FINAL

Asset Services Sigma- Agent Performance Report

October 2019 Data

Executive Summary

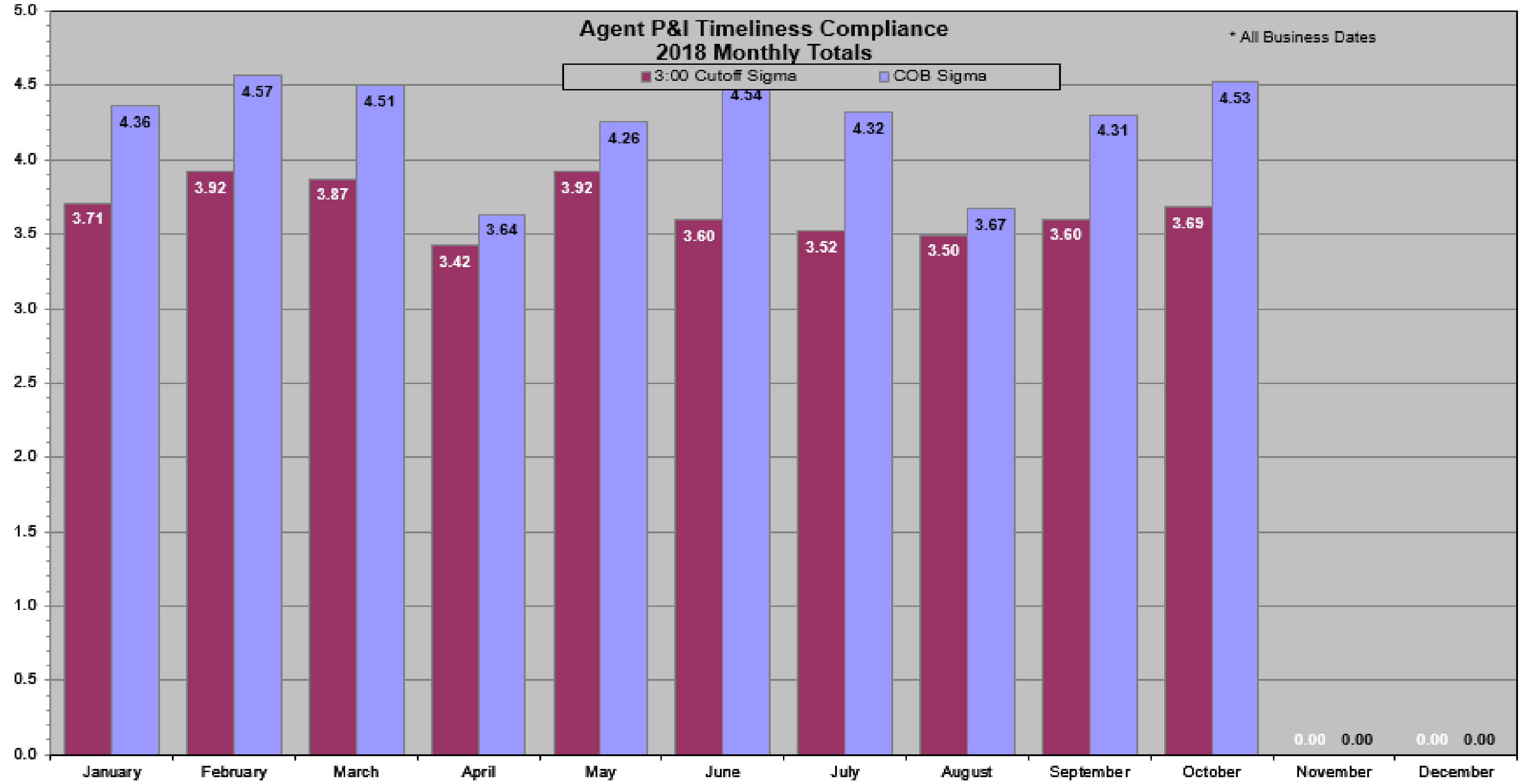
This report highlights the October 2019 performance of the top agents vs. industry targets. This report focuses on the following metrics:

Principal and Interest payment timeliness compliance - percentage of funds received from agents at cut-off (3:00pm ET) and at close of business (6:00pm ET), relative to the total dollars paid for the month. The Agent sigma performance for October 2019 was 3.69σ (98.56%). This month's performance is above the target of 3.67σ (98.50)%.

Principal and Interest allocations on payable date - percentage of allocated dollars and CUSIPS, relative to the total expected dollars and CUSIPs allocated. The Agent sigma performance for October 2019 was 3.97σ (99.32%). This month's performance is above the target of 3.83σ (99.00%).

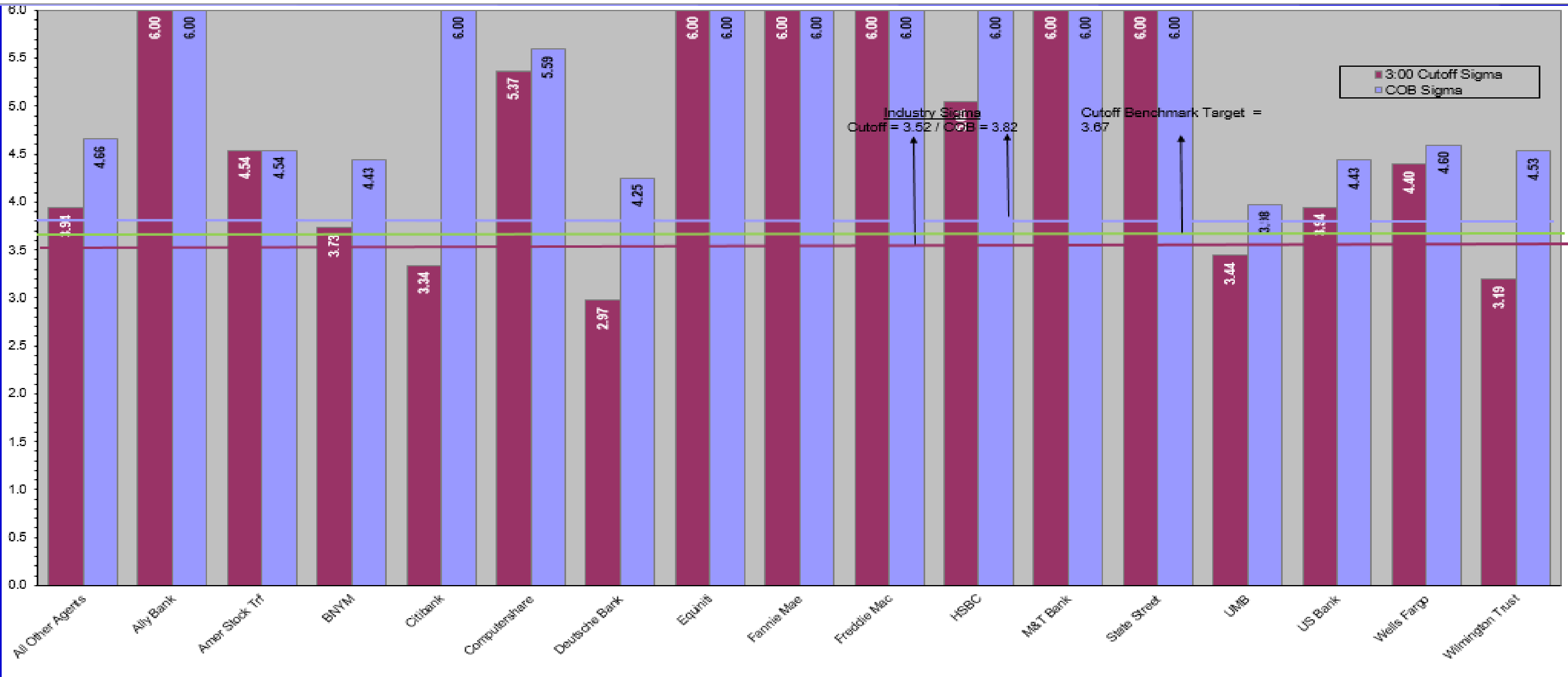
Please visit DTCC's web-site http://dtcc.com/asset-services/asset-services-performance-metrics.aspx for more detailed metric definitions and agent trend charts.

P&I Allocations Monthly Trend



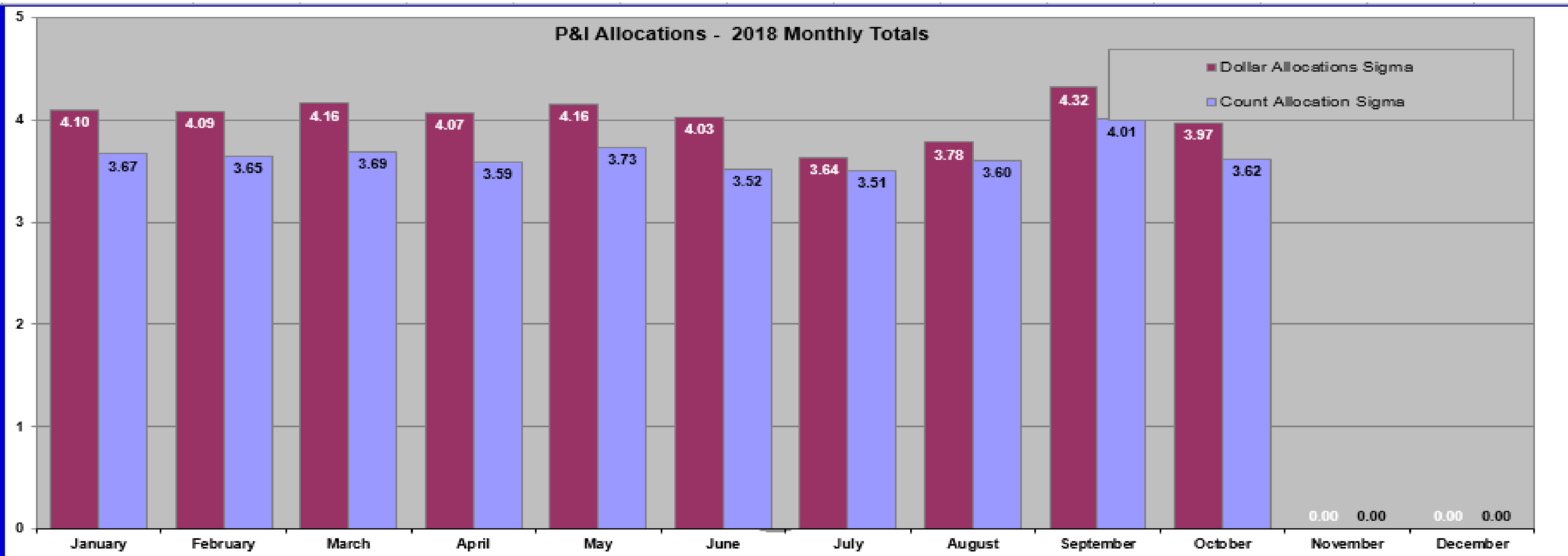
	January	February	March	April	May	June	July	August	September	October	November	December	YTD
Percent by 3:00 Cut-off	98.65%	99.23%	99.12%	97.27%	99.22%	98.19%	97.84%	97.71%	98.23%	98.56%			98.39%
Cutoff Sigma	3.71	3.92	3.87	3.42	3.92	3.60	3.52	3.50	3.60	3.69			3.64
Percent by COB	99.79%	99.89%	99.87%	98.37%	99.71%	99.88%	99.76%	98.52%	99.75%	99.88%			99.56%
COB Sigma	4.36	4.57	4.51	3.64	4.26	4.54	4.32	3.67	4.31	4.53			4.12

P&I Timeliness Compliance – Agent Performance



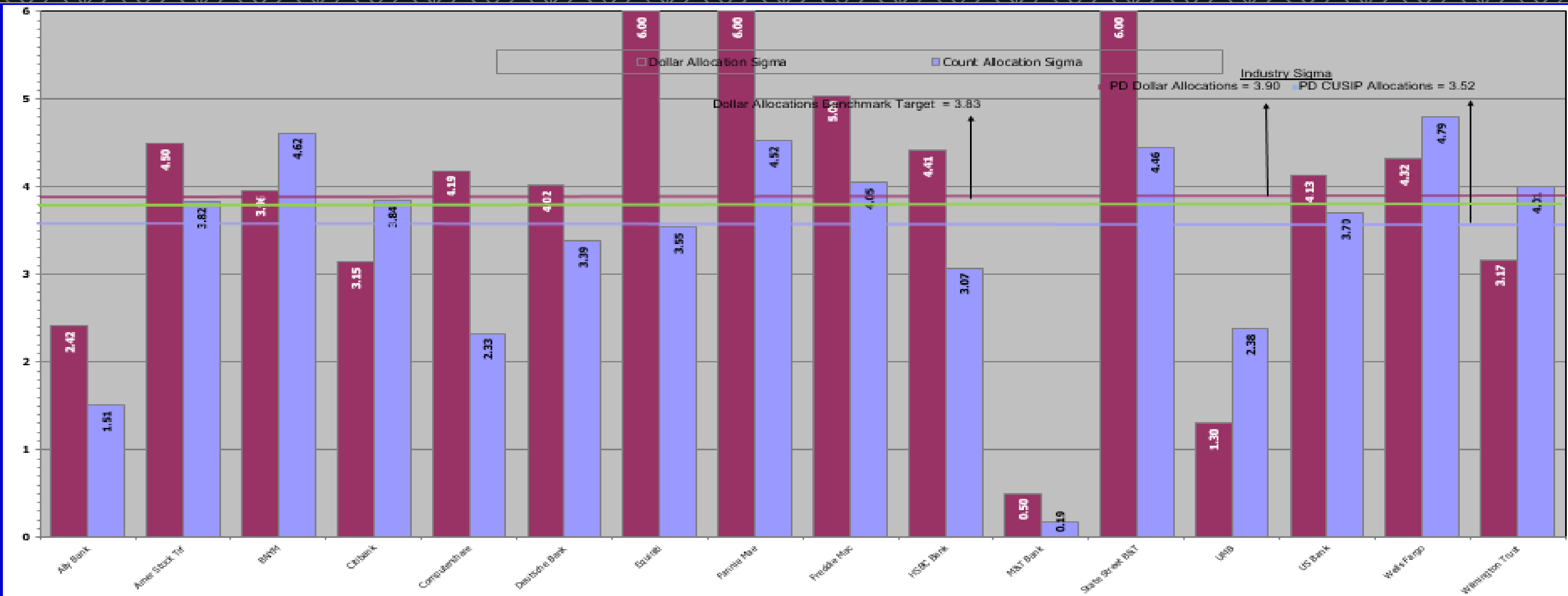
	All Other Agents	Ally Bank	Amer Stock Trf	BNYM	Citibank	Computer share	Deutsche Bank	Equiniti	Fannie Mae	Freddie Mac	HSBC	M&T Bank	State Street	US Bank	Wells Fargo	Wilmington Trust
% of Total Allocations	16.36%	0.19%	1.61%	27.38%	4.39%	7.59%	7.44%	3.01%	0.11%	1.22%	0.37%	1.13%	0.03%	14.93%	10.45%	3.51%
Percent by 3:00 Cut-off	99.26%	100.00%	99.88%	98.71%	96.72%	99.99%	92.98%	100.00%	100.00%	100.00%	99.98%	100.00%	100.00%	99.27%	99.81%	95.49%
Cutoff Sigma	3.94	6.00	4.54	3.73	3.34	5.37	2.97	6.00	6.00	6.00	5.04	6.00	6.00	3.94	4.40	3.19
Variance from Industry Cutoff	0.25	2.31	0.85	0.04	-0.35	1.68	-0.71	2.31	2.31	2.31	1.35	2.31	2.31	0.26	0.71	-0.49
Percent by COB	99.92%	100.00%	99.88%	99.83%	100.00%	100.00%	99.70%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	99.83%	99.90%	99.88%
COB Sigma	4.66	6.00	4.54	4.43	6.00	5.59	4.25	6.00	6.00	6.00	6.00	6.00	6.00	4.43	4.60	4.53

P&I Allocations Monthly Trend



	January	February	March	April	May	June	July	August	September	October	November	December	YTD
Total Expected Allocations (Billions)	$273.662	$258.606	$333.572	$281.044	$304.396	$351.944	$324.640	$307.729	$400.526	$350.842			$3186.962
Allocation $ Percent	99.54%	99.52%	99.61%	99.49%	99.60%	99.42%	98.37%	98.88%	99.76%	99.32%			99.36%
Allocation $ Sigma	4.10	4.09	4.16	4.07	4.16	4.03	3.64	3.78	4.32	3.97			3.99
Unallocated Impact (Billions $)	$1.272	$1.253	$1.296	$1.423	$1.204	$2.032	$5.288	$3.437	$0.964	$2.373			$20.541
Total CUSIP Expected	273,962	367,084	300,356	268,925	270,102	353,786	287,170	369,275	691,765	269,943			3,452,368
CUSIP Allocations %	98.49%	98.41%	98.58%	98.18%	98.72%	97.85%	97.78%	98.22%	99.39%	98.31%			98.50%
CUSIP Allocations Sigma	3.67	3.65	3.69	3.59	3.73	3.52	3.51	3.60	4.01	3.62			3.67
Unallocated Impact (Count)	4,131	5,853	4,255	4,885	3,450	7,594	6,381	6,564	4,222	4,574			51,909

P&I Allocations – Agent Performance



AGENT	All Other Agents	Ally Bank	Amer Stock Trf	BNYM	Citibank	Computer share	Deutsche Bank	Equiniti	Fannie Mae	Freddie Mac	HSBC Bank	M&T Bank	State Street B&T	US Bank	Wells Fargo	Wilmington Trust
Total Expected / % of Industry	$64.333	$0.833	$5.790	$96.779	$15.387	$26.974	$25.601	$10.720	$0.407	$4.319	$0.476	$0.047	$3.993	$46.698	$36.370	$12.376
	18.26%	0.24%	1.64%	27.48%	4.37%	7.66%	7.27%	3.04%	0.12%	1.23%	0.14%	0.01%	1.13%	13.26%	10.33%	3.51%
Allocation $ Percent	99.42%	82.11%	99.87%	99.31%	95.07%	99.64%	99.42%	100.00%	100.00%	99.98%	99.82%	15.97%	100.00%	99.57%	99.76%	95.27%
Allocation $ Sigma	4.03	2.42	4.50	3.96	3.15	4.19	4.02	6.00	6.00	5.04	4.41	0.50	6.00	4.13	4.32	3.17
Variance from Industry $ Sigma	0.23	-1.38	0.70	0.16	-0.65	0.39	0.22	2.20	2.20	1.24	0.61	-3.30	2.20	0.33	0.52	-0.63
CUSIP Allocations %	96.86%	50.49%	98.99%	99.91%	99.04%	79.57%	97.05%	97.96%	99.88%	99.47%	94.22%	9.43%	99.84%	98.62%	99.95%	99.39%
CUSIP Allocations Sigma	3.36	1.51	3.82	4.62	3.84	2.33	3.39	3.55	4.52	4.05	3.07	0.19	4.46	3.70	4.79	4.01
Variance from Industry CUSIP Sigma	-0.22	-2.07	0.24	1.03	0.26	-1.26	-0.19	-0.04	0.94	0.47	-0.51	-3.40	0.87	0.12	1.21	0.42