PORTFOLIO VALUATION SERVICES

Quick, comprehensive, and effective valuation of a portfolio

RPS provides Portfolio Valuation Services to lenders, insurers and servicers, whereby we determine the value of the underlying collateral of their mortgages. Our Portfolio Valuation Services offer coverage throughout all of Canada, providing a one-stop-shop with consistently high hit rates, and can accommodate any portfolio size, ranging from a few hundred properties to millions. We deliver a quick, cost effective, comprehensive, and supported assessment of a portfolio, freeing up our clients' limited resources so they can spend more time analyzing, monitoring and managing their portfolios.

- Delivery can be ad-hoc or at scheduled interval, and turnaround time is quick
- Able to accommodate any portfolio size
- Receive support from our analytics experts

The Base Approach

There are base valuation options offered within our portfolio valuation services: the index approach; Automated Valuation Model (AVM) approach; and combined approach.

- **Index Approach:** Leverages our RPS House Price Index (HPI), which delivers the most robust national view of Canadian house price trends
- **AVM Approach:** Leverages our highly advanced RPS AVM solutions, which are built using highly advanced machine learning systems and tree-based models. These sophisticated models take into account extensive and diverse data sets, learn from the data in their environment as well as incorporate new and different situations. As a result, we are able to accurately price houses in different markets across the country, deliver updated values in a constantly changing economic environment and provide higher predictive model performance. Our proprietary AVM can be combined with other industry AVMs, and an AVM cascade customized, based on client
- **Combined Approach:** The ultimate assurance leveraging the power of both the index and AVM. Although each of the index and AVM approaches can be used separately, both models can be selected to increase coverage. Index models typically provide greater coverage at a lower cost, while AVM models use a more detailed approach

Supplemental Forecasts

In addition, we can append forecast values, using our RPS – Moody's Analytics House Price Forecasts. Based on fully specified regional econometric models, the forecasts simulate the path of Canadian house prices under a range of economic conditions and scenarios (a baseline house price scenario, reflecting the most likely outcome, supplemented by 7 alternative scenarios), are updated monthly and provide a 10-year forward-time horizon.

A Dedicated Team

Our analytics experts can develop and deliver a customized Portfolio Valuation Solution just for you. Since every financial institution has its own policies and compliance requirements, a portfolio can be processed on an ad hoc basis or at scheduled intervals and it can be delivered quickly to you by our analytics experts.

Data Outputs

The report includes:

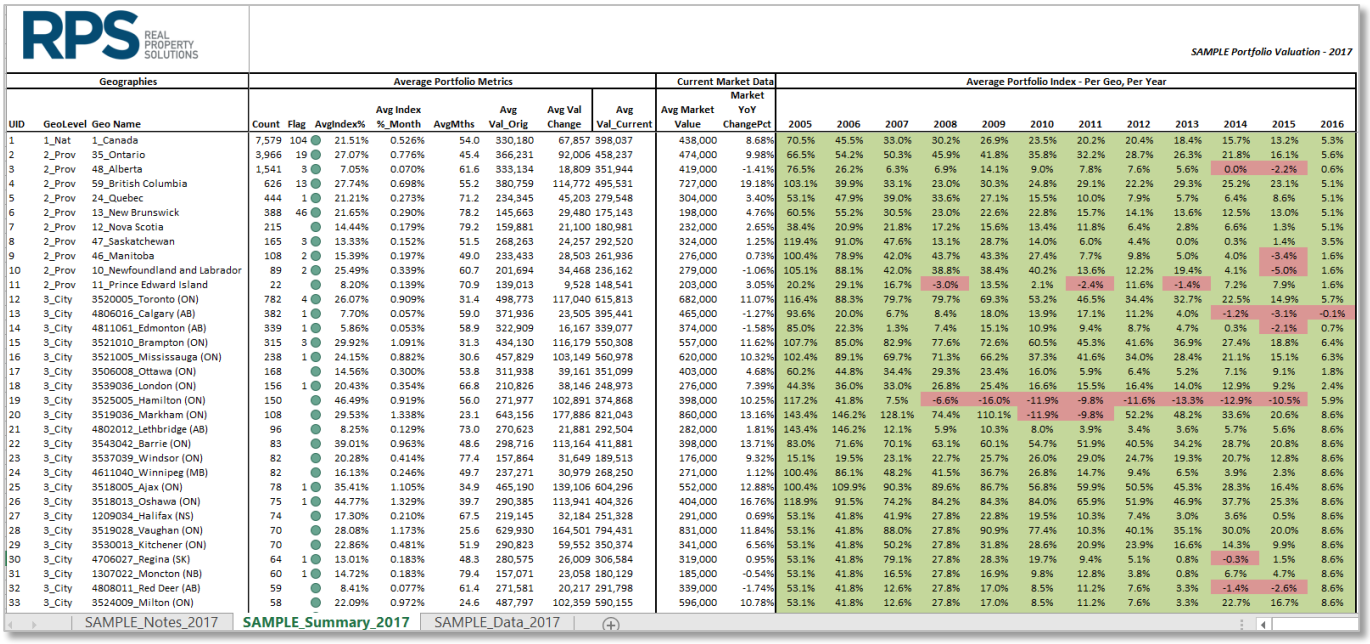
- Summary report
- Detailed property-level report
- Contextual data (geo-code information, values for related geographies)
- Flags, confidence scores, trend charts, heat maps, and more

Uses

- **Enhance visibility and reporting**
  - Update the values on mortgage pools, including loan-to-values (LTVs)
  - Provide reporting to executives, the board of directors, investors (if public) and regulators
  - Calculate capital allocations, which in turn determine management strategy, actions and distributions
- **Mitigate risk effectively**
  - Spot emerging risks and uncover weaknesses
  - Model prepayments and defaults
  - Measure risk exposure to residential real estate
  - Understand the value of the properties supporting collateral, when purchasing mortgage portfolios
- **Identify market opportunitites and increase profitability**
  - Manage customer retention and marketing
  - Target growth areas by leveraging local market insights

Report Output

We generate an output file that includes an easy-to-read, summary report along with a comprehensive report with all the appended details. Please see a detailed section of the report below:



RPS REAL PROPERTY SOLUTIONS

SAMPLE Portfolio Valuation - 2017

Geographies			Average Portfolio Metrics								Current Market Data		Average Portfolio Index - Per Geo, Per Year										
UID	GeoLevel	Geo Name	Count	Flag	AvgIndex%	Avg Index %_Month	AvgMths	Avg Val_Orig	Avg Val Change	Avg Val_Current	Avg Market Value	Market YoY ChangePct	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
1	1_Nat	1_Canada	7,579	104	21.51%	0.526%	54.0	330,180	67,857	398,037	438,000	8.68%	70.5%	45.5%	33.0%	30.2%	26.9%	23.5%	20.2%	20.4%	18.4%	15.7%	13.2%	5.3%
2	2_Prov	35_Ontario	3,966	19	27.07%	0.776%	45.4	366,231	92,006	458,237	474,000	9.98%	66.5%	54.2%	50.3%	45.9%	41.8%	35.8%	32.2%	28.7%	26.3%	21.8%	16.1%	5.6%
3	2_Prov	48_Alberta	1,541	3	7.05%	0.070%	61.6	333,134	18,809	351,944	419,000	-1.41%	76.5%	26.2%	6.3%	6.9%	14.1%	9.0%	7.8%	7.6%	5.6%	0.0%	-2.2%	0.6%
4	2_Prov	59_British Columbia	626	13	27.74%	0.698%	55.2	380,759	114,772	495,531	727,000	19.18%	103.1%	39.9%	33.1%	23.0%	30.3%	24.8%	29.1%	22.2%	29.3%	25.2%	23.1%	5.1%
5	2_Prov	24_Quebec	444	1	21.21%	0.273%	71.2	234,345	45,203	279,548	304,000	3.40%	53.1%	47.9%	39.0%	33.6%	27.1%	15.5%	10.0%	7.9%	5.7%	6.4%	8.6%	5.1%
6	2_Prov	13_New Brunswick	388	46	21.65%	0.290%	78.2	145,663	29,480	175,143	198,000	4.76%	60.5%	55.2%	30.5%	23.0%	22.6%	22.8%	15.7%	14.1%	13.6%	12.5%	13.0%	5.1%
7	2_Prov	12_Nova Scotia	215		14.44%	0.179%	79.2	159,881	21,100	180,981	232,000	2.65%	38.4%	20.9%	21.8%	17.2%	15.6%	13.4%	11.8%	6.4%	2.8%	6.6%	1.3%	5.1%
8	2_Prov	47_Saskatchewan	165	3	13.33%	0.152%	51.5	268,263	24,257	292,520	324,000	1.25%	119.4%	91.0%	47.6%	13.1%	28.7%	14.0%	6.0%	4.4%	0.0%	0.3%	1.4%	3.5%
9	2_Prov	46_Manitoba	108	2	15.39%	0.197%	49.0	233,433	28,503	261,936	276,000	0.73%	100.4%	78.9%	42.0%	43.7%	43.3%	27.4%	7.7%	9.8%	5.0%	4.0%	-3.4%	1.6%
10	2_Prov	10_Newfoundland and Labrador	89	2	25.49%	0.339%	60.7	201,694	34,468	236,162	279,000	-1.06%	105.1%	88.1%	42.0%	38.8%	38.4%	40.2%	13.6%	12.2%	19.4%	4.1%	-5.0%	1.6%
11	2_Prov	11_Prince Edward Island	22		8.20%	0.139%	70.9	139,013	9,528	148,541	203,000	3.05%	20.2%	29.1%	16.7%	-3.0%	13.5%	2.1%	-2.4%	11.6%	-1.4%	7.2%	7.9%	1.6%
12	3_City	3520005_Toronto (ON)	782	4	26.07%	0.909%	31.4	498,773	117,040	615,813	682,000	11.07%	116.4%	88.3%	79.7%	79.7%	69.3%	53.2%	46.5%	34.4%	32.7%	22.5%	14.9%	5.7%
13	3_City	4806016_Calgary (AB)	382	1	7.70%	0.057%	59.0	371,936	23,505	395,441	465,000	-1.27%	93.6%	20.0%	6.7%	8.4%	18.0%	13.9%	17.1%	11.2%	4.0%	-1.2%	-3.1%	-0.1%
14	3_City	4811061_Edmonton (AB)	339	1	5.86%	0.053%	58.9	322,909	16,167	339,077	374,000	-1.58%	85.0%	22.3%	1.3%	7.4%	15.1%	10.9%	9.4%	8.7%	4.7%	0.3%	-2.1%	0.7%
15	3_City	3521010_Brampton (ON)	315	3	29.92%	1.091%	31.3	434,130	116,179	550,308	557,000	11.62%	107.7%	85.0%	82.9%	77.6%	72.6%	60.5%	45.3%	41.6%	36.9%	27.4%	18.8%	6.4%
16	3_City	3521005_Mississauga (ON)	238	1	24.15%	0.882%	30.6	457,829	103,149	560,978	620,000	10.32%	102.4%	89.1%	69.7%	71.3%	66.2%	37.3%	41.6%	34.0%	28.4%	21.1%	15.1%	6.3%
17	3_City	3506008_Ottawa (ON)	168		14.56%	0.300%	53.8	311,938	39,161	351,099	403,000	4.68%	60.2%	44.8%	34.4%	29.3%	23.4%	16.0%	5.9%	6.4%	5.2%	7.1%	9.1%	1.8%
18	3_City	3539036_London (ON)	156	1	20.43%	0.354%	66.8	210,826	38,146	248,973	276,000	7.39%	44.3%	36.0%	33.0%	26.8%	25.4%	16.6%	15.5%	16.4%	14.0%	12.9%	9.2%	2.4%
19	3_City	3525005_Hamilton (ON)	150		46.49%	0.919%	56.0	271,977	102,891	374,868	398,000	10.25%	117.2%	41.8%	7.5%	-6.6%	-16.0%	-11.9%	-9.8%	-11.6%	-13.3%	-12.9%	-10.5%	5.9%
20	3_City	3519036_Markham (ON)	108		29.53%	1.338%	23.1	643,156	177,886	821,043	860,000	13.16%	143.4%	146.2%	128.1%	74.4%	110.1%	-11.9%	-9.8%	52.2%	48.2%	33.6%	20.6%	8.6%
21	3_City	4802012_Lethbridge (AB)	96		8.25%	0.129%	73.0	270,623	21,881	292,504	282,000	1.81%	143.4%	146.2%	12.1%	5.9%	10.3%	8.0%	3.9%	3.4%	3.6%	5.7%	5.6%	8.6%
22	3_City	3543042_Barrie (ON)	83		39.01%	0.963%	48.6	298,716	113,164	411,881	398,000	13.71%	83.0%	71.6%	70.1%	63.1%	60.1%	54.7%	51.9%	40.5%	34.2%	28.7%	20.8%	8.6%
23	3_City	3537039_Windsor (ON)	82		20.28%	0.414%	77.4	157,864	31,649	189,513	176,000	9.32%	15.1%	19.5%	23.1%	22.7%	25.7%	26.0%	29.0%	24.7%	19.3%	20.7%	12.8%	8.6%
24	3_City	4611040_Winnipeg (MB)	82		16.13%	0.246%	49.7	237,271	30,979	268,250	271,000	1.12%	100.4%	86.1%	48.2%	41.5%	36.7%	26.8%	14.7%	9.4%	6.5%	3.9%	2.3%	8.6%
25	3_City	3518005_Ajax (ON)	78	1	35.41%	1.105%	34.9	465,190	139,106	604,296	552,000	12.88%	100.4%	109.9%	90.3%	89.6%	86.7%	56.8%	59.9%	50.5%	45.3%	28.3%	16.4%	8.6%
26	3_City	3518013_Oshawa (ON)	75	1	44.77%	1.329%	39.7	290,385	113,941	404,326	404,000	16.76%	118.9%	91.5%	74.2%	84.2%	84.3%	84.0%	65.9%	51.9%	46.9%	37.7%	25.3%	8.6%
27	3_City	1209034_Halifax (NS)	74		17.30%	0.210%	67.5	219,145	32,184	251,328	291,000	0.69%	53.1%	41.8%	41.9%	27.8%	22.8%	19.5%	10.3%	7.4%	3.0%	3.6%	0.5%	8.6%
28	3_City	3519028_Vaughan (ON)	70		28.08%	1.173%	25.6	629,930	164,501	794,431	831,000	11.84%	53.1%	41.8%	88.0%	27.8%	90.9%	77.4%	10.3%	40.1%	35.1%	30.0%	20.0%	8.6%
29	3_City	3530013_Kitchener (ON)	70		22.86%	0.481%	51.9	290,823	59,552	350,374	341,000	6.56%	53.1%	41.8%	50.2%	27.8%	31.8%	28.6%	20.9%	23.9%	16.6%	14.3%	9.9%	8.6%
30	3_City	4706027_Regina (SK)	64	1	13.01%	0.183%	48.3	280,575	26,009	306,584	319,000	0.95%	53.1%	41.8%	79.1%	27.8%	28.3%	19.7%	9.4%	5.1%	0.8%	-0.3%	1.5%	8.6%
31	3_City	1307022_Moncton (NB)	60	1	14.72%	0.183%	79.4	157,071	23,058	180,129	185,000	-0.54%	53.1%	41.8%	16.5%	27.8%	16.9%	9.8%	12.8%	3.8%	0.8%	6.7%	4.7%	8.6%
32	3_City	4808011_Red Deer (AB)	59		8.41%	0.077%	61.4	271,581	20,217	291,798	339,000	-1.74%	53.1%	41.8%	12.6%	27.8%	17.0%	8.5%	11.2%	7.6%	3.3%	-1.4%	-2.6%	8.6%
33	3_City	3524009_Milton (ON)	58		22.09%	0.972%	24.6	487,797	102,359	590,155	596,000	10.78%	53.1%	41.8%	12.6%	27.8%	17.0%	8.5%	11.2%	7.6%	3.3%	22.7%	16.7%	8.6%

SAMPLE_Notes_2017 | SAMPLE_Summary_2017 | SAMPLE_Data_2017

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