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COMMENTARY

Residential PACE Delinquency Trends

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Executive Summary

Over the past year, there has been significant media coverage on the topic of delinquency levels for Property Assessed Clean Energy (PACE) obligations. The following commentary is designed to provide clarity and additional transparency on residential PACE delinquency trends. DBRS, Inc. (DBRS) has been rating asset-backed security (ABS) transactions backed by PACE assessments (see PACE Overview below) since 2015. Furthermore, DBRS reviews delinquency trends for PACE assessments and local residential property taxes in conjunction with its initial ratings as well as on-going surveillance of outstanding ratings.

Residential PACE originated in California in 2009, and the state remains the largest market, followed by Florida and Missouri. Accordingly, the discussion herein is focused on performance levels in California for portfolios originated by Renovate America, Inc. (Renovate) and Renew Financial Group LLC (Renew) since Renovate and Renew in aggregate represented 81.3% of total PACE ABS issuance in 2017 and 2016 combined.¹

Highlights of the discussion herein include:

- While PACE is a relatively new asset class, there is sufficient data to analyze performance in recent years;
- The limited performance history shows strong performance with very low delinquency levels around 2% to 4% at the peak, declining to less than 1% within 12 months;
- PACE delinquency metrics are lower than general aggregate property tax and single-family residential only property tax delinquency levels. PACE also shows consistent performance and very low volatility across tax years; and
- Healthier performance relative to all residential tax payors may reflect self-selection of PACE homeowners to improve their properties.

PACE Overview

PACE programs are local or statewide government-sponsored programs that facilitate the financing of energy efficiency, renewable energy and water conservation improvements (collectively, the Improvements) on commercial and residential properties. PACE programs are based on legal precedents with a long-standing history in the United States that permit the government to facilitate a public purpose through special taxing authorities. Accordingly, PACE financing is repaid over a term of five to 30 years (varying by originator) in the form of voluntary special assessments invoiced and paid with property taxes collected by the relevant tax authority for the property that had the Improvements installed (PACE Assessments). PACE Assessments have equal-lien priority with property taxes and typically rank senior to first-lien mortgages on the property. There is no acceleration of PACE Assessments upon a default as is the case with a mortgage or home equity line of credit. Only the delinquent installments in arrears at the time of a foreclosure are due and payable out of the foreclosure proceeds. The purchaser acquiring the property in the foreclosure sale will continue making the PACE Assessment payments from that point forward.

1. Source: Asset-Backed Alert.

PACE Payment Dates

In California, PACE Assessments funded on or prior to June 30th are placed on each county's tax roll on or before August 10th, and the first installment is due on November 1st of the same year. PACE Assessments funded on July 1st or later are placed on the county's tax roll by August 10th of the following year and the first installment is due on November 1st.

If, by December 10th, the first installment is not paid together with property taxes, it becomes delinquent and accrues a 10% penalty. The second installment is then due on February 1st. Similarly, if by April 10th, the second installment is not paid together with property taxes, it becomes delinquent and accrues a 10% penalty. Amounts still unpaid as of June 30th are considered defaulted and accrue an additional 1.5% of default interest per month, until paid. For this reason, delinquencies are at the highest level following the first installment and decline over the course of the tax year. Homeowners generally cure past due amounts prior to June 30th in order to avoid the 18% penalty interest and potential foreclosure.

This trend of declining delinquency over time is evident in the PACE delinquency data that DBRS has analyzed:

1. Delinquency data provided by David Taussig & Associates, Inc. (DTA) for Renovate and Renew's portfolios. DTA is the tax roll administrator for the PACE programs administered by Renovate and Renew.
2. Delinquency data reported in the remittance reports for the HERO Funding transactions rated by DBRS. HERO Funding is Renovate's ABS issuance platform.

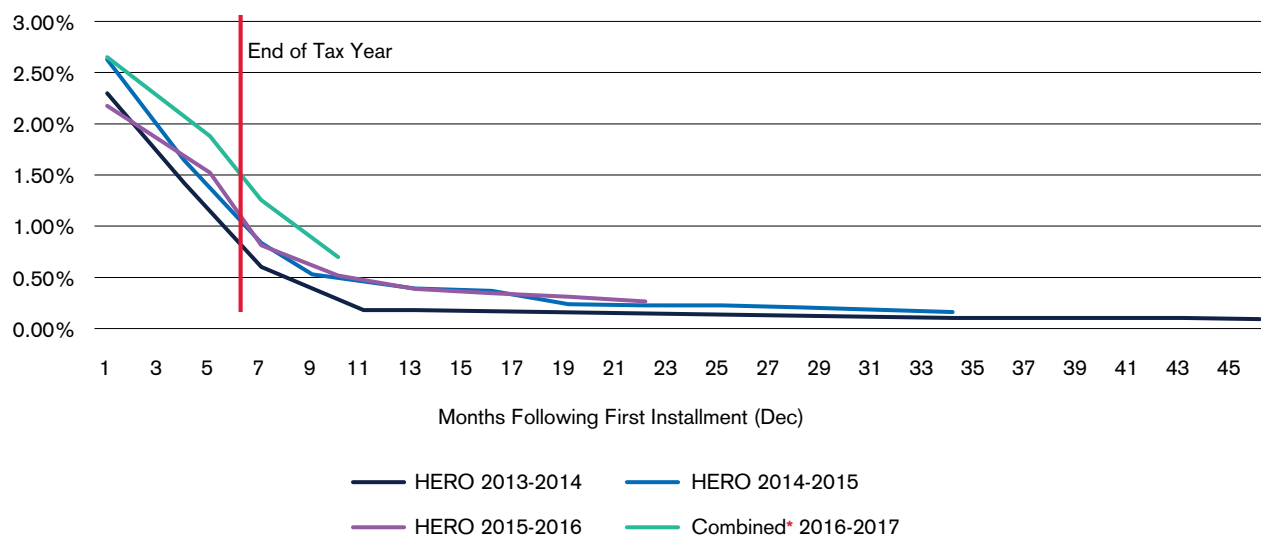
DTA Data

DBRS evaluated PACE delinquency data provided by DTA for the Renovate and Renew programs starting in the tax year of 2013-2014 through to the tax year of 2016-2017 (the DTA Data). The DTA Data is grouped by tax year for each administrator and provides past due balances at various points in time over the course of the tax year and the total annual levy due. Using the DTA Data, DBRS calculated the delinquency rate in the following manner: the delinquency rate following the first installment due date (December to March) is equal to the delinquent amount divided by half the annual levy since only half of the levy is due at the first installment. The delinquency rate following the second installment (April and beyond) is equal to the delinquent amount divided by the entire annual levy as the full amount of the annual levy is considered past due on April 10. Throughout the discussion herein, DBRS refers to "Delinquency Rates" using this calculation.

Delinquencies are reported on a tax year basis since that is the manner property tax delinquencies are reported. In general, each tax year is considered its own vintage for purposes of reporting delinquencies on a static pool basis over time, including beyond the end of the tax year. For this reason, it is not possible to evaluate PACE delinquency and defaults trends using more traditional static pool analysis in the same manner DBRS would for a consumer ABS asset class such as auto loans.

The DTA Data shows a peak in January of each tax year at a fairly low level of 2.0% to 4.0% and a gradual decline to the end of the tax year in June and continuing declines thereafter. By Month 22 (the last point in time for which there are at least three data points), exceptionally low Delinquency Rates ranging from 23 basis points (bps) to 27 bps are evident. This suggests that PACE delinquencies are consistently and quickly resolved within 12 to 18 months following the first installment being past due.

Exhibit 1 plots the Delinquency Rates based on the DTA Data with the time periods being the months following the first installment due date of December (i.e., Month 1 represents January of each tax year).

Exhibit 1: PACE Delinquency Rates

* Tax year 2016-2017 is combined for both HERO and Renew.

Exhibit 1 also shows low volatility around each point in time suggesting consistent performance across tax years.

Additionally noted is the low degree of volatility over time by considering the minimum, maximum, median and standard deviation of Delinquency Rates at various points in time across tax years and across PACE programs. Exhibit 2 details such statistics for Months 1 to 22, which had between three and five data points (out of a possible six). As seen in Exhibit 2, the dispersion around the median is relatively small and becomes progressively tighter as you move forward in time, as evidenced by the lower standard deviation in Months 10, 13 and 22 relative to Months 1, 5 and 7.

Exhibit 2**Months Following First Installment (Dec)**

	<u>1</u>	<u>5</u>	<u>7</u>	<u>10</u>	<u>13</u>	<u>22</u>
Min	2.18%	1.52%	0.60%	0.52%	0.18%	0.23%
Max	3.98%	2.34%	1.54%	0.82%	0.39%	0.27%
Median	2.46%	1.99%	0.84%	0.68%	0.31%	0.23%
Std Dev	0.73%	0.35%	0.37%	0.15%	0.11%	0.02%

Delinquency Trends

Exhibits 3 to 6² detail delinquency trends for the HERO Funding transactions rated by DBRS (2015-3, 2016-1, 2016-2 and 2016-3), which had PACE Assessments due in the 2016-2017 tax year.

Exhibits 3 to 6 plot the delinquent amount in dollars and the Delinquency Rate as a percentage of the 2016-2017 tax year levy due from March 2017 through December 2017.

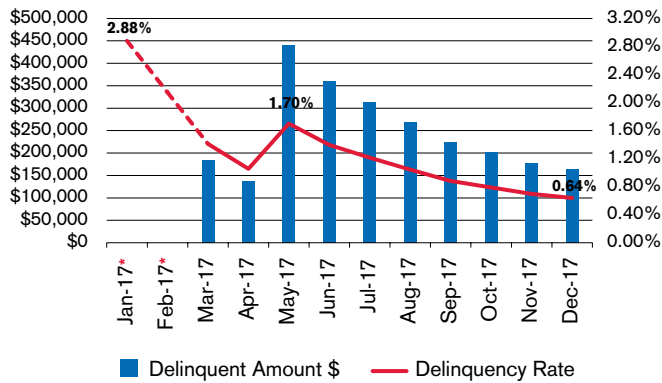
2. Source: DBRS Performance Analytics Reports available on www.dbrs.com and Trustee Remittance Reports.

There are generally two delinquency spikes over the course of the tax year. The first spike occurs in December, when the first installment is considered past due and the second in April, when the second (and full year) installment is considered past due. Due to reporting cut-off dates, these lags are evident in the January and May trustee remittance reports similar to the DTA Data. Delinquency data for the 2016-2017 tax year is not available prior to March 2017, thus only the May spike can be seen in Exhibits 3 to 6. The May spike ranges from 1.7% to 2.2%. As homeowners pay their past due balances over the balance of the tax year and beyond, the Delinquency Rate declines to a range of 0.6% to 0.7% in December 2017. This pattern and absolute level of Delinquency Rates is consistent with the DTA Data seen above.

While the January Delinquency Rate is not available for the 2016-2017 tax year, it is reported for the 2017-2018 tax year. The January 2018 Delinquency Rate ranges from 2.9% to 3.5%, which again is consistent with the Month 1 Delinquency Rates reported in the DTA Data. DBRS would expect similar levels of delinquency for January 2017, if the data were available. Furthermore, DBRS expects the January 2018 delinquency levels to diminish over the course of the year to levels comparable to those reported in December 2017.

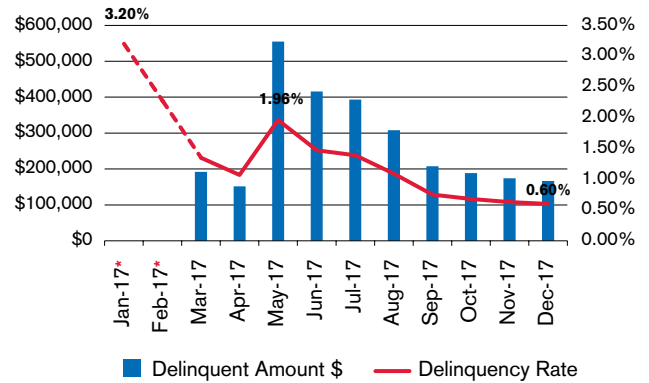
Exhibits 3 to 6 show January and February 2017 Delinquency Rates as estimated using the actual levels reported for January 2018 for each transaction as the January 2017 level. The February 2017 level is the average of the January 2018 and March 2017 levels. Overall, the January peak is the highest of the two and is approximately 1.5 times to 1.7 times that of the May level.

Exhibit 3: HERO Funding Trust 2015-3



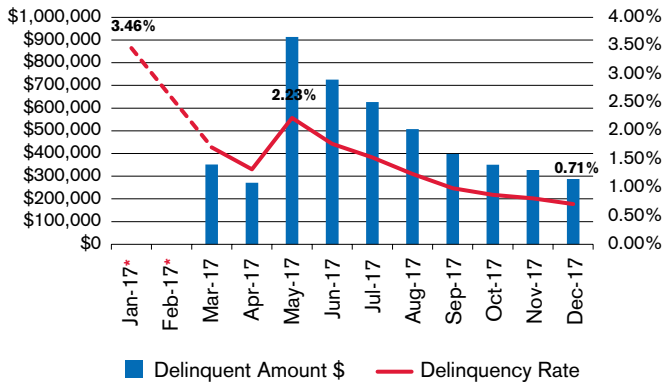
* Jan-17 & Feb-17 are estimates based on Jan-18 actual.

Exhibit 4: HERO Funding Trust 2016-1



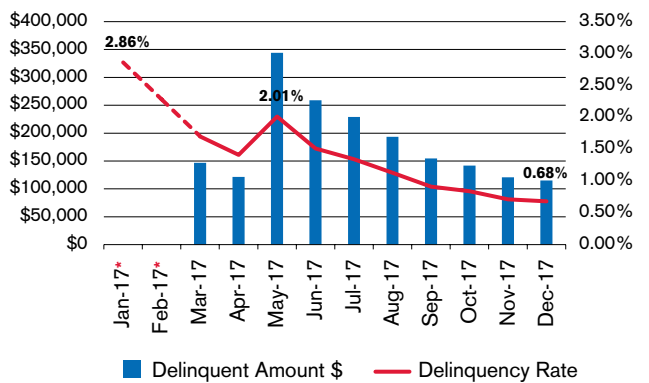
* Jan-17 & Feb-17 are estimates based on Jan-18 actual.

Exhibit 5: HERO Funding Trust 2016-2



* Jan-17 & Feb-17 are estimates based on Jan-18 actual.

Exhibit 6: HERO Funding Trust 2016-3



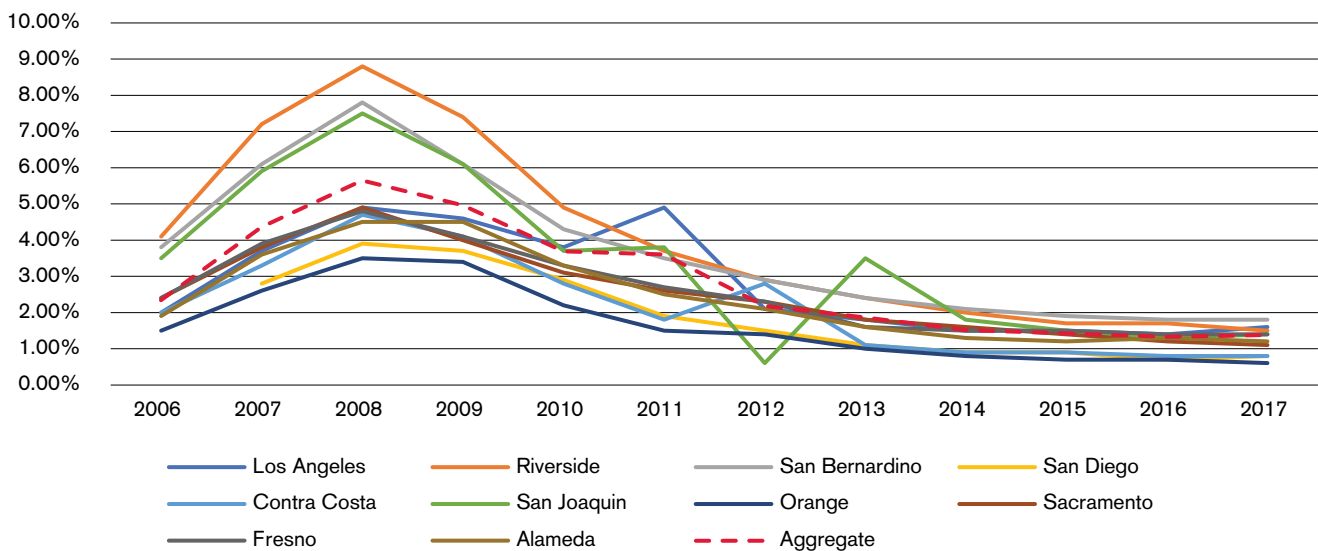
* Jan-17 & Feb-17 are estimates based on Jan-18 actual.

California SCO Data

The California State Controller’s Office publishes ad-valorem property tax payment reports detailing the percentage of the total annual levy that was paid as of the end of each tax year going back to 1993-1994 (the SCO Data).³ With this information, one can calculate the Delinquency Rate as of (approximately) June 30th and compare it to the DTA Data. The SCO Data reporting dates may vary somewhat by county and tax year, however, they are primarily on or around June 30th. To the extent the DTA Data is not available as of June 30th, DBRS used the Delinquency Rate reported in July as a proxy for the tax year-end. It would not be appropriate to use the May Delinquency Rate since May falls ahead of the tax year-end and does not reflect any last minute payments collected in June.

DBRS analyzed Delinquency Rates derived from the SCO Data for the top 10 counties in California with PACE programs representing approximately 80% of outstanding PACE Assessments (the PACE Counties).⁴ Exhibit 7 plots the Delinquency Rates for tax years beginning 2005-2006 through 2016-2017, and the aggregate (weighted-average (WA)) Delinquency Rate for the PACE Counties. As seen in Exhibit 7, the Delinquency Rate as of the tax year-end ranges from a high of 8% to 9% during the financial crisis declining gradually to 1% to 2% in recent years.

Exhibit 7: Aggregate SCO Tax Delinquency as of Tax Year End

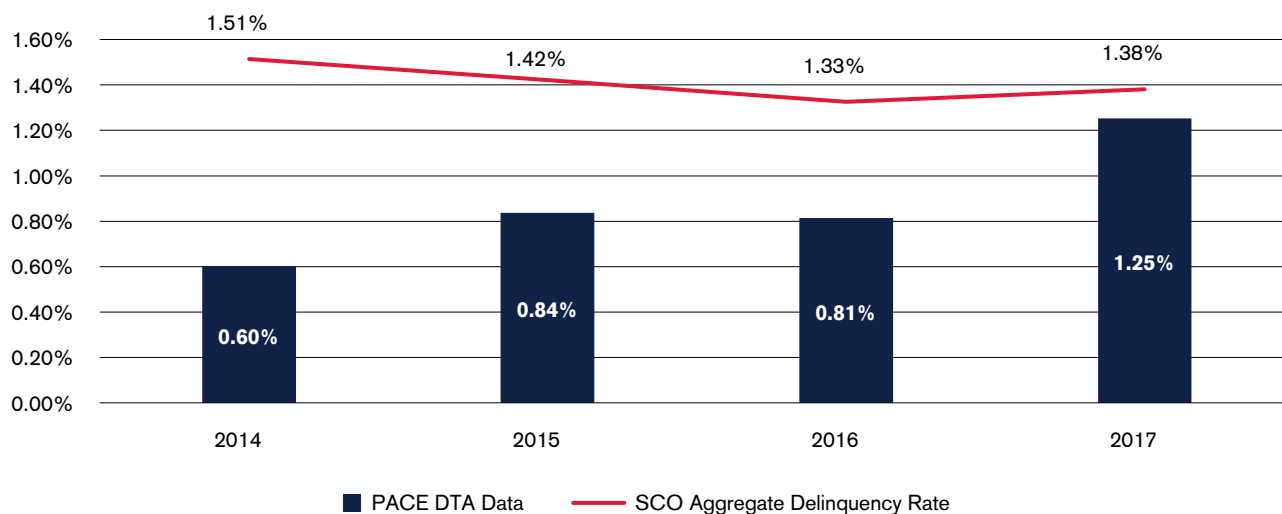


3. Source: California State Controller’s Office website: https://www.sco.ca.gov/ardtax_tcs_year_rpt.html

4. Based on the HERO 2017-3 and Renew 2017-2 combined pools, the top 10 counties are: Los Angeles, Riverside, San Bernardino, San Diego, Contra Costa, San Joaquin, Orange, Sacramento, Fresno and Alameda.

Exhibit 8 compares the SCO Data for the 2013-2014 to 2016-2017 tax years against the DTA Data for the same period and shows that PACE Delinquency Rates (i.e., the DTA Data)⁵ compare favorably to the WA SCO Delinquency Rate across the PACE Counties. As seen in Exhibit 8, PACE Delinquency Rates range from 0.6% to 1.3% versus 1.3% to 1.5% for the WA SCO Delinquency Rate (both as of the tax year-end).

Exhibit 8: Aggregate SCO vs. PACE Delinquency as of Tax Year End



However, one limitation of the SCO Data is that it reports aggregate delinquencies across all property types (i.e., residential, commercial, industrial, agricultural and all others). Therefore, it is not an entirely equivalent benchmark to use when looking at residential PACE delinquencies.

Single-Family Residential Data

As a result of the basis mismatch between the SCO Data and DTA Data noted above, DBRS also evaluated single-family residential (SFR) property tax delinquency data for the PACE Counties (the SFR Data).⁶ The SFR Data isolated SFR delinquencies alone and therefore can be a useful benchmark for comparisons to PACE Delinquency Rates using the DTA Data. The SFR Data is as of the second installment due date for the tax years beginning 2005-2006 through 2016-2017. The reporting dates vary by county and tax year, but predominantly fall between April 10 and May 30 of each year. Accordingly, the SFR Data represents the second delinquency peak discussed above. Exhibit 9 plots the Delinquency Rate and the aggregate Delinquency Rate (the Aggregate Delinquency Rate) for the PACE Counties. The Aggregate Delinquency Rate is equal to the total delinquent amount for all PACE Counties divided by the total levy amount for all PACE Counties in each year.

As seen in Exhibit 9, the Delinquency Rate as of the second installment date ranges from a high of 12% to 14% during the financial crisis, declining gradually to 2% to 3% in recent years.

5. HERO only for 2014, 2015 and 2016. Combined HERO and Renew for 2017.

6. Source: California Tax Data.

Exhibit 9: Aggregate SFR Tax Delinquency as of Second Installment Due Date

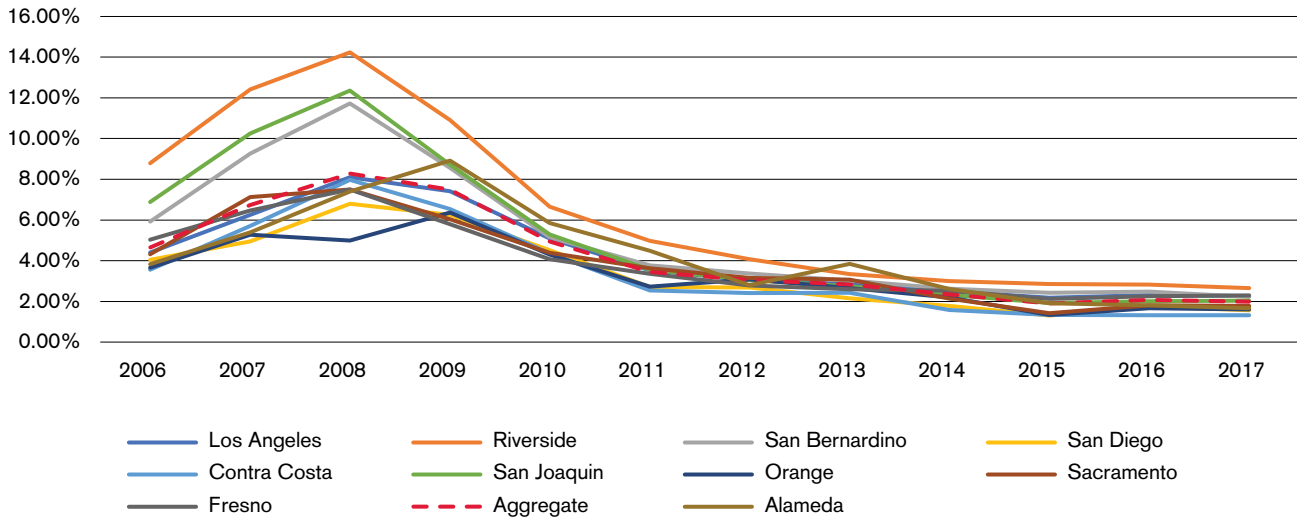
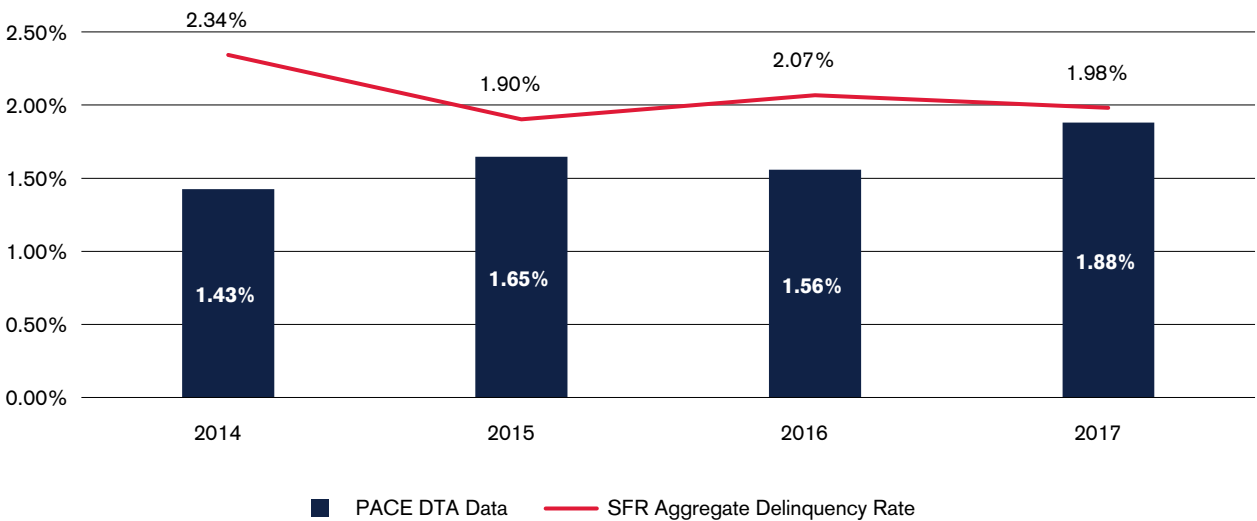


Exhibit 10 plots SFR Data for the 2013-2014 to 2016-2017 tax years and DTA Data⁷ for the same period. Exhibit 10 shows that PACE Delinquency Rates (i.e., the DTA Data) compare favorably to the Aggregate Delinquency Rate. As seen in Exhibit 10, PACE Delinquency Rates range from 1.4% to 1.9% versus 1.9% to 2.3% for the Aggregate Delinquency Rate (both as of the second installment due date).

Exhibit 10: Aggregate SFR vs. PACE Delinquency as of Second Installment Due Date



7. HERO only for 2014 and 2015. Combined HERO and Renew for 2016 and 2017.



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