Presale:

HPEFS Equipment Trust 2020-1

February 10, 2020

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Preliminary Ratings

Class	Preliminary rating	Type	Interest rate	Preliminary amount (mil. $)	Legal final maturity date
A-1	A-1+ (sf)	Senior	Fixed	242.61	March 9, 2021
A-2	AAA (sf)	Senior	Fixed	273.68	Feb. 20, 2030
A-3	AAA (sf)	Senior	Fixed	100.25	Feb. 20, 2030
B	AA (sf)	Subordinate	Fixed	45.32	Feb. 20, 2030
C	A (sf)	Subordinate	Fixed	47.70	Feb. 20, 2030
D	BBB (sf)	Subordinate	Fixed	45.71	Feb. 20, 2030

Note: This presale report is based on information as of Feb. 10, 2020. The ratings shown are preliminary. Subsequent information may result in the assignment of final ratings that differ from the preliminary ratings. Accordingly, the preliminary ratings should not be construed as evidence of final ratings. This report does not constitute a recommendation to buy, hold, or sell securities.

Profile

Expected closing date	Feb. 20, 2020.
Collateral	Equipment leases and loans.
Originator, servicer, seller, and sponsor	Hewlett-Packard Financial Services Co.
Depositor	HPE Depositor LLC.
Issuer	HPEFS Equipment Trust 2020-1.
Underwriter	Goldman Sachs & Co. LLC
Indenture trustee	U.S. Bank N.A.
Owner trustee	Citibank N.A.

Credit Enhancement Summary (%)(i)

	HPEFS Equipment Trust 2020-1			HPEFS Equipment Trust 2019-1		
	Initial(ii)	Target(iii)	Floor(ii)	Initial(ii)	Target(iii)	Floor(ii)
Class A						
Subordination	17.45	N/A	17.45	17.75	N/A	17.75

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Credit Enhancement Summary (%)(i) (cont.)

	HPEFS Equipment Trust 2020-1			HPEFS Equipment Trust 2019-1		
	Initial(ii)	**Target(iii)**	**Floor(ii)**	**Initial(ii)**	**Target(iii)**	**Floor(ii)**
Overcollateralization	5.00	9.50	5.00	5.50	10.80	5.50
Reserve account	1.00	N/A	1.00	1.00	N/A	1.00
Total	23.45		23.45	24.25		24.25
Class B						
Subordination	11.75	N/A	11.75	11.15	N/A	11.15
Overcollateralization	5.00	9.50	5.00	5.50	10.80	5.50
Reserve account	1.00	N/A	1.00	1.00	N/A	1.00
Total	17.75		17.75	17.65		17.65
Class C						
Subordination	5.75	N/A	5.75	4.15	N/A	4.15
Overcollateralization	5.00	9.50	5.00	5.50	10.80	5.50
Reserve account	1.00	N/A	1.00	1.00	N/A	1.00
Total	11.75		11.75	10.65		10.65
Class D						
Overcollateralization	5.00	9.50	5.00	5.50	10.80	5.50
Reserve account	1.00	N/A	1.00	1.00	N/A	1.00
Total	6.00		6.00	6.50		6.50

(i)Excludes the excess spread credit enhancement, which is estimated (unstressed) at 2.85% and 2.69% per year for the HPEFS 2020-1 and 2019-1 series, respectively. (ii)Percentage of the initial receivables balance. (iii)Percentage of the current receivables balance. N/A--Not applicable.

Rationale

The preliminary ratings assigned to HPEFS Equipment Trust 2020-1's (HPEFS 2020-1) asset-backed notes reflect:

- The availability of 23.45%, 17.75%, 11.75%, and 6.00% initial hard credit support for the class A, B, C, and D notes, respectively. The hard credit support includes a cash reserve, funded at closing, equal to 1.00% of the initial discounted contract balance, and that is subject to a floor of the same amount.
- The availability of approximately 2.85% annual excess spread (unstressed estimate).
- An overcollateralization target mechanism (a target level of 9.50% of the current discounted contract balance and a floor of 5.00% of the initial discounted contract balance) that minimizes the release of credit enhancement to the seller in our stressed cash flow modeling scenarios.
- Our expectation for the timely payment of periodic interest and principal by the final maturity date according to the transaction documents, based on stressed cash flow modeling scenarios using assumptions consistent with the assigned preliminary ratings.
- The pool's collateral characteristics, including the relatively short weighted average original terms (approximately 46 months), the weighted average seasoning of approximately 14 months,

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that nine of the top obligor concentrations (including service provider obligors associated with embedded leases) each exceed 1.50%, the high concentration of high-credit-quality corporate and public entities, and the low concentration of Hewlett-Packard Financial Services Co.'s (HPEFS) small business segment (approximately 7.30%).

- The characteristics of the embedded lease contracts in the pool--specifically that these are direct leases under which the service provider is the obligor--and our view of the higher-stressed recovery rate associated with embedded lease contracts as compared to other lease contracts in the pool.
- Credit enhancement coverage that is in line with our credit stability criteria. Under a moderate stress scenario, calculated as the net loss (assuming a moderate stress recovery rate) of two top obligors plus 2.0x flow losses (we refer to the component of our stressed loss level that relates to the overall pool, rather than to individual obligor concentrations, as "flow losses"), we do not expect, all else being equal, the ratings on the notes to decline by more than the number of rating categories that is consistent with our credit stability criteria.
- The servicer's status as a wholly owned subsidiary of Hewlett Packard Enterprise Co. (HPE; BBB/Stable/A-2). While the servicer has only issued one securitization transaction, we considered management stability and experience in providing technology equipment financing.
- Our outlook for the credit quality of the commercial entities that represent the obligors in the pool, which is generally strong and stable.
- The transaction's legal structure.

Transaction Overview

HPEFS 2020-1 is the second equipment ABS transaction sponsored by HPEFS, the captive finance unit and wholly owned subsidiary of the Hewlett Packard Enterprise Co. (HPE). HPEFS was formed in 2015 when Hewlett Packard Co. (HP), which was renamed HP Inc. (HPI), divested and formed HPE. However, HPEFS had operated as the finance unit for HP under a different name since early 2000. The servicer specializes in commercial equipment financing with transactions that range in size from $100 to $35 million. HPEFS finances the purchase of HPE technology infrastructure, software, storage, and networking equipment for both small and large businesses. Under an operating agreement with HPI, HPEFS also provides financing to HPI's traditional computer and printing products. Similar to its inaugural transaction (HPEFS 2019-1), HPEFS 2020-1 consists of leases and loans backed by networking, storage, personal computer systems, print products, and other related equipment products.

HPEFS

HPEFS is headquartered in Berkeley Heights, N.J. and has a global footprint with a presence in 53 countries. The company currently has about 1,700 employees and provides financing to over 35,000 customers globally, with $3.6 billion in revenue and a global portfolio of $13 billion ($4.5 billion for the U.S. portfolio) as of fiscal year ended Oct. 31, 2019. HPEFS provides financing to commercial entities.

Underwriting

HPEFS originated in excess of 90% of the receivables directly. A small portion of the receivables

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were originated by third parties with underwriting standards that are generally the same as those of HPEFS. HPEFS' underwriting standards generally appear typical and have produced stable results since 2007. A credit write-up is prepared for all transactions, which includes an overview of the investment (pricing, equipment, mix, etc.), a detailed financial review, and essential use analysis of the underlying equipment. The approval process differs, based on the obligors' relative credit strength and exposure size. HPEFS utilizes a proprietary risk rating model, with the top- and mid-scoring range representing investment- and speculative-grade obligors. Distressed accounts require additional monitoring by credit analysts to assess their financial risk.

Servicing

HPEFS manages 70% (by U.S. asset dollar amount) of collections in-house, and it outsources the remaining 30%. Key accounts are managed in-house due to customer relationships, while non-key accounts are outsourced in order to generate cost efficiencies and productivity improvements. HPEFS partners with third parties that are responsible for receivables in specific global regions (i.e., the U.S., EMEA, and Asia-Pacific and Japan). Regardless of whether the servicing of an account is in-house or outsourced, there is oversight of the operations teams. Additionally, the compensation for the operations team is tied to account receivables performance.

Residuals and asset remarketing

HPEFS has two IT asset remarketing centers located in Andover, Mass. and Erskine, Scotland. Residual values are set by lease term and region for each major equipment type. More specifically, in order to set residual values, HPEFS reviews next-generation enhancements to current products, historical customer behavior, secondary market sales data, competitive elements, and recent historical residual performance.

Legal Structure

The transaction is structured as a true sale of the contracts and related equipment to HPE Depositor LLC, a limited liability company that is consistent with our special-purpose entity criteria. HPE Depositor LLC will then sell the collateral to the issuer, which will pledge a security interest to the indenture trustee (see chart 1).

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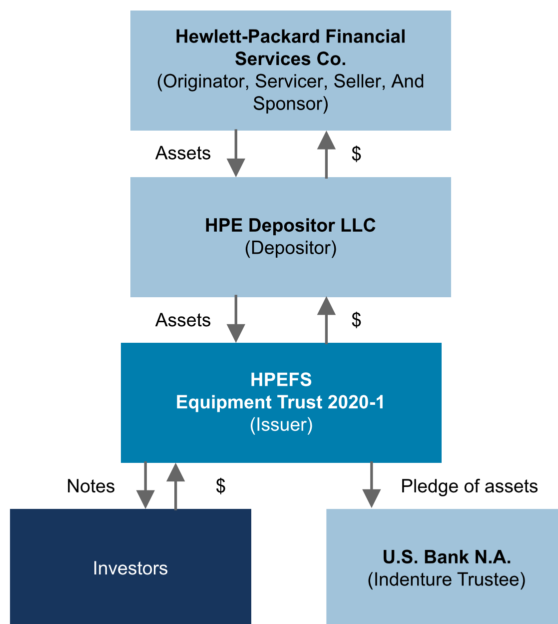
Chart 1

Transaction Structure



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The HPEFS 2020-1 note issuance will total $755.27 million. The collateral includes scheduled payments on equipment leases and loans, as well as recovery and residual proceeds on the associated equipment. Series 2020-1 will sequentially pay the class A, B, C, and D note principal. The overcollateralization will begin at 5.00% of the initial discounted contract value, grow as the pool amortizes to a target level of 9.50% of the current discounted contract value, and then can amortize to no less than 5.00% of the initial discounted contract value. The overcollateralization is expected to reach its target level, assuming a zero-loss and zero-prepayment scenario, by month eight. The reserve account will be fully funded at closing and nonamortizing at 1.00% of the initial discounted contract balance. The first payment date is April 20, 2020.

In rating this transaction, we will review the legal matters we believe are relevant to our analysis, as outlined in our criteria.

Changes From Series 2019-1

Credit enhancement changes

The initial hard enhancement is lower for classes A and D and higher for classes B and C. The overcollateralization target, as well as floor, is lower than in 2019-1 (see Credit Enhancement Summary table).

Collateral composition changes

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- The top-five obligor concentrations are higher in the series 2020-1 pool (30.72%) versus the series 2019-1 pool (29.45%). We accounted for them in our stressed loss levels by considering the notes' rating category, as well as the obligor's credit profile.
- The discounted residual value as a percentage of the discounted contract balance decreased to 11.6% from 12.3%.
- The weighted average seasoning decreased to 14 months from 16 months.
- The segment mix for series 2020-1 is marginally weaker, with a slightly higher percentage of small business (the highest loss segment); however, our flow cumulative gross loss range adequately captures the overall risk of the pool and is unchanged from 2019-1.

Transaction Structure

The HPEFS 2020-1 transaction provides credit protection for the noteholders by incorporating the following structural features:

- A sequential-pay structure in which the subordinated notes will not receive principal distributions until the senior notes have been paid in full.
- Overcollateralization, with an initial balance and ultimate floor level of 5.00% of the initial discounted contract balance and a target level of 9.50% of the current discounted contract balance.
- A nonamortizing reserve account funded with an initial deposit of 1.00% of the initial discounted contract balance. If funds in the collection account are insufficient, the reserve account will be available to pay monthly interest and priority principal distribution amounts and to repay any outstanding rated notes' remaining balances on their stated maturity dates.
- A reprioritization feature that pays senior note principal ahead of the subordinated notes' interest when the outstanding senior notes' principal exceeds the pool balance. This reprioritization feature results in higher break-even levels when we apply stress assumptions, but we expect timely payment of subordinated note interest in stress scenarios consistent with each subordinate rating category.

Payment Structure

Payment distributions will be made from the available funds in the payment priority in table 1.

Table 1

Payment Waterfall

Priority	Payment
1	To the indenture and owner trustees, annual fees of $7,500 each, and expenses and indemnities, capped at $200,000 for the indenture trustee and $75,000 annually for the owner trustee.
2	Servicing fee (1.00% per year).
3	Administration fee ($2,000 per year).
4	Class A accrued and unpaid interest.
5	Reduce the class A note principal, based on the principal payment priority (sequential pay), by an amount equal to the excess of the class A outstanding amount over the pool balance (reprioritization).

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Table 1

Payment Waterfall (cont.)

Priority	Payment
6	Class B accrued and unpaid interest.
7	Reduce the class A and B note principal, based on the principal payment priority (sequential pay), by an amount equal to the excess of the class A and B outstanding amounts over the pool balance (reprioritization).
8	Class C accrued and unpaid interest.
9	Reduce the class A, B, and C note principal, based on the principal payment priority (sequential pay), by an amount equal to the excess of the class A, B, and C outstanding amounts over the pool balance (reprioritization).
10	Class D accrued and unpaid interest.
11	Reduce all note principal, based on the principal payment priority (sequential pay), by an amount equal to the excess of the outstanding amount of all notes over the pool balance (reprioritization).
12	To the reserve account, as necessary to maintain the specified minimum balance.
13	Reduce all note principal, based on the principal payment priority (sequential pay), by an amount equal to the excess of the outstanding amount of all notes over the pool balance (aggregate discounted contract balance minus the target overcollateralization amount).
14	Remaining amounts due to the indenture and the owner trustees.
15	Remaining amounts due to the servicer and any other amounts required to be paid per the servicing agreement.
16	Remaining amounts to the certificate owners.

Managed Portfolio

The total portfolio is characterized by general stability, measured in outstanding balances from 2014 through 2019. Losses have also been low since 2014, evidenced by HPEFS' stable underwriting and the strong credit quality of the company's obligors, which consist largely of investment-grade (rated 'BBB-' and above) commercial entities.

Table 2

HPEFS Managed Portfolio Performance

	Fiscal year ended Oct. 31				
	2019	**2018**	**2017**	**2016**	**2015**
Receivables Balance ($000s)	4,566.14	4,856.03	4,959.86	5,308.16	5,269.64
Delinquency period (%)(i)					
31-60 days	0.27	0.22	0.20	0.24	0.28
61-90 days	0.04	0.04	0.06	0.04	0.08
Greater than 90 days	0.17	0.17	0.17	0.17	0.22
Total delinquencies	0.48	0.44	0.43	0.44	0.58
Average portfolio assets (mil. $)	4,570.00	4,786.56	5,000.31	5,223.45	4,977.34
Net credit loss during period as a % of the average portfolio assets	0.25	0.14	0.20	0.20	0.18

(i)Delinquencies represented as percent of receivables balance (i.e., net investment value) as of the dates represented above.

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Pool Analysis

The HPEFS 2020-1 collateral pool primarily consists of leases, including approximately 8.7% loans. The collateral pool has similar collateral characteristics and obligor creditworthiness as the managed portfolio. Both the leases and loans finance the purchase of technology equipment primarily manufactured by HPE and HPI, though the pool does include a small percentage of non-HP manufactured equipment products. We compared the HPEFS 2020-1 pool to the prior transaction, HPEFS 2019-1, as well as the prior Dell Equipment Finance Trust (DEFT) 2018-2 transaction (see table 3).

Table 3

Pool Characteristics(i)

	HPEFS Equipment Trust 2020-1	HPEFS Equipment Trust 2019-1	Dell Equipment Finance Trust 2018-2
Aggregate discounted contract balance (mil. $)	795.02	807.00	781.93
No. of receivables	8,846	9,128	8,242
Avg. discounted contract balance ($)	89,873.23	88,409.30	94,892.65
Discounted residual value % discounted contract balance	11.62	12.28	7.00
Weighted avg. original term (mos.)	46.11	46.38	41.64
Weighted avg. remaining term (mos.)	32.10	29.94	36.20
Weighted avg. seasoning (mos.)	14.01	16.44	5.44
Obligor (%)			
Obligor 1	10.28	7.00	5.00
Obligor 2	6.00	6.91	4.88
Obligor 3	5.75	6.00	4.36
Obligor 4	5.39	4.77	3.60
Obligor 5	3.30	4.77	2.83
Total top 5 obligors	30.72	29.44	20.67
Obligor 6	2.54	3.36	2.63
Obligor 7	1.99	2.56	2.57
Obligor 8	1.67	2.33	2.30
Obligor 9	1.55	2.29	2.16
Obligor 10	1.33	1.87	2.15
Total top 10 obligors	39.81	41.86	32.48
Segment (%)			
Rest of portfolio	84.41	83.28	Large institution: 73.42
Print business	7.97	9.48	Public: 8.04
Small business	7.30	7.24	Medium business: 16.82
			Small business: 1.72

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Table 3

Pool Characteristics(i) (cont.)

	HPEFS Equipment Trust 2020-1	HPEFS Equipment Trust 2019-1	Dell Equipment Finance Trust 2018-2
State (%)			
	Calif.: 20.39	Calif.: 29.18	Texas: 20.41
	Va.: 10.24	Texas: 6.73	Calif.: 18.12
	Texas:7.48	Va.: 6.49	N.J.: 6.55
	N.Y.:6.29	N.Y.: 5.64	Mich.: 6.11
	N.J.:5.39	N.C.: 4.70	Fla.: 5.36

(i)All percentages are of the aggregate discounted contract balance as of the Dec. 31, 2019, Aug. 29, 2019, and Sept. 28, 2018, cutoff dates for HPEFS 2020-1, HPEFS 2019-1, and DEFT 2018-2, respectively.

Peer comparison to DEFT securitization pools

The HPEFS 2020-1 collateral pool characteristics are similar to the characteristics of the DEFT 2018-2 securitization pool, based on the following factors:

- HPEFS is a captive finance unit that finances primarily HPI and HPES products.
- The percentage of larger high-credit-quality obligors for HPEFS averages more than 50%. This is attributed to the high percentage of obligors that finances mission-critical enterprise hardware.
- Obligor concentrations are elevated and exceed 1.50%. Therefore, we apply our large obligor default assumption when determining our rating level default assumption.
- Residuals are present in both securitization pools, though the percentage of residuals in the HPEFS 2020-1 pool is 11.62%, compared to 12.28% in 2019-1 and 7.0% for the DEFT 2018-2 pool.

Embedded leases

Similar to the 2019-1 pool but unlike its peer, DEFT 2018-2, HPEFS 2020-1 consists of approximately 22% of leases, whereby HPEFS enters into a net lease agreement with a service provider. The service provider, in turn, enters into a service contract with an end user to deliver hardware and associated services (the net lease and service contract collectively referred to as the "embedded lease").

Each service provider is ultimately responsible for making payment on the net lease entered into with HPEFS. However, the service provider is not required to make payment under the net lease if there is an event of nonpayment by the end user due to an end-user credit failure event. In such a scenario, HPEFS, as lessor, maintains similar rights and remedies as it does in direct leases. The net leases are the contracts being securitized for HPEFS 2020-1.

We have accounted for the credit exposure to the service providers and end users by incorporating each service provider's pool concentrations in the total stress loss for HPEFS 2020-1 (see the S&P Global Ratings' Rating Category Default Assumption section below). We assumed a higher recovery rate for service providers compared to non-service providers in our total stress loss

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calculations due to the mission-critical nature of the hardware and high credit quality of the service providers.

Obligor and segment concentrations

Nine obligors each account for more than 1.50%, and collectively about 38%, of the HPEFS 2020-1 collateral pool. Therefore, we apply our large-obligor default assumption to calculate our rating-category default assumption. The top obligors primarily represent service providers related to embedded leases. The concentration of the HPEFS 2020-1 collateral pool in the small-business segment is low, which is a strength because this is the highest loss segment.

Original term and seasoning

The weighted average original term of approximately 46 months for the HPEFS 2020-1 collateral pool is generally the same as that for DEFT 2018-2. The shorter term is in line with the useful lives of the HPI and HPEFS technology assets, compared with the general-purpose equipment found in other diversified small-ticket leasing pools.

The HPEFS 2020-1 pool also has considerable seasoning (14 months). Although we consider this to be a strength because the exposure period for losses is shorter, we did not give explicit credit to seasoning in our expected loss for the collateral pool. We generally do not give explicit credit to seasoning unless we have detailed historical static pool data at varying pool factor levels that allow us to estimate the percentage of total losses that have occurred through a certain point in a pool's amortization. Also, for pools with generally elevated obligor concentrations, loss timing is more difficult to estimate because it is based more on obligor event risk rather than a flow level of losses (as with a highly diversified pool with low obligor concentrations).

S&P Global Ratings' Rating Category Default Assumption

Our cumulative net loss assumption for each rating category represents the greater of our blended default assumption and the supplemental largest-obligor test, reduced by our recovery assumption. For the HPEFS 2020-1 collateral pool, the blended default assumption is higher for classes A, B, and C. The supplemental largest-obligor default test is higher for class D due to the higher single top concentrated obligor compared to 2019-1.

Blended default assumption

We arrived at our blended default assumption for each rating category by combining our default assumption (flow-type losses) with our large obligor default assumption for individual obligors that have concentrations of more than 1.50% of the pool.

For the HPEFS 2020-1 collateral pool, we derive our flow-loss expectation using annual static pool loss performance and managed portfolio loss performance. Under this approach, we assume the default of several top obligors and recoveries (stressed for each rating category), based on a liquidation scenario for the related equipment. In addition, to avoid double counting, we add a prorated share (for the remainder of the pool that is subject to flow losses) of the stressed flow net losses to the assumed net obligor defaults to arrive at the total stressed loss level for each rating category.

When simulating top obligor defaults, we did not include obligors with credit profiles that were at

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least as high as the preliminary rating category on the notes. For example, when calculating the top obligor defaults for the 'BBB' rating category, we included only the top obligors with profiles lower than 'BBB'.

Flow-loss range

To derive the gross flow-loss range, we reviewed static pool gross and net loss data from HPEFS' managed portfolio. The company provided historical credit performance data, which included the 2008-2009 recession. We used loss curves for each vintage to project gross losses for pools that had not fully amortized. The company also provided managed portfolio net loss data on an aggregate basis and segmented for its small business segment.

Stressed Recovery Rates

HPEFS provided aggregate historical recovery data from 2007 to 2018. For the nonservice provider obligors, we based the recovery rates on the historical recovery data. Recovery data following service provider defaults is not available on the same basis because this has not occurred frequently. However, upon a service provider default, the recovery rates would be higher than those on equipment not subject to an embedded lease, based on:

- The additional source of recovery proceeds in the form of payments by the end user under the service contract,
- The mission-critical nature of the services provided under the service contracts, and
- The relatively strong credit quality of the service providers.

Our stressed recovery rates use the historical recovery as a starting point, but we apply stresses to account for:

- Potential servicer stress resulting in lower recovery rates, and
- Declines in overall secondary market values for equipment.

Our stressed recovery rate is a weighted average of the stress recovery rate for the service providers and nonservice providers, which results in a stressed recovery rate of 20%-24% for all rating categories for the entire pool (see the Total Stressed Loss Levels section below for additional recovery information).

Expected flow-loss range for the HPEFS 2020-1 collateral pool

Taking into account our expected gross loss (weighted for small business and the remaining portion in the total pool), our resulting expected flow loss for the HPEFS 2020-1 collateral pool is 1.65%-1.85%. Our loss for the small-business concentration in the pool is based on DEFT 2018-2's small-business managed pool vintage gross loss data. DEFT 2018-2 is an appropriate peer because it has similar collateral characteristics and obligor creditworthiness to HPEFS 2020-1. The remaining portion of pool expected gross loss was based on the historical performance data provided by HPEFS.

Total stressed loss levels

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Table 4 shows the resulting stressed loss level ranges for each rating category, taking into account top obligor concentrations, the stressed recovery rate, and the stressed flow-loss level. The main driver of the stressed loss levels is the obligor concentrations that are additive to our stressed flow-loss levels, except for the 'BBB' stress losses, which are driven by the supplemental largest-obligor default test. This additive factor is calculated by defaulting the top five, four, three, and two obligors for the 'AAA', 'AA', 'A', and 'BBB' stressed loss levels, respectively. The additive factor does not include obligor concentrations if the credit risk on the obligor is, in our view, at least equal to the preliminary rating category.

Table 4

Stressed Loss Level Ranges

Preliminary rating category	Stressed loss level range (%)
AAA	23-24
AA	20-21
A	14-15
BBB	8-9

For the 'BBB' rating category, the tranche must be able to cover defaults arising from the supplemental largest-obligor default test. The supplemental test addresses event risks associated with large-obligor defaults. The number of defaulted obligors assumed for this test is based on our equipment criteria.

Our total stressed loss levels also consider that the total booked residuals represent a relatively small percentage (approximately 12%) of the total pool. Considering our stressed recovery rates and the coverage of top obligor concentrations, our stressed loss level for each rating category is sufficient, in our view, to cover credit and residual losses at each rating category. As the percentage of the pool representing booked residuals grows, we generally consider increasing our overall stressed loss level to take into account residual risk.

Limited services and lease payment bundling

Unlike pools backing many other small-ticket equipment ABS transactions, the HPEFS 2020-1 collateral pool does not include contracts that combine ongoing payments for services within lease contracts (i.e., the bundling of services). Bundling arrangements can introduce the possibility of performance risk and, ultimately, increased credit risk by lessees that attempt to withhold or offset their lease payments if their services are interrupted (an unwillingness, rather than an inability, to pay).

The HPEFS 2020-1 collateral pool includes contracts that finance only completed services, but most of the pool represents the financing of equipment.

Realization rate of booked residuals

About 12% of the aggregate discounted contract value represents booked residual values of equipment. Our analysis of the residual values included in the collateral pool considers HPEFS' historical realization rate of booked residuals, which have generally averaged about 130% since 2007. The historical data we reviewed showed realization rates well above the booked residual values. These rates resulted from both HPEFS' conservative residual policy in setting booked residual values, as well as the company's ability to realize on residual values when the lease

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expires due to their status as a captive finance company to the manufacturer.

Stresses to estimated residual realizations

Residuals are distinct from scheduled lease payments because they are not contractual amounts due. Realization rates reflect management skill at both setting realistic levels and then achieving them. Realizing residuals would likely be challenging in a servicer transition, which is a key reason we stress realized values.

Our stresses take the form of various discounts applied to assumed residual realization and include:

- Obligor default, in which case the lease would not expire. Therefore, realization proceeds from the equipment would primarily take the form of recoveries rather than residual realizations.
- Timing risk stemming from mismatches between the occurrence of losses and the flow of residual realizations that could be used to cover those losses.
- Manufacturer concentration risk, because the vast majority of the residual pool represents HPEFS equipment. Therefore, any issues related to the manufacturer could have an outsized impact on residuals' realization rates. We also consider the fact that, generally, the servicer and the manufacturer of the equipment in this pool are the same entity, and adjust our stresses accordingly.

After taking into account obligor default risk on the residual pool, our credit to booked residual values in the pool is 55%-65%, reflecting the various haircuts to the estimated residual values with higher stresses applied at higher rating categories.

Cash Flow Modeling Assumptions And Results

Various loss-timing curves

We reviewed cash flow scenarios that were subject to stress cases that we believe are commensurate with the assigned preliminary ratings. These scenarios included a range of loss-timing curves, a stressed recovery rate, a lag between initial default and ultimate loss, and a stressed level of credit to booked residual values.

We ran front- and back-loaded three-year loss curves to simulate stress scenarios distinct from the expected timing. The faster loss curve takes into account the short weighted average remaining term of approximately 32 months. We also ran a third four-year loss curve, which is closer to the loss timing that we anticipate throughout the life of the transaction.

Although we considered various loss curves in our analysis, the timing of losses had relatively little effect on the break-even levels because most of the hard credit enhancement is nonamortizing and the overcollateralization is trapped as a result of the target and floor levels for the overcollateralization (see table 5).

Table 5

Cash Flow Assumptions And Results

	Class A	Class B	Class C	Class D
Scenario (preliminary rating)	AAA (sf)	AA (sf)	A (sf)	BBB (sf)

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Table 5

Cash Flow Assumptions And Results (cont.)

	Class A	Class B	Class C	Class D
Voluntary prepayments (%)	5/10	5/10	5/10	5/10
Recoveries (%)	17	18	19	21
Recovery lag (mos.)	6	6	6	6
Residual credit (%)	55	60	60	65
Cumulative net loss timing curve 1 (%)	40-40-20	40-40-20	40-40-20	40-40-20
Approximate break-even levels curve 1 (%)	25.7/25.6	20.3/20.1	14.6/14.4	9.7/9.5
Cumulative net loss timing curve 2 (%)	30-35-35	30-35-35	30-35-35	30-35-35
Approximate break-even levels curve 2 (%)	25.8/25.6	20.3/20.2	14.7/14.5	9.8/9.5
Cumulative net loss timing curve 3 (%)	15-25-30-30	15-25-30-30	15-25-30-30	15-25-30-30
Approximate break-even levels curve 3 (%)	26.1/25.9	20.7/20.5	15.0/14.9	9.3/8.0

Prepayments

We also consider stress cash flow runs with a 5% and 10% constant prepayment rate (CPR) assumption due to a relatively low amount of historical data. In our view, this higher CPR assumption has a minimal impact on the break-even cash flow levels, and the coverage levels remain commensurate with the preliminary rating categories.

Cash flow output

Based on our cash flow analysis, we expect the notes to pay timely interest and ultimate principal, and withstand a net loss that is consistent with the assigned preliminary ratings.

Sensitivity Analysis

In addition to analyzing break-even cash flows, we conducted a sensitivity analysis that included running a moderate-stress scenario to determine the loss coverage level and potential rating migration that could occur for the notes (see chart 2). In pools with individual obligor concentrations exceeding 1.50%, our moderate-stress scenario reflects a combination of elevated flow losses, as well as several top obligor defaults.

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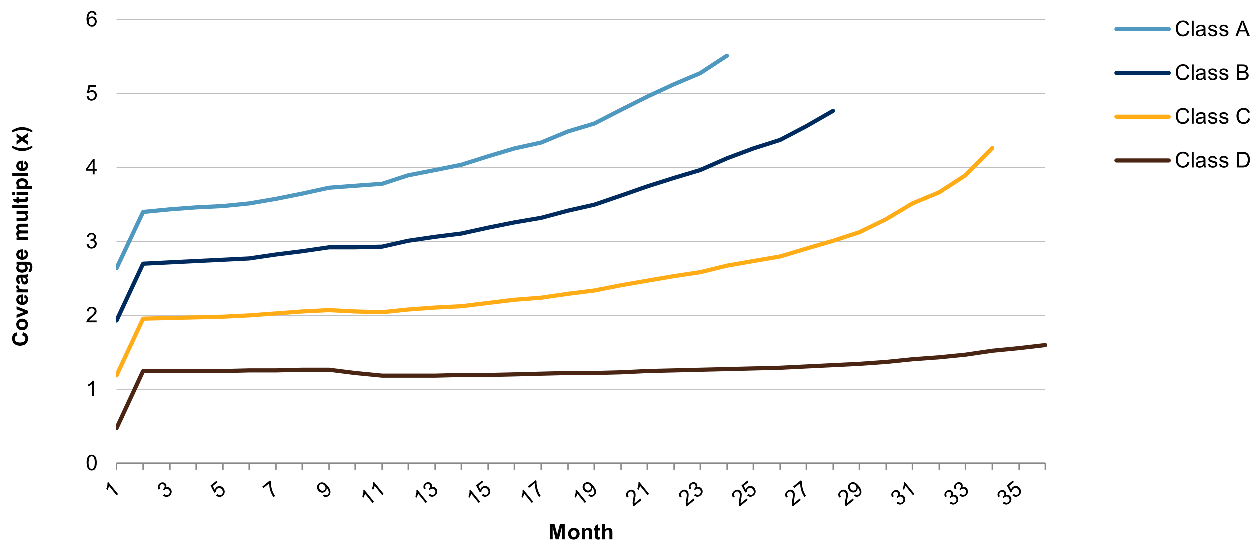
Chart 2



We assume cumulative net losses of 8.05% in our moderate-stress scenario. This accounts for both obligor defaults and flow losses (at an approximate 2x stress over the midpoint of our expected flow-loss range), as well as a moderate stressed recovery rate. Under this scenario, the credit enhancement for the preliminary 'AAA (sf)', 'AA (sf)', 'A (sf)', and 'BBB (sf)' rated classes reach 3.89x, 3.01x, 2.07x, and 1.18x, respectively, at month 12 (with a 10% CPR assumption).

These are above the threshold multiples that we would likely use to determine consistency with our credit stability criteria. The multiples increase throughout the transaction's life because of the sequential-pay structure and the overcollateralization target and floor levels. In this moderate-stress scenario, the notes would not be vulnerable to downgrades more than those that are consistent with our credit stability criteria, in our opinion.

Cross-Collateralization

An indeterminate portion of the equipment in the HPEFS 2020-1 pool is subject to certain cross-collateralization and cross-default provisions in other contracts with the same obligor that the HPEFS 2020-1 pool doesn't include. HPEFS has agreed to subordinate any claims that it may have by virtue of the cross-collateralization provisions in the equipment contracts backing the HPEFS 2020-1 notes. Furthermore, HPEFS has agreed that it will not sell any of its contracts that have cross-collateralization provisions unless the purchaser similarly agrees to subordinate any claim it has in the equipment financed by the HPEFS 2020-1 securitization.

Related Criteria

- Criteria | Structured Finance | ABS: Global Equipment ABS Methodology And Assumptions, May 31, 2019

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- Criteria | Structured Finance | Legal: U.S. Structured Finance Asset Isolation And Special-Purpose Entity Criteria, May 15, 2019
- Criteria | Structured Finance | General: Incorporating Sovereign Risk In Rating Structured Finance Securities: Methodology And Assumptions, Jan. 30, 2019
- General Criteria: Methodology For Linking Long-Term And Short-Term Ratings, April 7, 2017
- Criteria | Structured Finance | General: Methodology: Criteria For Global Structured Finance Transactions Subject To A Change In Payment Priorities Or Sale Of Collateral Upon A Nonmonetary EOD, March 2, 2015
- Criteria - Structured Finance - General: Global Framework For Cash Flow Analysis Of Structured Finance Securities, Oct. 9, 2014
- Criteria - Structured Finance - General: Criteria Methodology Applied To Fees, Expenses, And Indemnifications, July 12, 2012
- General Criteria: Global Investment Criteria For Temporary Investments In Transaction Accounts, May 31, 2012
- Criteria | Structured Finance | General: Methodology For Servicer Risk Assessment, May 28, 2009

Related Research

- Hewlett Packard Enterprise Co., Sept 30, 2019
- Global Structured Finance Scenario And Sensitivity Analysis 2016: The Effects Of The Top Five Macroeconomic Factors, Dec. 16, 2016

In addition to the criteria specific to this type of security (listed above), the following criteria articles, which are generally applicable to all ratings, may have affected this rating action: "Counterparty Risk Framework: Methodology And Assumptions," March 8, 2019; "Post-Default Ratings Methodology: When Does Standard & Poor's Raise A Rating From 'D' Or 'SD'?," March 23, 2015; "Global Framework For Assessing Operational Risk In Structured Finance Transactions," Oct. 9, 2014; "Methodology: Timeliness of Payments: Grace Periods, Guarantees, And Use of 'D' And 'SD' Ratings," Oct. 24, 2013; "Criteria For Assigning 'CCC+', 'CCC', 'CCC-', And 'CC' Ratings," Oct. 1, 2012; "Methodology: Credit Stability Criteria," May 3, 2010; and "Use of CreditWatch And Outlooks," Sept. 14, 2009.

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