Need a powerful analytical system to determine MBS valuation and risk?

OAS Subroutine is the solution you're looking for. It is our advanced valuation system for structured securities, including agency and non-agency MBS and CRT bonds.

OAS Subroutine integrates our flagship LoanDynamics model and our innovative MacroDynamics models with both novel and conventional financial algorithms to assess value, quantify credit exposure, and, through risk neutralization, better understand the risk premiums built into MBS prices due to prepayment uncertainty.

OAS Subroutine users can analyze securities using their own macro-economic scenarios, Monte Carlo simulation and ADCo's proprietary alternative to Monte Carlo analysis.

> OAS Subroutine is our powerful valuation tool for structured MBS securities, combining innovative models with advanced financially engineered algorithms.

Flagship LoanDynamics model

- Generates cash-flow projections to forecast portfolio outcomes based on changing economic and market conditions
- Provides crucial insights into asset-liability management, particularly the impact on income that is highly sensitive to interest rate changes
- Informs and helps develop hedging strategies

Innovative MacroDynamics models

InterestRateDynamics offers four models - three single-factor models or one two-factor model

- All four models are arbitrage-free, with each model instantly calibrated to a Treasury curve or SOFR swap curve, and a matrix of at-the-money swaptions
- Each model can use a constant or a time-dependent volatility
- Since the demise of LIBOR market, the product is made LIBOR-neutral and compliant with the SOFR market standards

HomePriceDynamics utilizes various models to forecast home prices.

- It employs one model using a "geographical localizer" to look at housing price index (HPI) forecasts simulated to MSA levels
- A second, stochastic home price appreciation (HPA) model is used to determine how default options and capital structures should be valued
- It produces Monte Carlo analyses of projected housing prices forecasted to MSA levels, simulating home prices consistent with OFHEO historical data

UnemploymentDynamics focuses on unemployment statistics and trends and extends simulation capability to unemployment beyond rates and HPA

Together with LDM3.0 and Auto LDM, credit sensitivity to unemployment becomes clearer with UEDynamics.

+ **Robust Functions**

Computational Algorithms

= **Benefits**

Robust Results

- Embeds popular third-party cashflow waterfalls for structured instruments
- Covers a wide range of assets including all Single Family and Multifamily loans, pools or structured securities (MBS, CMOs and CRTs)
- Multi-threading allows expedited processing
- Server cluster and cloud-computing versions available
- Offers clean product integration bypassing multiple component integration steps

- Users can "tune" the underlying behavioral model to address portfolio nuances
- Comprehensive documentation provides transparency into the model's approach
- User guides and publications discuss updates and technology developments
- Superior client service is available to support product use and functionality

| 2020 TRANCHES | | | | | | | | MODEL-GENERATED RESULTS | | | | | | | | |
Ticker	Orig Tranche Bal	Curr Tranche Bal	Bond Factor	Current Ratings	Cpn (L+)	DM	Price	OAS	OAS Dur	CPC	ES	AL	BPR	ET	CC WAL	FC WAL
STACR 2020-DNA1 M1	$212,000,000.00	$36,264,008.95	0.1711	NA/BBB+/NA	70	43	100.06	64	0.40	10	0.0	0.0	NA	NA	0.40	0.40
STACR 2020-HQA1 M1	$218,000,000.00	$60,766,449.84	0.2787	NA/BBB/BBB-	75	94	99.97	92	0.29	10	0.0	0.0	NA	NA	0.29	0.29
STACR 2020-DNA2 M1	$390,000,000.00	$178,077,567.06	0.4566	NA/BBB+/NA	75	54	100.10	75	0.77	9	0.2	0.0	43.4	5.5	0.77	0.77
STACR 2020-HQA2 M1	$252,000,000.00	$179,408,997.16	0.7119	Baa1/NA/BBB	110	97	100.06	112	0.76	7	2.9	0.1	50.4	5.3	0.71	0.71
STACR 2020-DNA3 M1	$336,000,000.00	$116,627,654.89	0.3471	NA/A-/BBB-	150	82	100.08	110	0.17	10	0.0	0.0	NA	NA	0.17	0.17
STACR 2020-HQA3 M1	$160,000,000.00	$118,270,554.94	0.7392	A3/NA/NA	155	140	100.09	131	0.28	10	0.0	0.0	NA	NA	0.27	0.27
STACR 2020-DNA4 M1	$295,000,000.00	$232,222,255.02	0.7872	NA/A-/NA	150	129	100.19	97	0.32	10	0.2	0.0	105.9	9.5	0.31	0.31
STACR 2020-HQA4 M1	$177,000,000.00	$148,030,203.17	0.8363	Baa2/BBB-/NA	130	114	100.15	104	0.43	8	2.3	0.1	97.4	8.0	0.42	0.42
STACR 2020-DNA5 M1	$308,000,000.00	$308,000,000.00	1.0000	NA/A-/NA	130	114	100.19	74	0.51	7	3.3	0.2	95.4	4.6	0.49	0.49
STACR 2020-HQA5 M1	$300,000,000.00	$300,000,000.00	1.0000	Baa1/BBB/NA	110	94	100.23	63	0.88	6	12.7	0.6	83.5	3.0	0.83	0.84
STACR 2020-DNA6 M1	$279,000,000.00	$279,000,000.00	1.0000	NA/BBB+/NA	90	89	100.02	69	0.94	6	12.0	0.6	80.0	1.7	0.88	0.89

| Risk | | | | | | | Key Rate Durations | | | | | Tuning Durations | | | | | |
Emp Dur	Eff Dur	Mod Dur	OAS Dur	Eff Conv	Opt Cost	Vega	1M-1Y	2Y-3Y	4Y-5Y	7Y-10Y	15Y-30Y	Scale	Turnover	Refi	Slide	Burnout	Curve
4.61	6.34	4.45	5.44	-2.96	40	-2.8	0.08	0.62	0.75	1.94	2.95	0.14	0.15	0.00	-0.09	-0.03	-0.41
3.81	4.55	3.84	4.65	-2.85	35	-2.3	0.19	0.66	0.60	1.09	2.01	-0.04	0.04	-0.09	0.04	-0.05	-0.49
2.03	3.33	3.45	3.91	-1.09	20	-1.3	0.27	0.59	0.46	0.58	1.43	-0.23	-0.03	-0.20	0.10	-0.09	-0.74
0.74	3.51	3.44	3.71	-0.34	14	-0.9	0.26	0.54	0.47	0.83	1.41	-0.24	-0.04	-0.20	0.04	-0.11	-0.96
0.19	3.91	3.75	3.86	0.07	9	-0.7	0.22	0.54	0.54	1.13	1.48	-0.29	-0.07	-0.23	0.01	-0.14	-1.41
0.07	4.30	4.10	4.14	0.14	7	-0.7	0.19	0.56	0.62	1.40	1.54	-0.33	-0.09	-0.24	-0.01	-0.17	-1.69
0.16	4.10	4.01	3.95	0.25	4	-0.4	0.20	0.56	0.61	1.34	1.39	-0.42	-0.12	-0.30	-0.01	-0.20	-2.39

A host of credit, rate and model sensitivities are available, including duration, convexity, KRDs. CPC and its components provide an analytical alternative to ratings.

Additional Benefits

OAS Subroutine is available through various industry leading third-party systems (Vendors) and can easily integrates into a user's proprietary platform.

OAS Subroutine is used by:

- Broker / Dealers
- Broad range of investors

ANDREW DAVIDSON & CO

Andrew Davidson & Co., Inc. (AD&Co) is a leading provider of risk intelligence solutions. Founded in 1992 by **Andrew Davidson**, we are internationally recognized for our leadership in the development of financial research and analytics for loans and MBS products, valuation and hedging strategies, housing policy and GSE reform, and credit-risk transfer transactions. With over 30 years of risk management experience and a deep base of market knowledge, our team of experts turn data into meaningful insights.

Purpose Driven Analytical Solutions