings

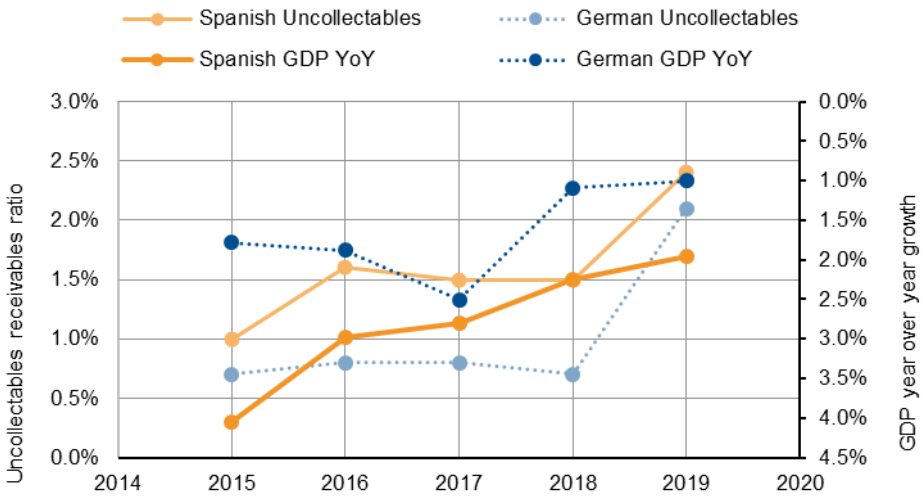
2.1.1. Amortisation trigger breaches are closely linked to systemic risks under static-reserve structures

Under static reserve structures, the likelihood of early amortisation is closely linked to the stage of the economic cycle

Economic cycle analysis is particularly important under static reserve structures, because they rely strongly on performance triggers which are closely linked to systemic risks, such as obligor charge off rates or uncollectable rates (see Figure 3 and Figure 8).

Late-cycle underwriting conditions would typically lead to higher likelihood of an early trigger breach, as an imminent economic downturn would naturally lead to a spike in receivables charge-off rates. As shown in figure 7, all thing being equal, this is detrimental to the credit quality of the securitisation notes, because it increases the net present value of losses, while shortening the weighted average life of interest and principal collections.

Figure 8 – Relationship between uncollectable rates and GDP growth



Source Atradius, World Bank, Scope Ratings

The analysis should also factor in a certain probability of a breach of amortisation triggers, irrespective of macroeconomic conditions. This is because obligor performance also has an idiosyncratic component, and because portfolio replenishment covenants may include a wider variety of triggers, which are not necessarily significantly correlated with macroeconomic conditions.

For instance, the seller may be unable or unwilling to replenish the borrowing base due to a lack of sufficient receivables, or other business reasons not directly connected with the macroeconomic environment. The wider variety of triggers may include dilution triggers, payment terms triggers, obligor concentration triggers, seller credit quality deterioration triggers, and administrative triggers (e.g. change in regulation or tax status), among others.

2.1.2. Amortisation trigger breaches are closely linked to seller-specific risks under dynamic-reserve structures

The essential idea of dynamic reserves is that instead of triggering a wind-down, a deterioration in portfolio risks is compensated by additional collateralisation provided by the seller so that transactions can revolve for longer.

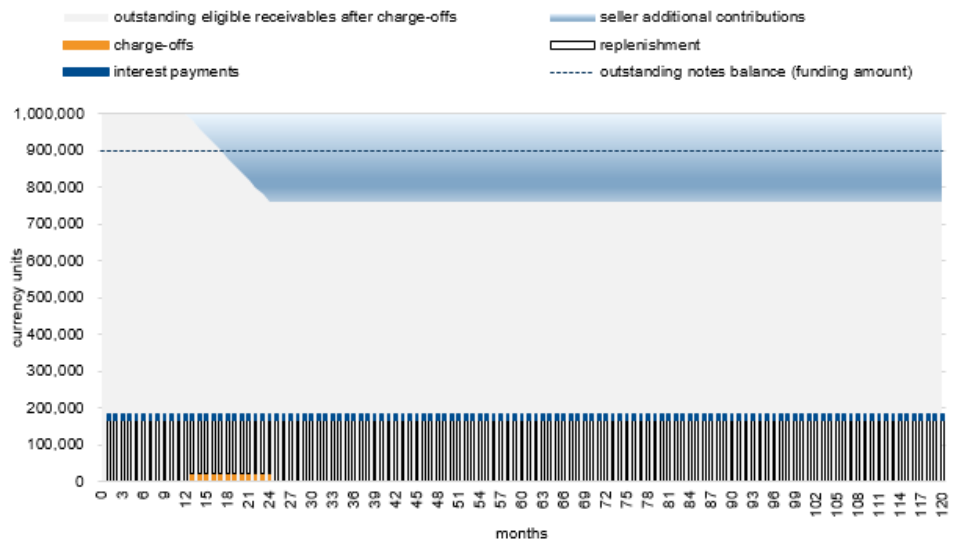
The likelihood of early amortisation is closely linked to seller-specific risks under dynamic reserve structures

Dynamic-reserve structures are also subject to wind-down triggers that are mainly related to the seller's incapacity to maintain the contractually-required borrowing base. Thus, they are intimately connected with the credit quality of the seller. The most relevant trigger type in this context are seller rating migration triggers.

Figure 9 illustrates the essence of dynamic-reserve structures, under the same simple pass-through structure of previous examples. In this example, we assume a temporary impairment of the portfolio between months 12 and 24, during which charge-off accrues at a constant monthly rate of 2%. But instead of triggering amortisation, the seller remediates the impairment of the portfolio by adding new reserves to the transaction in the form of eligible receivables.

The light blue area illustrates the level of additional receivables the seller needs to contribute to compensate for losses and how this can extend indefinitely the length of the revolving period.

Figure 9 - A simple dynamic-reserve structure



Source Scope Ratings

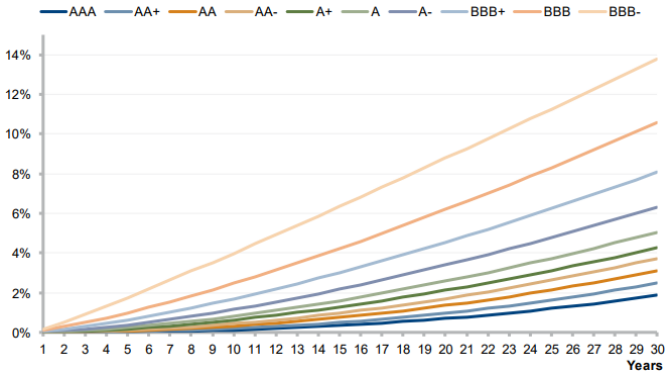
The example above assumes for simplicity that the addition of new reserves results in a constant level of OC (i.e. a constant advance rate). In practice, transactions usually incorporate dynamic advance-rate mechanisms, which adjust the level of OC subject to ongoing levels of portfolio risks. For instance, an increase in portfolio delinquencies or dilutions would require a higher buffer, which translates into either a reduction in the advance rate or an increased OC.

The credit quality of the seller should not mechanistically limit the maximum achievable rating of a securitisation structure

The credit quality of the seller should not mechanistically limit the maximum achievable rating of a securitisation structure. But the default likelihood of the seller is an essential driver of amortisation trigger breaches, which drive expected losses.

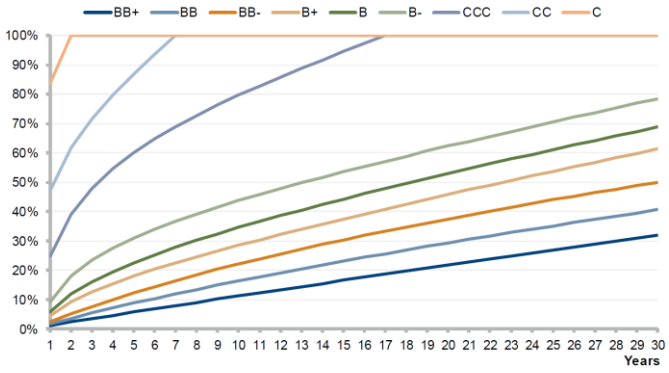
Guidance on the likelihood and timing of a seller default can be obtained from idealised probability of default tables. For instance, Figures 10 and 11 illustrate Scope's structured finance idealised cumulative probability-of-default tables for investment-grade and non-investment-grade rated instruments (see Idealised expected loss and default probability tables explained for more details).

Figure 10: Scope Ratings idealised cumulative default curves (investment-grade ratings)



Source Scope Ratings

Fig 11: Scope Ratings idealised cumulative default curves (non-investment-grade ratings)



Source Scope Ratings

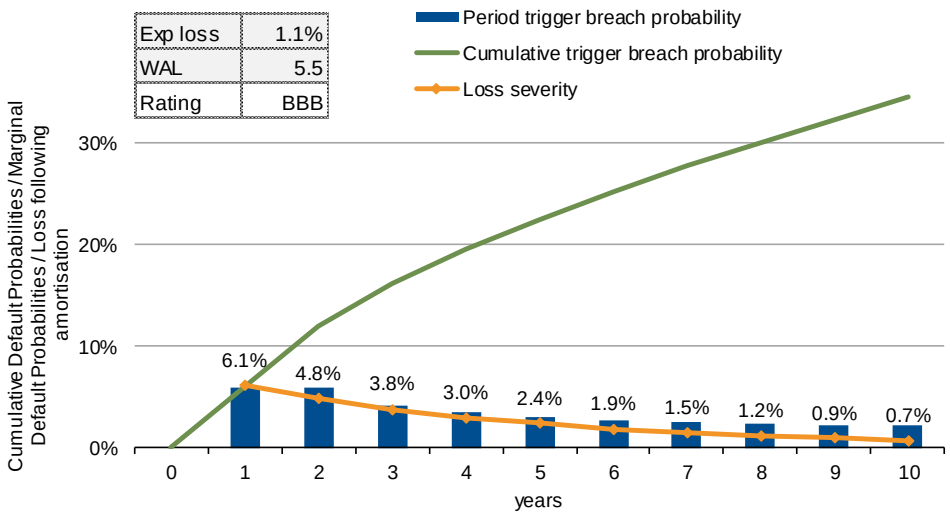
The credit quality of the seller can impact expected losses through the acceleration of amortisation

Figures 12 and 13 illustrate how the credit quality of the seller can impact expected losses through the acceleration of amortisation. The examples are based on the same simplified pass-through structure as previously.

Figure 12 illustrates a situation where the seller is rated B. The transaction is assumed to have a maximum revolving period of 10 years, and to amortise early only upon a seller default. For each period, we applied a probability of the seller defaulting commensurate with the 'B' idealised cumulative default curve depicted in Figure 11. During the amortisation period, we assume a monthly constant portfolio impairment rate of 5%.

These assumptions lead to a transaction's expected loss of 1.1% over a weighted average life of 5.5 years. In accordance with Scope's idealised expected loss tables, these levels would be commensurate with a BBB securitisation rating.

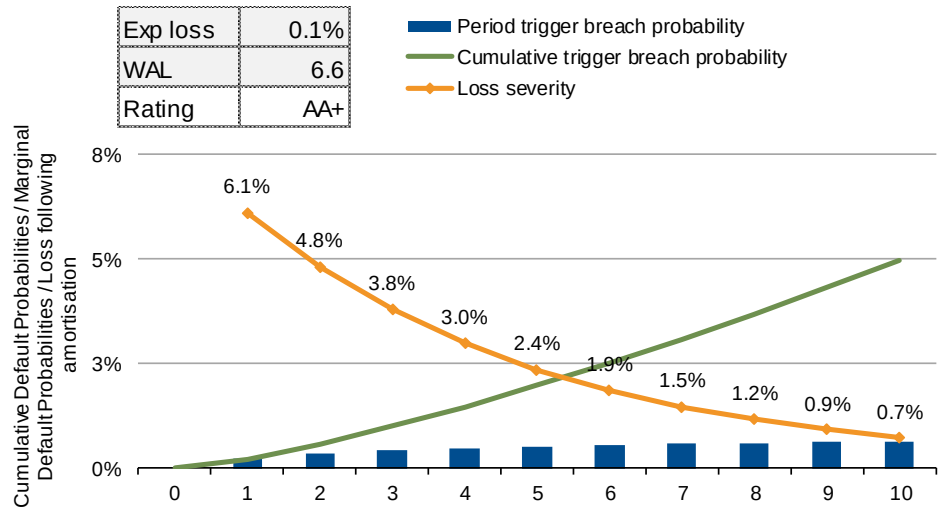
Figure 12. Default assumptions[1] on 'B' servicer rating and associated expected losses



Source Scope Ratings

Figure 13 illustrates the same case, but with a BBB rated seller. Because a wind-down of the transaction is now significantly less likely, expected losses decrease to just 0.1% from 1.1% over a longer weighted average life. The higher implied rating of AA+ illustrates the significance of the seller credit quality in assessing dynamic-reserve structures.

Figure 13. Default assumptions[2] on 'BBB' seller rating and associated expected losses



Source Scope Ratings

[1] Default assumptions are provided for illustrative purpose only and should not be regarded as transaction-specific guidance.
[2] Default assumptions are provided for illustrative purpose only and should not be regarded as transaction-specific guidance.

Dependency between charge-off rates and the amortisation event under dynamic reserve structures may impact the level of reserves at the beginning of the amortisation period

A particular complexity in modelling transactions with dynamic reserves is that assumptions need to be made about the level of the reserves at the beginning of the amortisation period. Since the advance rate typically adjusts dynamically, the level of reserves will depend on the portfolio performance observed immediately before a breach of the amortisation trigger.

In the previous examples, we assumed a significantly stressed monthly portfolio impairment rate of 5% during the amortisation period, reflecting an assumed dependency between the level of charge-off rates and seller defaults. Less stressful impairment expectations, based on the assumed independency between the trigger breach and charge-off rates, would reduce expected losses and the credit outlooks.

In section 2.3. we discuss drivers of performance conditionally upon amortisation trigger breaches.

2.2. Effectiveness of revolving covenants

The principles of the effectiveness of revolving covenants are similar for static reserve and dynamic reserve structures. The only difference is that while in static reserve transactions the portfolio amortisation is typically triggered by portfolio performance adverse events; in dynamic reserve transactions it is typically triggered by seller performance adverse events.

2.2.1. Tightness and scope of triggers

Tight and comprehensive amortisation triggers are credit positive

A tight amortisation trigger is one which has a higher likelihood of being breached because it is conservatively defined. Examples of tight triggers are an obligor delinquency rate trigger which is below historical mean rates, or a minimum seller rating that is slightly below its then-current rating (i.e. loss of BBB- would trigger a wind-down event for a BBB+ seller).The more triggers the transaction structure incorporates, the more likely an early wind-down of the transaction is.

Conservative and comprehensive amortisation triggers are credit positive because they protect noteholders against early deterioration of credit conditions, reducing the amount of expected losses during the amortisation period. The credit analysis should, however, capture the partially-offsetting negative effect of early amortisation illustrated in section 2.1. That is, all else being equal, the acceleration of amortisation increases expected time-value losses on a discounted basis because of the time-value effect. For this reason, it is critical that the credit analysis accounts for amortisation period performance, conditional on the tightness and comprehensiveness of the transaction triggers.

2.2.2. Timeliness of trigger computation

Strong operational capabilities enabling timely trigger recognition are credit positive

The effectiveness of revolving covenants is also connected with the timeliness or regularity of the computation of triggers, or with permitted time lags with regards to dynamic reserve adjustments. In turn, these factors are driven by monitoring and reporting standards, or by IT and operational systems capabilities.

Figures 6 and 7 assumed that the allocation of losses occurred only during the amortisation period. In reality, it may take some time for the transaction to stop revolving following a trigger breach, which implies that losses can also accrue during the revolving period (that is, between the point of trigger breach and the start of the amortisation period).

The minimum reporting periodicity is monthly in most transactions. This effectively limits risk-horizon extension due to timeliness of trigger computation to a maximum of one month. However this does not resolve the issue arising from the timeliness of loss recognition.

A faster trigger recognition reduces loss allocations during the revolving period. Securitisation structures may leverage the improvement of IT systems and the

development of fintech solutions to structure away this risk, if performance monitoring and reporting is conducted in real time.

2.2.3. Delinquency spikes

Performance triggers cannot fully structure away the risk of sudden negative events

Performance triggers cannot fully structure away the risk of sudden negative events. For instance, a sudden and sharp increase in delinquency rates could imply that portfolio losses could materialise at significantly higher levels than the trigger level. This risk should be assessed in connection with performance conditionality described in the following section.

2.3. Performance conditionality upon trigger breach

Performance expectations during amortisation period are conditional on the knowledge that a trigger will be breached

Provided that revolving covenants are structured effectively, transaction losses will be mainly allocated during the amortisation period. The analysis of credit risk during the amortisation period should factor in mean and volatility expectations, conditional on the knowledge that a trigger will have been breached.

Portfolio performance during the amortisation period tends to have a higher degree of dependency on the underlying causes of the trigger breach in static reserve transactions, as opposed to dynamic reserve transactions. This is because static reserve transactions rely predominantly on triggers that are directly connected to portfolio performance proxies, while dynamic reserve transaction triggers are also strongly connected to seller-specific idiosyncratic factors.

2.3.1. Performance conditionality is mainly driven by systemic factors in static reserve transactions

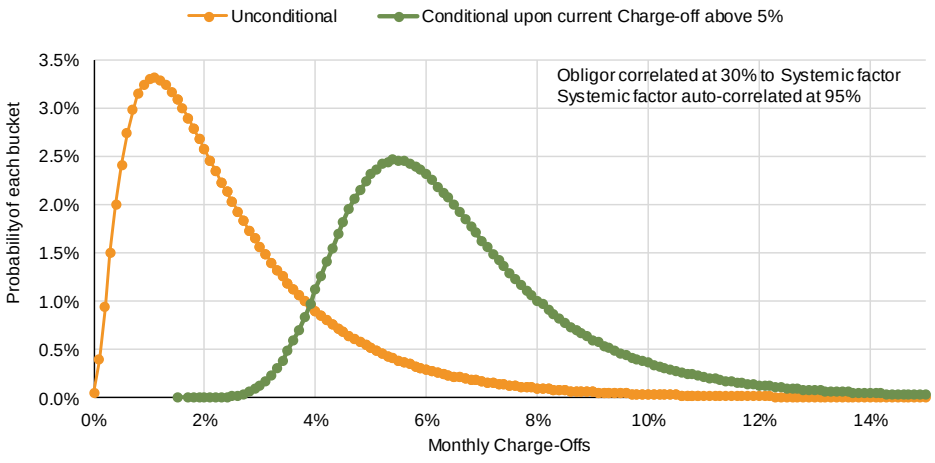
Amortisation-period portfolio performance tends to have a higher degree of trigger-dependency under static reserve structures

Conditional on the knowledge that a trigger has been breached due to obligor adverse events, future charge-offs exhibit a higher likelihood of elevated levels or volatility than implied by long-term historical observations.

Indeed, obligor risks are mainly driven by systemic factors and those same factors may stay depressed or worsen during the amortisation period. And, even though the amortisation period is short, short-term charge-off volatility can be relatively high upon a market downturn and have a significant impact on expected losses in transactions.

Figure 14 shows an example of an unconditional distribution of charge-off and the conditional one, assuming that a trigger based on current delinquency rates has been touched at 5%, a 30% correlation of the obligor to the systemic factor, and a 95% auto-correlation for the systemic factor.

Figure 14. Conditional upon current charge-off above 5% vs unconditional charge-off rate distributions ('high correlation' events)



Source Scope Ratings

2.3.2. Performance conditionality is mainly driven by seller-specific factors in dynamic reserve transactions

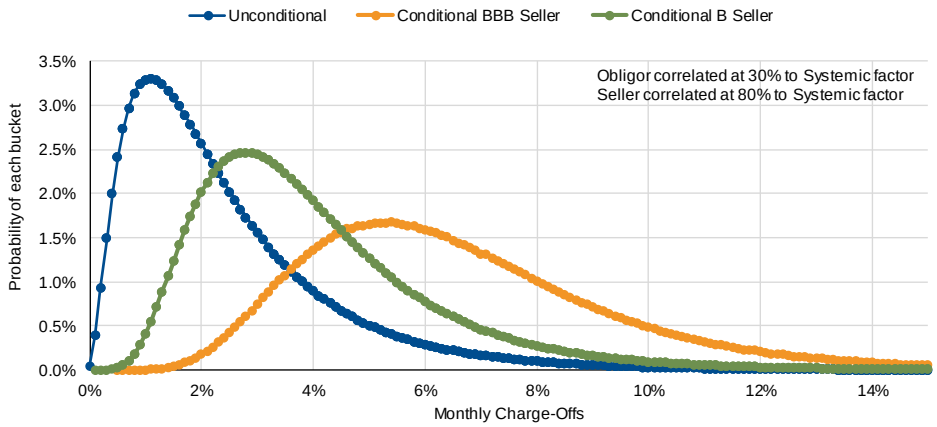
Amortisation-period portfolio performance tends to have a lower degree of trigger-dependency under static reserve structures

Because dynamic reserve structures are designed to hedge against portfolio performance risks via the adjustment of the borrowing base, amortisation-period performance tends to exhibit a lower degree of trigger-dependency than in static reserve structures.

The level of dependency is subject to the degree of correlation between seller adverse-event triggers and portfolio performance drivers. This needs to be investigated on a transaction-specific basis, but the following general principles apply:

- Seller adverse-event triggers tend to be less correlated with systemic risks than obligor-performance triggers;
- Their level of dependency is affected by the credit quality of the seller and by the tightness of the amortisation triggers; credit risk of lower-rated entities tends to be more correlated with systemic risks than that of higher-rated entities;
- Tighter seller adverse-event triggers are less likely to be correlated with adverse portfolio performance. For instance, if the seller quality-deterioration trigger is structured on the loss of a sufficiently-high rating threshold, instead of upon an event of default, the structure would become better protected against systemic events;
- Transactions which benefit from highly-rated sellers have a wider margin for structuring reasonably tight triggers without forcing a wind-down of the transaction upon minor rating migrations.
- Figure 15 shows how long-term mean charge-off rate expectations should be recalibrated, assuming some level of dependency of 'B' and 'BBB' rated seller default events[3]. We factored in a lower correlation assumption for the relationship between seller and obligors compared to the auto-correlation of obligors, reflecting the fact that the trigger events are not directly dependent of the level of delinquencies. The lower underlying default probability of the BBB rated seller explains why its conditional charge-off distribution is skewed more to the right, as a BBB seller would likely default in a very severe recessionary scenario.

Figure 15 - Conditional vs unconditional charge-off rate distributions ('low correlation' events)



Source Scope Ratings

[3] We used Scope's structured financed idealised probability-of-default tables as a proxy for expected seller cumulative default probabilities.

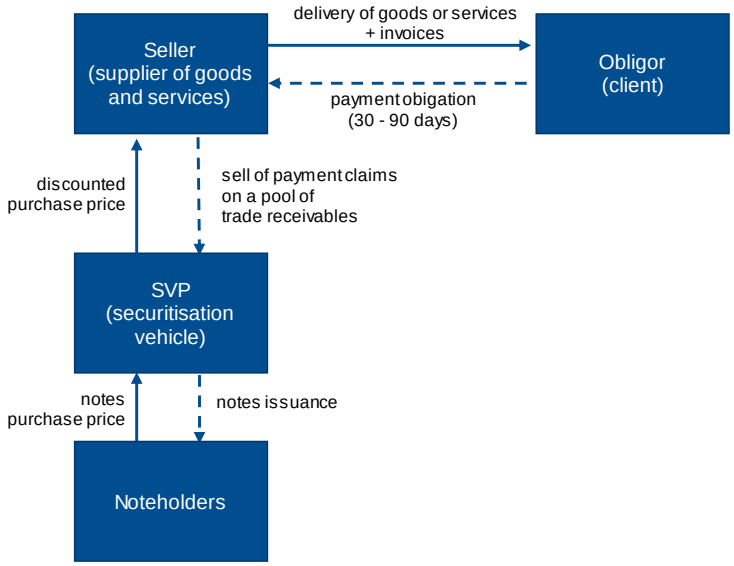
3. Trade receivables risks and structural features

3.1. Brief introduction to trade receivables securitisation

A trade receivable is a business-to-business payment claim on an invoice issued by a seller (supplier of goods and services) to an obligor (or client). Trade receivables constitute short-term, unsecured, non-interest-bearing credits granted by sellers to clients, with payment terms that generally range between 30 and 90 days, subject to the invoicing terms and conditions.

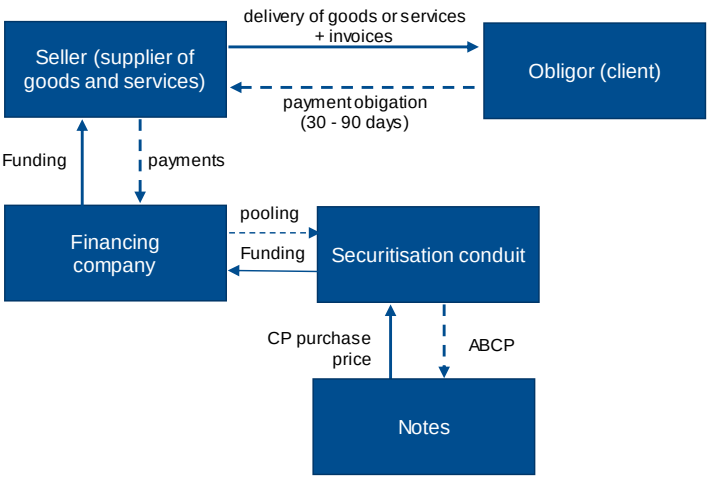
Sellers can use securitisation of these payment claims to fund working capital needs. In its simplest form, a trade receivable securitisation consists of the sale of a portfolio of trade receivables at a discount relative to their nominal value to a securitisation vehicle (or SPV), funded through the issuance of securitisation notes:

Figure 16 – A simple trade receivables securitisation structure



Historically, most trade receivables securitisations have been issued by banks or financing companies in the form of Asset-Backed Commercial Paper (ABCP). In an ABCP securitisation, the financing company issues short-term commercial paper backed by trade receivables financing claims, through a securitisation vehicle (or conduit).

Figure 17 – A simple ABCP securitisation structure



Trade receivables securitisations are often structured to revolve indefinitely

Because trade receivables are short-term credit claims, securitisation structures incorporate revolving features to extend the life of the securitisation. In a revolving securitisation, collections from the underlying pool of receivables are used to refinance the securitisation notes. Trade receivables securitisations are often structured to revolve indefinitely until so-called amortisation triggers are breached. Amortisation triggers can be linked to the performance of the obligors, to the performance of the seller, to the quality composition of the portfolio, or to any type of adverse event that could lead to an impairment of the credit quality of the securitisation notes.

Transactions can be structured with two types of reserves: static- or dynamic reserves

Credit enhancement is typically provided in the form of reserves, either static or dynamic, which create over-collateralisation (OC) to cover interest and principal payments due on the securitisation notes.

Portfolio performance adverse event triggers are prevalent in static reserve structures

In transactions with static reserves, the level of OC is fixed at the transaction's close, and amortisation of the notes is simply triggered upon a breach of a contractual trigger. Triggers linked to the payment behaviour of the obligors, for instance delinquency rate triggers, are prevalent in static-reserve transactions.

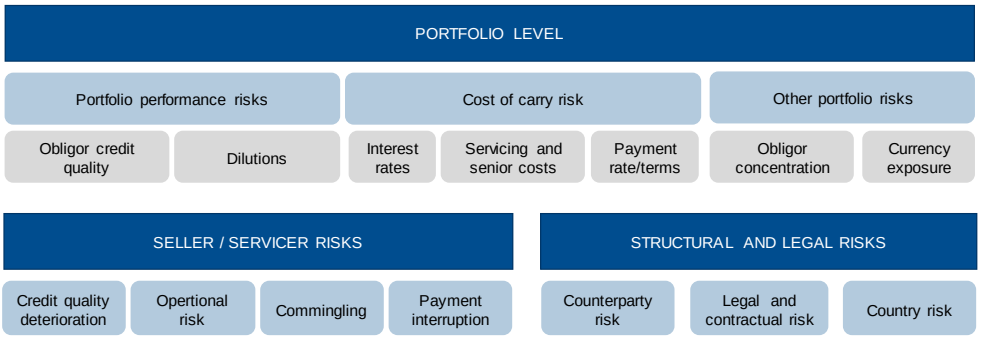
Seller performance adverse event triggers are prevalent in dynamic reserve structures

In transactions with dynamic reserves, the level of OC is funded dynamically by the seller of the receivables, typically subject to portfolio performance metrics, such as obligor delinquency rates, portfolio dilutions, payments rate etc. For instance, instead of triggering the amortisation of the notes, an increase of delinquency rates would require the seller to support the securitisation with more assets, in accordance with pre-defined contractual formulae. In the event that the seller fails to meet this requirement, this would entail a wind-down of the structure. Dynamic reserves also incorporate non-performance-based amortisation triggers, such as seller adverse event triggers, to address risks that cannot be mitigated. For instance, the transaction could be forced to wind down if the credit quality of the seller deteriorates below a given threshold.

3.2. Types of risks and structural mitigants

Figure 18 shows the main risks to which trade receivable securitisation investors are exposed.

Figure 18 – Risk drivers



Source Scope Ratings

3.2.1. Asset level risks

At the asset level, risks can be split into portfolio performance risks, cost-of-carry risks and other portfolio risks.

3.2.1.1. Portfolio performance risks

Portfolio performance is either linked to the credit quality of the obligors or to dilution risk

Portfolio performance risks reflect the payment behaviour of the obligors, either linked to their credit quality or to dilutions. Dilution risk arises from reductions in invoicing collections for a variety of reasons other than credit risk, which range from early-payment rebates to product quality disputes. Delinquency performance triggers are structural features that mitigate these risks.

Recoveries on charged-off amounts can be significant

Recoveries on charged-off amounts can be material for trade receivables securitisations. Credit analysis should factor this in if supported by originator-specific evidence. Trade receivables securitisations typically provide for early charge-off definitions to calibrate early amortisation triggers and dynamic reserve formulas. In practice, sellers take a long time to provision for delinquent receivables and exhaust all possible avenues before writing them off. Indeed, depending on the relevant jurisdiction, late payment of receivables may be a common practice and recoveries on charged-off amounts very high (evidence of significant recovery rates is provided in Appendix I).

3.2.1.2. Cost of carry

Carry costs reflect the non-interest-bearing nature of the receivables

Cost-of-carry risks reflect the non-interest-bearing nature of trade-receivables. Yield is generated by funding at a discount, which covers for interest due and servicing costs over the payment term of the receivables. Unexpected cost-of-carry risk is mainly relevant for variable-rate securitisation structures, which are exposed to a rise in interest rates. A slowdown in the payment rate of the receivables due to a change in the invoicing conditions (i.e. an extension of the payment term), or to obligor delinquencies (i.e. payment delays) also increases the cost of carry. Amortisation triggers linked to the stability of the collateral attributes (e.g. weighted average days of sales outstanding), and dynamic reserves linked to the evolution of interest rates, are examples of structural features which mitigate these risks.

3.2.1.3. Other portfolio risks

Other portfolio risks include obligor concentrations and currency/country risks

Other risks related to the quality of the portfolio include obligor concentrations and foreign exchange exposures. Non-granular portfolios exposed to large single obligors pose significant idiosyncratic risk, which leads to fatter tail distributions of portfolio performance drivers (e.g. obligor delinquencies and dilution rates). International trading sellers can be exposed to currency risk, while emerging market obligors can be exposed to country risk. Eligibility criteria and revolving portfolio covenants can limit exposure to credit-negative attributes and the risk of negative portfolio migration during the revolving period. Currency risk can be also hedged through derivatives contracts.

3.2.2. Seller/servicer risks

The seller of the receivables is typically also the originator and servicer in trade receivables securitisations. With seller risk, we refer to risks related to the seller either in its role as originator of the receivables or in its role as servicer of the receivables. The main sources of seller risks are a) seller credit quality, or credit quality deterioration risk, b) operational risk, c) commingling risk and d) payment interruption risk.

3.2.2.1. Credit quality and operational risks

Securitisation structures cannot fully structure away seller credit and operational risks

Trade receivables securitisations cannot fully structure away seller credit quality and operational risks. This is mainly because of the fast turnover rate of revolving trade receivable portfolios, which constantly exposes noteholders to a change in the quality of origination practices. For instance, a seller going through financial difficulties may be forced to accept weaker payment terms or to extent credit to unreliable obligors.

As detailed in section 2, the credit quality of the seller is also a key driver of the likelihood and timing of amortisation trigger breaches in dynamic-reserve structures, which in turn affects expected losses. The effectiveness of amortisation triggers and dynamic reserve funding is subject to servicing capabilities (as it is dependent on the timeliness and reliability of monitoring and reporting standards).

Amortisation triggers connected to the credit quality of the seller (for instance, the loss of a minimum rating level), portfolio eligibility and revolving covenants addressing the stable composition of the portfolio are examples of structural features that mitigate seller credit quality and operational risks.

3.2.2.2. Commingling risk

Commingling risk can be minimised with appropriate structured features

Commingling risk is connected to the credit quality of the seller, but it is easier to structure away. Commingling risk is the risk that in an event of default of the seller, funds belonging to the SPV are trapped in the insolvency estate of the seller, exposing noteholders to credit losses or liquidity shortfalls. The high turnover rate of trade receivables implies that significant amounts of funds belonging to the SPV may be with the seller of the receivables (in its role as servicer) at any point in time, even if the transaction covenants incorporate a high frequency of sweeps into the issuer's accounts, which is a standard trade receivable securitisation practice.

Commingling risk can be minimised if legal and structural features provide for a clear segregation of cash flows belonging to the SPV and for their non consolidation into the bankruptcy estate of the seller. For instance, the obligors could be instructed to pay directly into an SPV account or into a servicer's account pledged in favour of the SPV.

3.2.2.3. Payment interruption risk

Payment interruption risk can be minimised with appropriate structural features

Payment interruption risk is the risk of credit losses or liquidity shortfalls that may arise upon a servicer default, due to a change in the payment behaviour of obligors. For instance, obligors may decide to default strategically or to delay payments upon a seller default, if they expect that their recurring business relationship with the seller will cease to exist. Another example is an increase of dilution disputes. For instance, if obligors rely strongly on maintenance services or product guarantees which cannot longer be provided by the seller, they may decide to return the products they purchased, or set off their liabilities against other business relationships with the seller (when the seller not only sells, but also purchases goods from a customer).

Securitisation structures that provide for up-front recognition of receivables by obligors before they are sold to the SPV mitigate payment interruption risk. Obligors may even commit and be instructed to pay directly into the SPV account.

Payment interruption (and commingling) risks can also be strongly mitigated if transactions incorporate seller credit-rating migration covenants that would trigger the wind-down of the portfolio before the seller falls into default. The appointment of a back-up servicer may help manage the collection process upon a servicer default, but the added protection it provides is marginal if the structure incorporates tight amortisation triggers mitigating servicer default risk. And, even if the servicer jumps to default, it is likely that the seller would wind down the portfolio during the restructuring phase or before it enters into liquidation, given the quick turnaround of the receivables.

3.2.3. Legal, tax and structural risks

Other prevalent securitisation risks include counterparty risk, legal risks and country risks.

3.2.3.1. Counterparty risk

Counterparty risk can be minimised through standard mechanisms

Trade receivables securitisations may be exposed to the credit quality of bank account holders or currency swap hedge counterparties. Counterparty risk can be minimised through standard mechanisms such as counterparty replacement triggers or third-party guarantees. Scope assesses counterparty risk in accordance with its Methodology for Counterparty Risk in Structured Finance.

3.2.3.2. Legal, tax and contractual risks

Cross-border transactions may exhibit particular legal complexities

Credit risk analysis should carefully evaluate whether the general principles of securitisation apply. This can be particularly complex in cross-border transactions, and when the seller conducts business in multiple countries.

Rating analysis relies on external legal opinions on the applicable jurisdictional and legal framework confirming the a) issuer's legal recourse to asset proceeds, b) the issuer's bankruptcy remoteness, and c) the validity and enforceability of transaction documents. In addition, the analysis should also confirm the tax neutrality of the structure or capture potential tax liabilities that may impact the issuer's net collected amounts.

3.2.3.3. Country risk

The credit quality of a securitisation structure is not mechanistically limited by the sovereign rating

In Scope opinion, the credit quality of a securitisation is not mechanistically constrained by a sovereign rating because the underlying risks can generally be mitigated with structural features. For instance, trade receivables securitisations are exposed to the country of residence of the seller and of the obligors. This is factored in at all levels of the credit analysis, obligor performance expectations (obligor credit quality and dilutions), seller and counterparty rating levels, interest-rate risks, currency risks, etc.

Extreme macroeconomic conditions may result in material adverse events such as exchange-rate volatility and capital controls. Amortisation triggers connected to the credit quality of the respective sovereign, other macroeconomic proxies, or adverse administrative events are particularly effective given the fast wind-down of trade receivables portfolios. Other examples of protective features are eligibility criteria and revolving covenants limiting the maximum concentration in a specific country, or the implementation of payment account and legal structures which minimise government intervention risks.

3.3. Other structural features

The predominant structural feature of trade receivables securitisations are reserves providing over-collateralisation to cover for portfolio risks (portfolio performance risks, cost of carry and other portfolio risks). These reserves are typically provided in the form of additional receivables but can also be provided in cash form.

In this section we cover briefly other relevant structural features and alternative credit enhancement mechanisms.

3.3.1. Eligibility criteria

Eligibility criteria determine the quality and stability of the portfolio

Eligibility criteria and/or replenishment covenants are attributes that the receivables and obligors must comply with, individually or jointly, to be included in the borrowing base. They determine the credit quality of the portfolio at closing and may provide for a certain stability of the portfolio during the revolving period. This is of particular importance in trade receivables transactions due to their high portfolio turnover rates.

Common portfolio criteria establish for maximum obligor concentration or foreign-currency exposure limits. At the individual level, some common eligibility criteria are the non-delinquency status of the receivables and the obligors, their legal validity and assignability to the SPV, and in general, compliance of the receivables and the obligors with any representations and warranties provided by the seller in the relevant transaction contracts.

3.3.2. Seller guarantees

Structures may benefit from full or partial recourse to the seller

Trade receivables structures may benefit from full or partial recourse to the seller.

In the case of ABCP securitisations, the financing company usually provides partial or full support to the structure. In a partially-supported ABCP programme, the issuing bank or financing company generally covers dilution and cost-of-carry losses. In a fully-supported programme, it also covers for obligor credit risk.

A fully-supported programme is like a covered bond, where the investor has full recourse both to the financing institution issuing the commercial paper as well as to the underlying receivables, and where the credit quality of the instrument is at least as good as that of the financing institution.

Elements of partial support can also be seen in standard-term trade receivables securitisations. In particular, dilution losses are often covered by the seller of the receivables, given that it is an element of risk that the seller partially controls. In such structures, dilution risk could still arise but would be limited to scenarios where amortisation of the notes is triggered by a seller default (and so incapable of fulfilling the guarantee).

3.3.3. Insurance guarantees

Insurance guarantees may cover obligor credit risk

There may also be an insurance contract provided by a credit insurance company covering the structure against obligor credit risk. This would help mitigate or totally offset that risk. However, it will introduce a new counterparty to the transaction. Several characteristics/terms of the underlying insurance contract are key in assessing the usefulness of the hedge:

- Coverage: the contract should specify the conditions for obligors' eligibility and also the maximum indemnification amount either per obligor or in aggregate;
- Premium payment: the non-payment of the premium is likely to lead to a loss of cover;
- Subrogation: following the transfer of the delinquent receivables, the insurance company will try to recover the funds from the obligor.

The counterparty risk introduced by the insurance company will be captured through the existing measure of its creditworthiness.

Appendix I – Trade receivables credit risk

There is no consensus view on trade credit risk

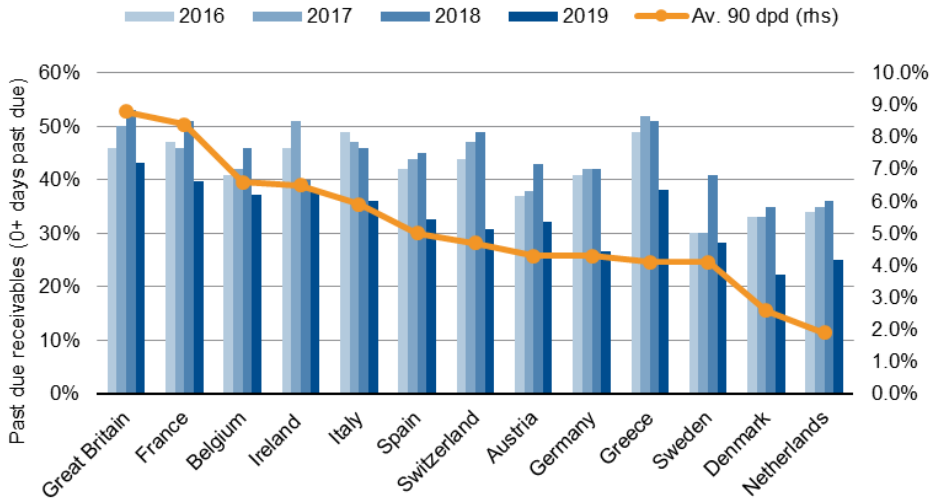
Very little is known about trade credit and its riskiness, to the point where analysts do not have a consensus view on trade credit, its usage, or the main properties of the usual key elements of credit risk like default probability and loss-given-default.

Indeed, taking two radically different views, Garcia-Teruel-2010[4] found that "trade credit is very important for firms that have more difficulties funding themselves through credit institutions as is the case for small and medium-sized enterprises (SMEs), (i) whose access to the capital markets is very limited, and (ii) who use less external finance, especially bank finance, and (iii) rely more on short-term debt finance", whereas Ellingsen-2016[5] found that "trade credit is typically preferred to bank credit" whatever the funding conditions, thus even for better-graded firms, with no emphasis on a link between usage of trade credit funding and credit quality.

The only source of readily available and objective information comes from either publications from credit insurance companies[6] or academic research. In the following paragraph we summarise their main findings.

Default Probabilities

Figure 19 – Comparison of Past due receivables and Default Probabilities (across countries and years)



Source Atradius, Scope Ratings

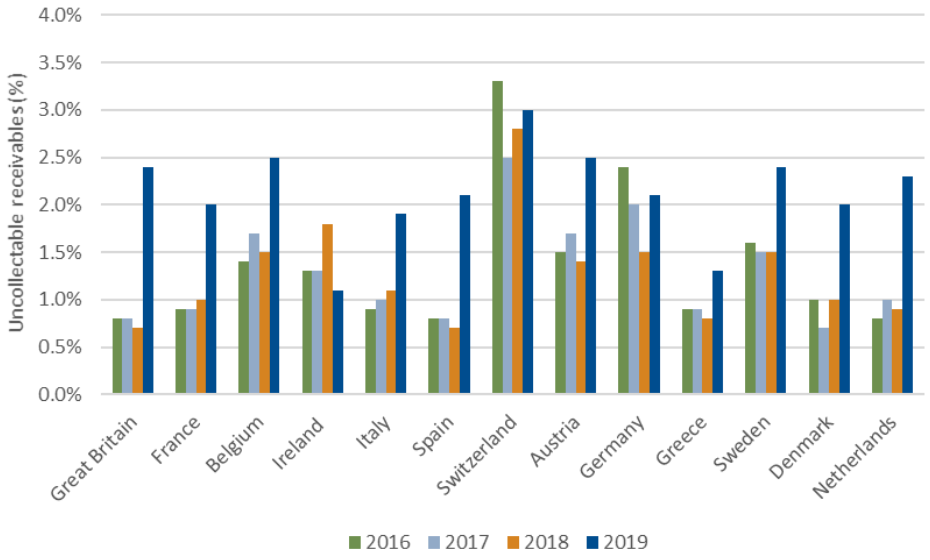
A large portion of receivables is usually not paid on time

The notion of default is more of a continuous nature for trade receivables. Contrary to financial debt, such debt arises from a commercial relationship and the lateness of payments sometimes captures more information regarding the balance of power between client/supplier than on the credit quality of the clients. A large proportion of receivables (between 20% and 50%) are not paid on time, irrespective of the status of the economy or of the average credit quality, as can be seen on Figure 19. The usual definition of the default probability at 90 days past due is less relevant for trade receivables due to the continuous nature of the relationship.

[4] Determinants of Trade Credit: A comparative study of European SMEs – Garcia-Teruel, Martinez-Solano – International Small Business Journal, 2010
[5] Trade Credit: Contract-Level Evidence Contradicts Current Theories – Ellingsen, Jacobson, von Schedvin - Sveriges Riksbank Working Paper Series, January 2016
[6] Most of the data used here comes from Atradius, a credit insurance company.

Recovery Rates

Figure 20 – Ultimate losses (or uncollectable trade receivables) in European countries



Source Atradius, Scope Ratings

Ultimate loss rates are a better estimate of credit risk than delinquency rates

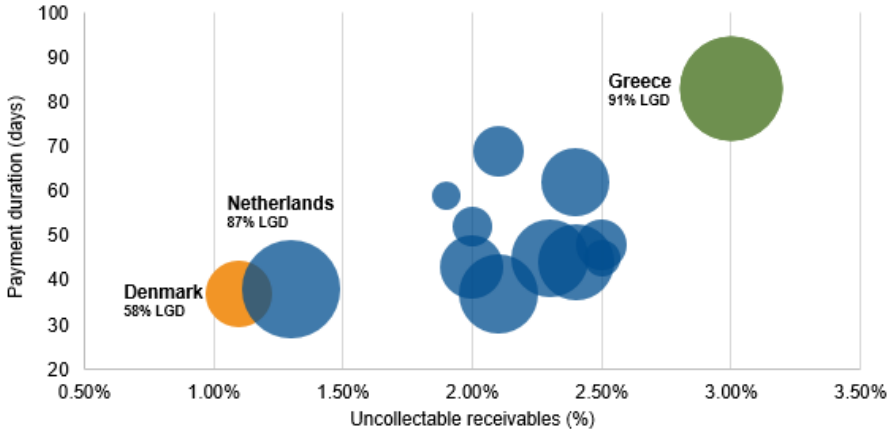
A better estimate of the credit risk for trade receivables is the proportion of uncollected receivables, which is the proportion of ultimate losses on receivables on the total portfolio. Two elements can be outlined by comparing this ratio across countries and years:

- Loss-rate is clearly linked to the status of the country's economy. Jacobson-2012[7] shows the existing correlation between loss rates and corporate bankruptcy rates, noting in addition that the aggregate annual credit loss incurred by Swedish trade creditors is around 50 percent higher than Swedish bank lending to non-financial corporations; and
- the presence of a sharp increase of losses recently throughout Europe.

Using the previous data on ultimate losses and 90d+ default probability, we can build a tentative loss-given-default (LGD) level for each country. However that LGD would be less meaningful than for financial debt due to the irrelevance of the default-probability measure. The levels would be between 30% to 90%. We have highlighted in Figure 21 three outliers in terms of uncollectable ratio and payment duration (the aggregate of payments initial terms and payment delays): Denmark, Netherlands and Greece. If we accept the main view of trade finance, the average payment duration for a country reflects simply the capacity (or incapacity) of the companies to fund themselves, where trade credit is used as a substitute for bank credit. The ultimate loss rate ("uncollectables") is a direct function of the status of the economy of the country.

[7] Trade Credit and the Propagation of Corporate Failure: An Empirical Analysis – Jacobson, von Schedvin - Sveriges Riksbank Working Paper Series, August 2012

Figure 21 – Relationship between payment duration (aggregate of payment terms and payments delays) and uncollectable receivables in 2019



Source Atradius, Scope Ratings

Scope Ratings GmbH

Headquarters Berlin
Lennéstraße 5
D-10785 Berlin

Phone +49 30 27891 0

Frankfurt am Main
Neue Mainzer Straße 66-68
D-60311 Frankfurt am Main

Phone +49 69 66 77 389 0

Paris
1 Cour du Havre
F-75008 Paris

Phone +33 1 8288 5557

London
Suite 301
2 Angel Square
London EC1V 1NY

Phone +44 20 3457 0444

Madrid
Paseo de la Castellana 95
Edificio Torre Europa
E-28046 Madrid

Phone +34 914 186 973

Milan
Via Paleocapa 7
IT-20121 Milan

Phone +39 02 30315 814

Oslo
Haakon VII's gate 6
N-0161 Oslo

Phone +47 21 62 31 42

info@scoperatings.com
www.scoperatings.com

Disclaimer