



## **Index Commentary**

## European DataWarehouse (ED) introduces new ED Index for Spanish SMEs based on Loan Level Data

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## **Executive summary**

ED continues to release further business intelligence based on its extensive understanding of Loan Level Data (LLD). The upcoming Excel-based *ED Index* (European DataWarehouse 2016/Q1 - INDEX ABS SME SPAIN) will provide a unique overview of Spanish Small and Medium-Sized Enterprise (SME) performance. It will differ from existing indices, in that it will group the data based on loan-specific characteristics rather than deal-specific characteristics (by loan vintage, industry and region). It will also contain standardised stratification tables and performance measures for all active deals, making benchmarking easier.

Performance is shown using two common performance trend indicators, delinquency 60-90 days and delinquency 90-360 days, which are calculated as a percentage of the non-defaulted active loans volume. *ED Index* is consistent with common Spanish SME performance indicators such as the INE's¹ bankruptcy statistics or Moody's Investors Service, Spanish SME Indices and – like these – shows a steady improvement in almost all loan vintages, regions, originators and industries over the Q1 2014 to Q4 2015 period.

To produce *ED Index*, ED has adjusted the data carefully to make it comparable across deals, drawing on the experience gained with its Spanish RMBS study,<sup>2</sup> since many of the observations made are applicable to Spanish SMEs as well. ED endeavours to be as transparent as possible and the underlying time series used in the calculations will also be displayed along with the index values.

Given the size of ED's Spanish ABS SME universe (more than 250,000 SMEs borrowers are represented in the active deals as of Q1 2016), some of the conclusions based on this index should be applicable beyond the securitisation universe.

ED intends to update it every quarter and to introduce similar indices for other market segments and jurisdictions.

<sup>&</sup>lt;sup>1</sup> The *Instituto Nacional de Estadística, INE* is the official Spanish government institution that collects national statistics

<sup>&</sup>lt;sup>2</sup> European DataWarehouse Commentary on Spanish RMBS Loan Level Data (Jan 2016)



# ED Index shows performance improvements since Q1 2014

# ED publishes the first delinquency indices based on adjusted loan level data (LLD)

ED's indices are calculated in line with market best practices and following strong demand from market participants. Essentially, ED Index is unique because it is based on LLD rather than on information from investor reports.<sup>3</sup> Appendix 1 provides the details of the calculations used for ED's indices. Because there are data availability constraints<sup>4</sup> and different inclusion criteria, different subsamples of deals are used for volume charts, delinquency 60-90 days indices and delinquency 90-360 days indices.<sup>5</sup> In all cases, however, ED Index will show the underlying data used.

### ED's indices are consistent with common performance indicators

ED's Spanish SME Index shows results of the same magnitude and following the same trend as other common performance indicators. For instance, ED's 60-90 days delinquency index almost matches Moody's, while the values for ED's 90-360 days index are somewhat lower,<sup>6</sup> even though the general trend is very similar (see Exhibit 6 in Appendix 1). This could be due to the fact that investor reports and LLD sometimes treat delinquencies in a different way. For instance, ED observed that in some cases, loans that are not defaulted as per transaction definition are reported<sup>7</sup> as Basel III default (AS123 = Y) although they are less than 90 days overdue. ED understands that these loans are sometimes treated as more than 90 days overdue in some investor reports. If these loans were added to the loans 90-360 days delinquent, the index value thus obtained (See Exhibit 6 in Appendix 1 – ED Basel III Default Index)<sup>8</sup> would be more than twice as high.

The evolution of performance shown in ED's Spanish SME Index is also consistent with the evolution of Spanish SME bankruptcies as provided by the Instituto Nacional de Estadistica (INE). While both figures cannot be directly compared, data from the INE show a steady decrease in the number of new bankrupt SMEs, just like ED's indices based on volumes of outstanding

delinquencies (see Exhibit 1).

<sup>&</sup>lt;sup>3</sup> Also, given that LLD became available only from 2013 onwards, ED cannot produce seasoning charts nor cumulative default charts. Given that some of the early (2013) LLD had data quality issues, ED chose to exclude them for now and to start the index in Q1 2014

<sup>&</sup>lt;sup>4</sup> Some data providers do not provide the arrear status of loans that are less than 90 days in arrears

<sup>&</sup>lt;sup>5</sup> Given that new deals include no delinquent loans at closing, a deal should be three months old to be included into the 60-90 days indices and a year old before being included in the 90-360 days index

<sup>&</sup>lt;sup>6</sup> See Moody's Investors Service, Spanish SME Indices

<sup>&</sup>lt;sup>7</sup> Reporting follows reporting templates provided by the European Central Bank. For further information see <a href="https://www.ecb.europa.eu/mopo/assets/loanlevel/transmission/html/index.en.html">https://www.ecb.europa.eu/mopo/assets/loanlevel/transmission/html/index.en.html</a>

<sup>&</sup>lt;sup>8</sup> ED's Basel III Default index includes all the loans already included in the 90-360 days index plus the Basel defaults but excludes the loans that are defaulted as per transaction definition. This value was not retained as a main index because it is less responsive than the 90-360 days delinquency index

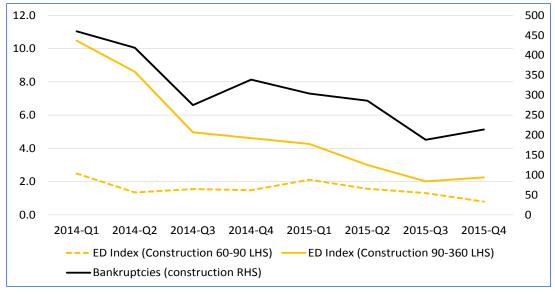
4.5 2500 4.0 2000 3.5 3.0 1500 2.5 2.0 1000 1.5 1.0 500 0.5 0.0 0 2014-Q1 2014-Q2 2014-Q3 2014-Q4 2015-Q1 2015-Q2 2015-Q3 2015-Q4 ····· ED 60-90 index (LHS) ED 90-360 index (LHS) Bankrupt companies Spain (RHS)

Exhibit 1: ED's performance indices show a similar trend to Bankruptcies in Spain

Source: Instituto Nacional de Estadistica, European DataWarehouse

The significant improvement in the performance of companies exposed to the construction/real estate sector as observed in ED Index is confirmed by the INE's bankruptcy statistics (see Exhibit 2a). The decrease of the delinquency levels for these industries, known to be sensitive to the economic cycle, is not very surprising in light of the relative improvements<sup>9</sup> observed in the Spanish economy.





Source: Instituto Nacional de Estadistica, European DataWarehouse

<sup>&</sup>lt;sup>9</sup> The <u>European Commission</u> forecasts a 2.8% GDP growth for Spain in 2016 with an unemployment rate decreasing to



The use of LLD allows more in-depth analysis than investor reports. An index based on investor reports can only aggregate the data on a deal by deal basis, whereas an index based on LLD can also aggregate the data at the loan level to focus on certain types of loans. ED's Indices show performance not only per deal or per originator but also per loan vintage (rather than deal vintage), borrower activity (grouping the loans by NACE codes) and region of origin, thus providing better insights into the underlying collateral of SME ABS.

Regional evolutions in ED's performance indices can also be compared to the INE's SME bankruptcy statistics. In the case of Catalonia, ED's Index follows the INE's bankruptcy trend (see Exhibit 2b). ED expects the 60-90 days index to capture new performance trends before the INE's SME bankruptcy trend, because companies tend to become delinquent on their loans before they declare bankruptcy. ED expects that this effect will become more visible as more data points become available over time.

3.5 450 400 3.0 350 2.5 300 2.0 250 200 150 1.0 100 0.5 50 0.0 0 2014-Q1 2014-Q3 2014-Q4 2015-Q2 2014-Q2 2015-Q1 2015-Q4 —ED Index (Catalonia 90-360 LHS) —ED Index (Catalonia 60-90 LHS) Catalonia Bankruptcies (RHS)

Exhibit 2b: ED's regional indices compared with INE's bankruptcy statistics

Source: Instituto Nacional de Estadistica, European DataWarehouse

# Volume charts show stable regional and industrial exposure in spite of changes in originator exposure

### A sample increasingly dominated by Banco Santander

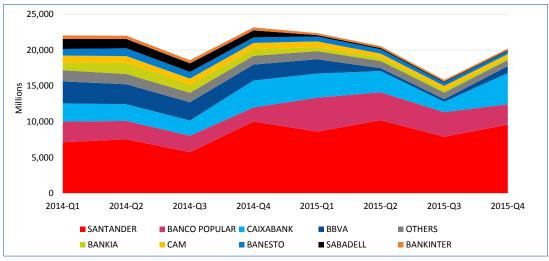
ED Index aggregates loan volumes per vintage, servicer, industry and region. In all volume charts, the total amount of loans match, as the charts show the same information in different ways. The "Volume per Vintage" chart, shows the evolution of the volumes of loans originated in a certain vintage both in absolute (EUR amount – Exhibit 3a) and relative terms (percentage – Exhibit 3b). Also, the volumes in each transaction in every quarter will be shown in ED Index. Thus, it is



possible to see what deals are included in the sample and how their outstanding volumes have evolved overtime. As of Q4 2015, the outstanding volume of active loans amounted to EUR20.2 billion, down from EUR22 billion at the end of Q1 2014.

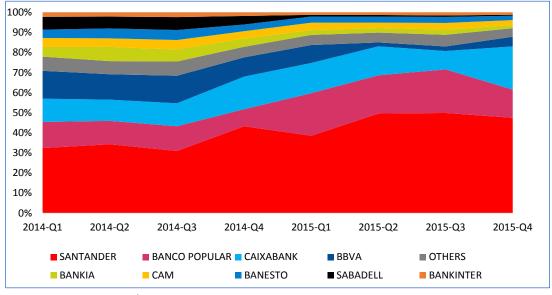
The sample is by now dominated by Banco Santander. The "Volume per Originator" charts (Exhibits 3a and 3b), shows that the current Spanish ABS SME segment is dominated by Banco Santander with 49.6% of the total as of Q4 2015 (if Santander and Banesto loans are added) from 36.5% as of Q1 2014. This is to a large extend due to the fact that some of the originators that once played a major role in Spanish securitisation have securitised far less loans in the last years. In spite of this change, the breakdown in terms of industry or regional exposure has barely changed over the last two years, as shown in Exhibits 3d and 3e.

Exhibit 3a: Outstanding loan volume per originator (in EUR - deals represented in ED)



Source: European DataWarehouse

Exhibit 3b: Outstanding loan volume per originator (in % - deals represented in ED)





In the "Volume per Vintage" chart (Exhibit 3c), we see that loans originated in 2014 represent about 22% of outstanding amounts of loans as of Q4 2015. This vintage was not represented in Q3 2014 because, at that stage, it was too early to have any loans originated in 2014 included in a newly securitised transaction. The volume of loans originated in or prior to 2005 remains significant although it decreased to 11.5% of the total outstanding loan volume in Q4 2015 from 19.4% in Q1 2014. In particular, it is worth noting that the outstanding volume of these old loans exceeds the volume of more recent vintages.

100% 90% 80% 70% 60% 50% 40% 30% 20% 10% 0% 2015-Q4 2014-01 2014-02 2014-03 2014-04 2015-01 2015-02 2015-03 ■<=2005 ■ 2006 ■ 2007 ■ 2008 2009 2010 2011 2012 2013 2014 2015

Exhibit 3c: Outstanding loan volume per vintage (in EUR - deals represented in ED)

Source: European DataWarehouse

# The Spanish SME sample is well-diversified, representative and stable overtime

As was observed in our report on Spanish geography<sup>10</sup> ED's Spanish SME sample is broadly representative of the contribution of each region (in outstanding volumes of loans) to the country's GDP. The share of each region in the sample has barely evolved over the last two years. At the deal level, however, regional exposure tends to reflect the core business or region of origin of the banks (see Appendix 2 – Exhibit 7b). Some deals are by design fully exposed to a specific region, such as the "GENCAT" deals,<sup>11</sup> fully exposed to Catalonia. Adverse selection (selecting the worst loans to transfer the risk to the investors) and cherry picking (selecting only the best loans to ensure better than average performance) could also affect pool composition and performance.

<sup>&</sup>lt;sup>10</sup> ED's <u>Explanatory Report on the Spanish regions</u> explains how the region of origin of the loans was determined, based on fields AS16 (postcode) and AS17 (NUTS code).

<sup>&</sup>lt;sup>11</sup> Deals benefiting from a guarantee from the region of Catalonia to a senior tranche provided that the underlying loan portfolio is invested in Catalan SMEs

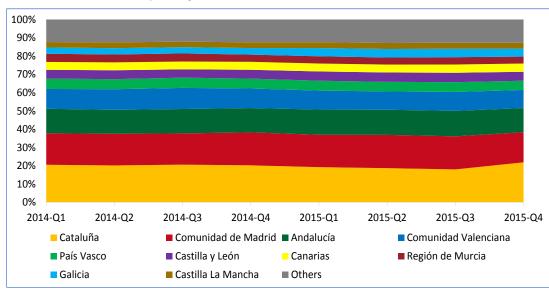


Exhibit 3d: Breakdown per region (% of total)

Source: European DataWarehouse

The SME sample also appears well diversified in terms of industries (Exhibit 3e). The portfolio composition, however, has barely evolved over the last two years, even though the originator breakdown has changed. In particular, the share of the SMEs exposed to the building and real estate sector (summing the categories Real Estate activities, Construction and Development of building projects - RED)<sup>12</sup> has only slightly increased, from 19.0% in Q1 2014 to 20.7% as of Q4 2015. At the individual deal level, not all portfolios are equally well diversified (See Exhibit 7a), and some portfolios are exposed up to 40% to the real estate/construction sector.<sup>13</sup> Overall, ED's sample is expected to be representative of the Spanish banking sector's SME portfolio, given the high number of borrowers. While the breakdown of outstanding loans over the last two years has shown remarkable stability in terms of industry and region, the breakdown in terms of new issuance shows that the volumes of loans granted to the real estate sector has decreased substantially since the peak of 2005 (see Exhibits 8a in Appendix 3).

<sup>&</sup>lt;sup>12</sup> The Real Estate Developer category regroups all the borrowers with any of the NACE codes F41.1 or F41.1.0 (development of building projects); L68.1 or L68.1.0 (buying and selling of own real estate); L68.2 or L68.2.0. (renting and operating of own or leased real estate). This high risk/high return activity typically involves the purchasing of land or the renovation of real estate in order to resell it for a higher price. Real estate developers benefitted most from the boom of the real estate sector in Spain and also suffered most in the ensuing crisis. The reimbursement of a loan to a real estate developer typically relies on the selling of the developed property

<sup>&</sup>lt;sup>13</sup> The "Deal Statistics section" of ED Index will display standardised stratification tables for all active deals



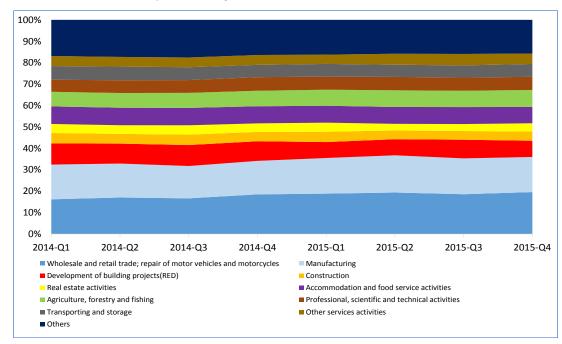


Exhibit 3e: Breakdown per industry (% of total)

Source: European DataWarehouse

## **ED Index shows improving performance**

### 90-360 days delinquency trend indices

ED Index shows delinquency trend indices per vintage, industry, region, deal and originator. Because of the great number of categories for the industry, region and deal charts, ED Index makes it possible to sub-select some categories to compare them to the total index value. For each of these charts, ED shows the index value in each category and for each quarter, as well as the underlying data used for the calculation (namely the volume of loans 60-90 days - or 90-360 days - overdue and the non-defaulted loan volume).

The "Total" index value is identical in all charts, because the same underlying data is used in the various charts in order to show SME performance from several points of view. The ratio of the current amount of delinquent loans 90-360 days compared to the current non-defaulted loans balance is a particularly useful index value, typically used as a key trigger in most Spanish securitisations. The index only includes the deals that have at least one year of seasoning (see Appendix 1 for further details).

<sup>&</sup>lt;sup>14</sup> In many Spanish SME or RMBS transactions, when the amount of the non-defaulted loans that are more than 90 days overdue but less than 360 days overdue (for deals with a 12 months default definition) represents more than 1% of the balance of the non-defaulted loans, the reserve fund may not be allowed to amortise and the mezzanine tranches may not amortise pro rata



Exhibit 4a shows that apparently, well-seasoned loans tend to perform better than more recent loans. Underperformance seems to affect recent vintages most. This can be explained by a survivor bias or life-cycle-bias affecting the oldest loans (the weakest borrowers should have already defaulted at some point since the beginning of the crisis that struck Spain between 2009 and 2013), while the more recent vintages may include refinanced loans.

8.0 7.0 6.0 5.0 4.0 3.0 2.0 1.0 0.0 2014-Q1 2014-Q2 2014-Q3 2014-Q4 2015-Q1 2015-Q2 2015-Q3 2015-Q4 <=2005 -2006 2007 2008 2009 2010 -2011 --2012 **—** 2013 **—** Total

Exhibit 4a: Delinquency 90-360 days per loan vintage (as % of non-defaulted loans)

Source: European DataWarehouse

Delinquency statistics per region tend to mirror the economic situation in that region, and those most affected by the crisis show the highest delinquency levels. According to Eurostat, in 2014, unemployment was in excess of 30% in Andalucía and the Canarias, the two regions with the highest unemployment rate in Spain. These are also the regions where performance has been weakest. Conversely, performance has been better in regions less affected by the crisis such as the Basque Country (País Vasco).

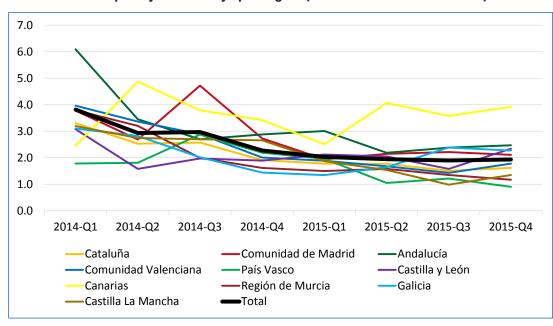


Exhibit 4b: Delinquency 90-360 days per region (as % of non-defaulted loans)

Source: European DataWarehouse

SME delinquency rates mirror the sensitivity of the industries to the economic cycle. Industries such as "Agriculture, forestry and fishing" and "Human health and social work activities" performed best, given the recurring nature of their income, independent of the cycle. In contrast, more cyclical industries like construction and real estate development were hit particularly hard. We note however, that the performance in these two sectors improved substantially over the last two years, along with the improvements in the Spanish economy. Delinquency levels that were more than twice the index in 2014 returned to the average as of end 2015.

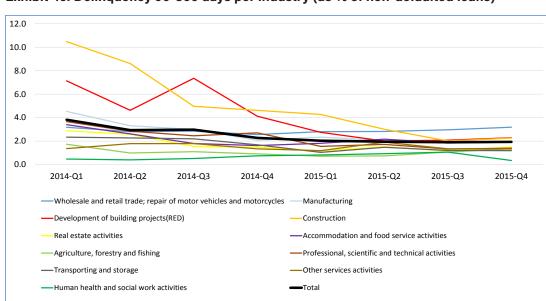


Exhibit 4c: Delinquency 90-360 days per industry (as % of non-defaulted loans)



Performance per originator shows an improving trend in all cases. We note however, that performance appears to differ substantially from one originator to the next, probably reflecting the bank's lending criteria. In the case of CAIXABANK, delinquency reporting has long been very different in LLD and in investor reports, and thus ED excluded CAIXABANK data from the performance indices until Q4 2015. The Q4 2015 point for this entity is the first for this originator (prior to this point its data was not included in the delinquency indices) and at that stage, performance appears to be in line with the industry average.

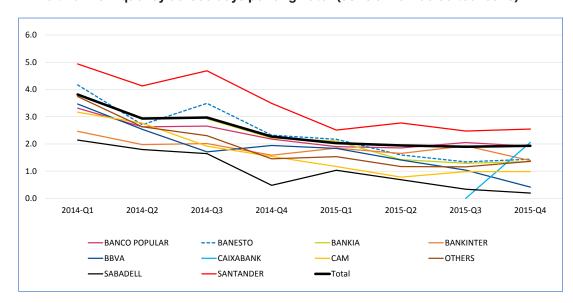


Exhibit 4d: Delinquency 90-360 days per originator (as % of non-defaulted loans)

Source: European DataWarehouse

Nevertheless we still see some "spike" patterns in some indices, which typically happens when a large loan becomes delinquent. This occurs because SME portfolios often include loans to larger SMEs or even corporate loans. Such a spike is visible in 2014-Q3 in Exhibit 4a (affecting the <=2005 vintage), in Exhibit 4b (affecting Comunidad de Madrid), and in Exhibit 4c (affecting "Development of building projects" – RED). It was caused by a large (EUR43.5M) loan from the FTA SANTANDER EMPRESAS 3 pool, originated in July 2005 and granted to a real estate developer in Madrid, which went 90 days delinquent in Q3 2014. The same very large loan is responsible for the spike seen in Q2 2014 in the 60-90 days delinquency charts.

## 60-90 days delinquency trend indices

Delinquency 60-90 days is a common index value, typically available in most securitisation markets. It has the advantage of taking into consideration only one month worth of delinquent loans, shortly after the first unpaid instalment, and is therefore very responsive. However, it

<sup>&</sup>lt;sup>15</sup> The Delinquency 90-360 tab in the Excel Index report shows the delinquent amounts in EUR, and it appears that the delinquent volume for Madrid was EUR65.4M in Q2 2014. When this large loan became delinquent, the delinquency volume soared to EUR117.9M in Q3 2014.



is more subject to noise in the underlying data, given that one large loan turning delinquent within a category in which there are relatively few loans can produce a very visible spike. In that respect, the 90-360 days delinquency index tends to be more stable for such statistics (but also less responsive to instant changes).

The 60-90 days delinquency indices thus mirror the observations made for the 90-360 days indices only to some extent. In particular, 60-90 days delinquencies will capture technical arrears with a high cure rate, such as the arrears caused by late payments from companies that tend to pay and be paid later than the contractual agreed payment date, as part of their ordinary business (companies sometimes try to get credit from one another when credit is scarce). Some SMEs may be in arrears on their bank loan repayment because they are waiting for their clients to pay them. In Exhibit 5a, we see that "Agriculture, forestry and fishing" and "Human health and social work activities" perform better than the index and "Construction" performs worse, just as in Exhibit 4c, but in some other industries, the 60-90 days indices show the opposite of what 90-360 days delinquency indices show. Beyond payment delays, the differences observed at the originator level could reflect specificities in terms of credit policy/loan management. We also observe that overall, the 90-360 days delinquency buckets contains twice the volumes of loans of the 60-90 days delinquency buckets. We therefore expect that more conclusions can be drawn from observing the 90-360 days delinquencies than with the 60-90 days delinquencies.

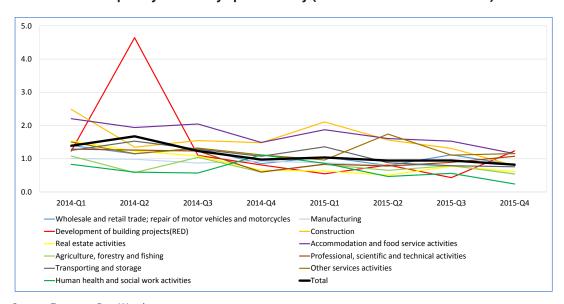


Exhibit 5a: Delinquency 60-90 days per industry (as % of non-defaulted loans)

<sup>&</sup>lt;sup>16</sup> See <u>Intrum Justitia's 2014 "European payment index"</u>. According to this report, 80% of Spanish SMEs report liquidity problems due to late payments. Also, Spain is one of the countries in Europe with the longest payment delays with 83 days for businesses (contractual payment delay is typically 60 days to which an average 23 days non-contractual payment delay is added) and 154 days for contracts with the public sector

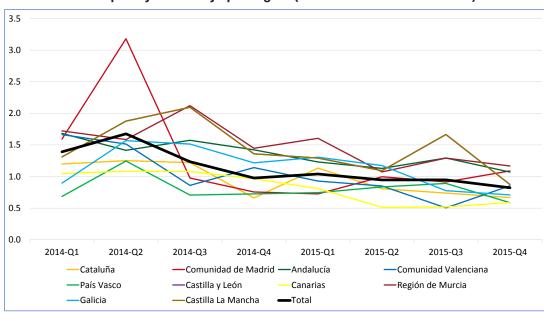


Exhibit 5b: Delinquency 60-90 days per region (as % of non-defaulted loans)

Source: European DataWarehouse

In Exhibit 5c, a loan to another real estate developer becoming 60 days delinquent causes a spike in delinquencies in Q4 2015 for the SABADELL index line.<sup>17</sup> Its effect is not noticeable in the other 60-90 days indices as the loan is too small relative to the other outstanding volumes, but given that the SABADELL chart only includes one deal at that stage, the default of a large loan becomes very noticeable.

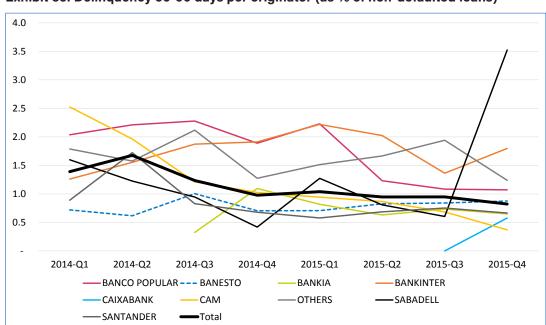


Exhibit 5c: Delinquency 60-90 days per originator (as % of non-defaulted loans)

 $<sup>^{17}</sup>$  In this case, it was a loan granted to a real estate developer from the GC FTPYME SABADELL 6 portfolio worth EUR 2.6M



# **Appendix 1: Index calculation and methodology**

ED made adjustments to the data used for its indices in order to address the differences in LLD reporting pointed out in ED's commentary on Spanish RMBS.<sup>18</sup> For instance, some data owners and data providers report the number of days in arrears only once a loan is already 90 days in arrears. For the deals affected, a loan with a number of days in arrears reported as 1 in the number of days in principal arrears (AS118), the true number of days in arrears would in fact be 91 days. These deals can therefore not be included in the 60-90 days delinquency charts. Other data owners show a current balance (AS55) of 0 and report the outstanding balance as the default amount (AS125) for loans that are more than 90 days in arrears. In these cases, the amount reported as defaulted was added to the current balance amount. For these same deals, we considered the loans as defaulted if the number of days in arrears exceeded the transaction-specific transaction definition (typically 12 months due and unpaid). ED cannot rule out that the actual level of the indices will change a little in the future, as further adjustments are taken into account. These adjustments are only made to the code generating the index, and the data provided by DO/DP via EDWIN or EDCloud is therefore not changed as such.

ED will endeavour to adapt its index calculations to reporting changes, if any. In some rare cases, LLD showed discrepancies that could not be reconciled in any way and had to be ignored altogether. ED Index permits the exclusion of a specific LLD (for a given deal at a given date). The sample of deals taken into account for a specific type of chart depends on the closing date of the deals (a minimum seasoning being necessary for delinquency charts), data availability (in some cases, 60-90 days delinquency is not reported) or data quality (LLD not reporting sufficient data were excluded from the index report).

A minimal seasoning is needed to include a deal in the index, given that deals have typically no delinquencies on the closing date. Otherwise, all things being equal, a seasoned deal will always show a higher level of delinquencies 90-360 days than a deal that is less than a year old. ED therefore, applied the following rules, for the calculations of the delinquency trend indices, namely:

- The 60-90 days delinquency index is calculated as the ratio of the volumes of loans that are delinquent more than 60 days and up to 90 days to the current volume of the non-defaulted loans for the deals that report 60-90 days delinquencies at a given date. The deals that do not report these delinquencies, as well as those that have less than 90 days of seasoning are excluded from this calculation.
- The 90-360 days delinquency index is calculated as the ratio of the volumes of loans that are delinquent more than 90 days but less than 360 days to the current volume of the non-defaulted loans for the deals that report 90-360 days delinquencies at a given date. The deals that have less than a year of seasoning are excluded from this calculation.

<sup>&</sup>lt;sup>18</sup> See <u>"European DataWarehouse Commentary on Spanish RMBS Loan Level Data"</u>



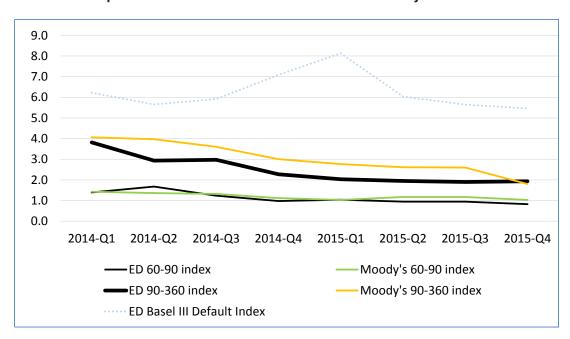


Exhibit 6: ED's performance indices show similar trends to Moody's Indices

Source: Moody's Investors Service, Spanish SME Indices; European DataWarehouse

ED also calculated an alternative "ED Basel III Default Index" (see Exhibit 6), based on the 90-360 days index, adding to the 90-360 days delinquent amount the amount of the loans delinquent by 90 days or less that are reported as Basel III defaults. Although interesting for comparisons purposes, this measure was not retained as a main measure of performance because it is less useful as a trend indicator than the two other indices (60-90 days and 90-360 days).



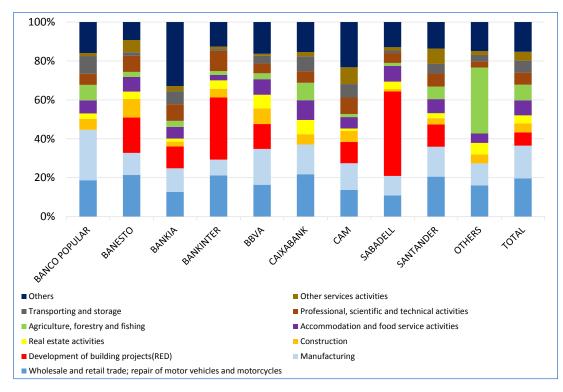
## Appendix 2: Pool composition of active deals as of Q4 2015

The "Deal Statistics" tab of **ED Index** also features stratification tables, both in EUR and in percentage, showing the breakdown of the pools per vintage, industry, Basel III segment (reflecting SME size) and region. For all these categories, stratification tables are shown in volume (for both performing and delinquent loans) and percentage. Amongst others, these stratification tables make it simple to find out which of the active deals are most exposed to a specific region or industry.

Stratification tables showing the amount of delinquencies by vintage, type of SME, industry and region, make it easier to analyse a transaction's performance. For a given deal, the amount of delinquent loans is also provided in stratification tables. It is then possible to see if, for a given deal, loans with a specific characteristic are over or underrepresented in the portfolio.

The stratifications in the "Deal Statistics" tab of **ED Index** also make it possible to have an overview of the Spanish ABS SME market overall. Exhibit 7a shows the exposure of the portfolios of each originator, selecting the latest data available in "deal statistics". Exhibit 3e show a great stability overtime, but the portfolios of the various originators are not all exposed to the same types of industries in the same proportion.

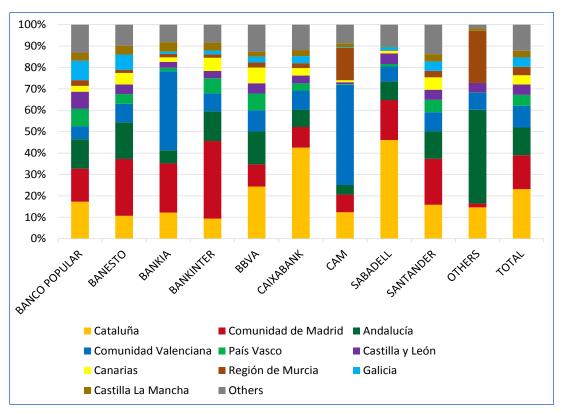
Exhibit 7a: Pool composition per industry and per originator (as % of total latest volume available)





The originator's exposure to the various regions of Spain differ as well, reflecting their historical core markets. Thus, Caixabank and Banco Sabadell portfolios are substantially exposed to Catalonia while CAM and Bankia are particularly exposed to the region of Valencia. As mentioned in ED's paper on the regional exposure of the loans, the "Total" breakdown of loans per region mirrors the contribution of each region to the Spanish GDP.

Exhibit 7b: Pool composition per region and per originator (as % of total latest volume available)



Source: European DataWarehouse

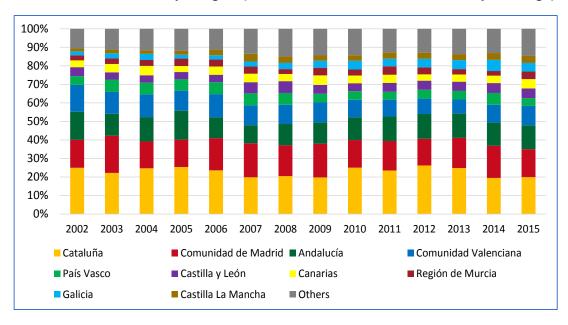
The "Deal Statistics" tab of ED Index will also provide key values for each active deal using the latest available LLD in a standardised format that facilitates comparisons and makes it easier to identify risk factors. All the values in this section are calculated based on the "non-defaulted loan balance" (following transaction definition), using the latest available LLD (Q1 2016 if available, Q4 2015 otherwise). The actual default definition and the closing date used for the index calculation are displayed. The Loss Given Default (LGD) is calculated assuming that the loans for which a dummy variable is used (999.99) have in fact a 100% LGD. Also, the index values are shown for each deal in the latest available LLD, and full detail of the composition of the arrears is provided in the stratification tables so that the origin of the defaults can be identified. Concentration measures include the effective number of borrowers (1 divided by the Herfindahl index calculated at the borrower level), as well as 1, 5, 10 and 20 largest borrower share of the portfolio as % of total portfolio.



# **Appendix 3: Breakdown of cumulative loan issuance per industry**

Loan issuance charts show that if the loans to SMEs were issued in roughly the same proportion to all regions over 2002-2015, loans were not issued in the same proportion to all industries. Loan issuance (as measured using Original Loan Balance AS54) per region (Exhibit 8a) has indeed been very stable overtime, but loan issuance per industry has changed substantially (Exhibit 8b). In particular, it appears that the issuance of loans to real estate sector-related activities has decreased dramatically, from a peak at 27.3% of total new loan issuance in 2005 down to 8% of total new loan issuance for the 2015 vintage.

Exhibit 8a: Loan issuance per region (as % of total amount of loan issuance per vintage)



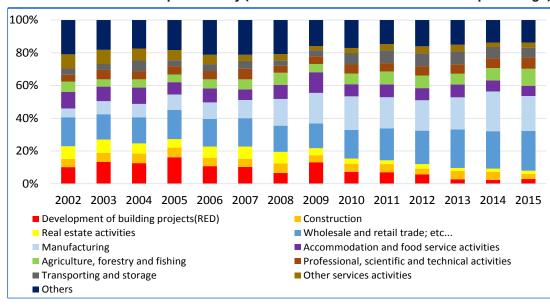


Exhibit 8b: Loan issuance per industry (as % of total amount of loan issuance per vintage)

Source: European DataWarehouse

Spanish bank's new issuance mix is very influenced by their core business, as much in terms of region of origin as in terms of industries. Exhibit 8c shows that CAM and Bankia portfolios are overexposed to Valencia, Sabadell and Caixabank pools have higher exposures to Catalonia, Bankinter pools are more exposed to Madrid than others. Exposure in terms of industries shows as much diversity, as shown in Exhibit 8d. In particular, the exposure of the pools to the real estate developers changes substantially from one originator to the other.

Exhibit 8c: Cumulative issuance per region (as % of total amount of loan issuance per originator)

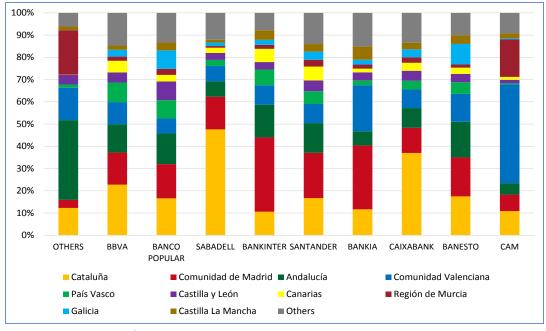
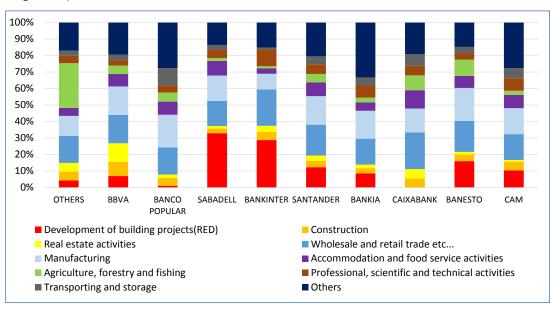




Exhibit 8d: Cumulative issuance per industry (as %of total amount of loan issuance per originator)





#### **IMPORTANT DISCLOSURES:**

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