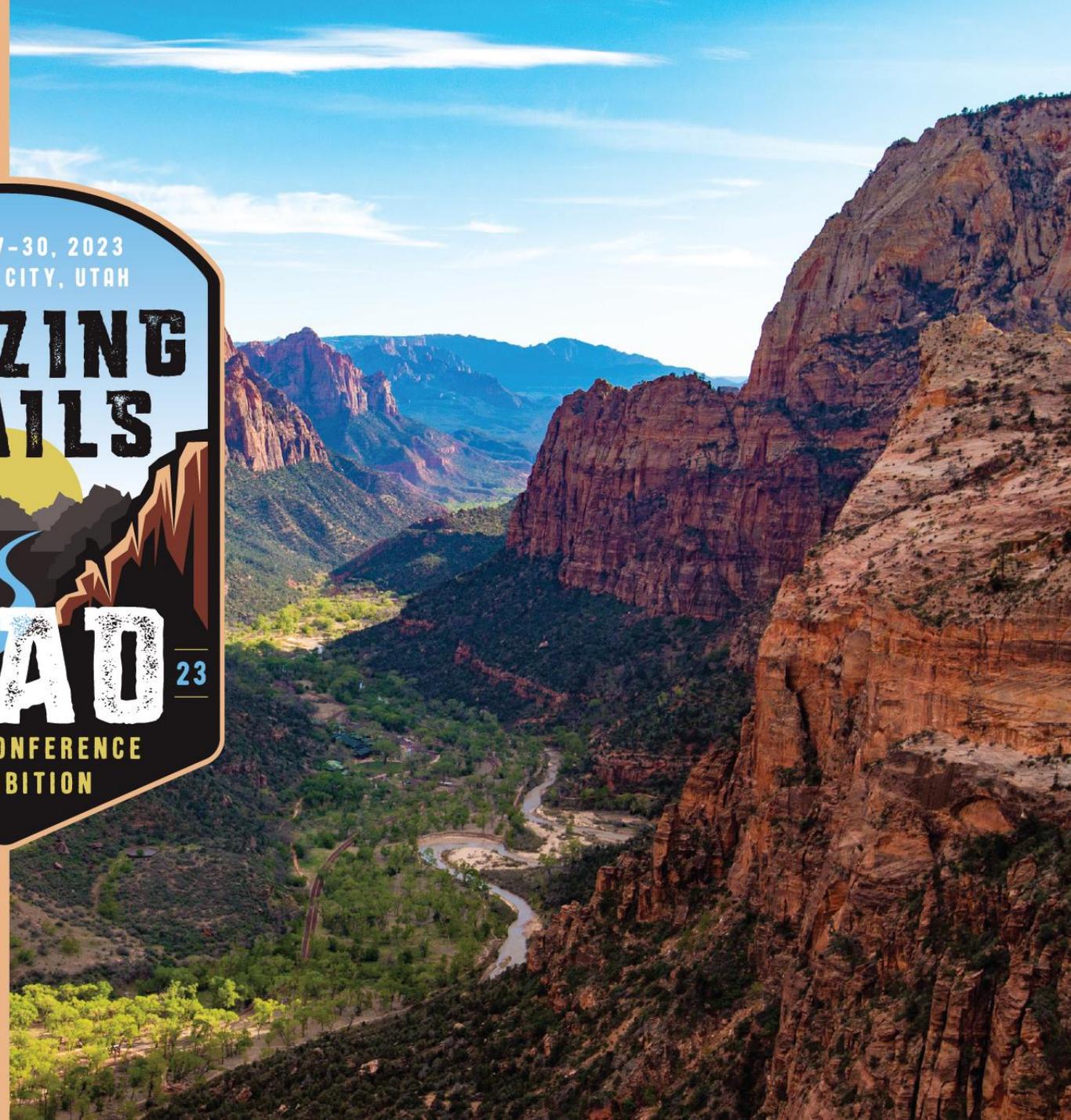
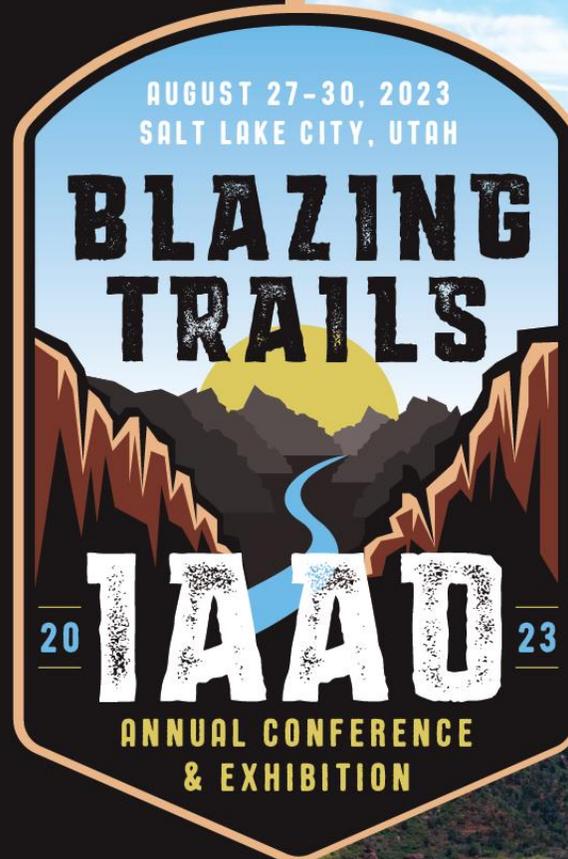


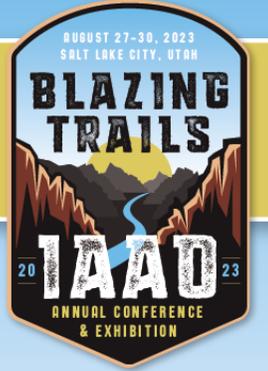
Comparing sold and unsold properties

The ultimate test for assessed
values

Luc Hermans
Marco Kuijper



Presenter introductions



Luc Hermans

- Data Scientist @Netherlands Council for Real Estate Assessment
- Senior Research Fellow @Center for Appraisal Research and Technology
- PhD-Researcher @Ulster University
- Member of the IAAO Research and Standards Committee



Marco Kuijper

- Strategist @Netherlands Council for Real Estate Assessment
- Background: geodetical engineering and internal auditing
- Member of the IAAO Research and Standards Committee

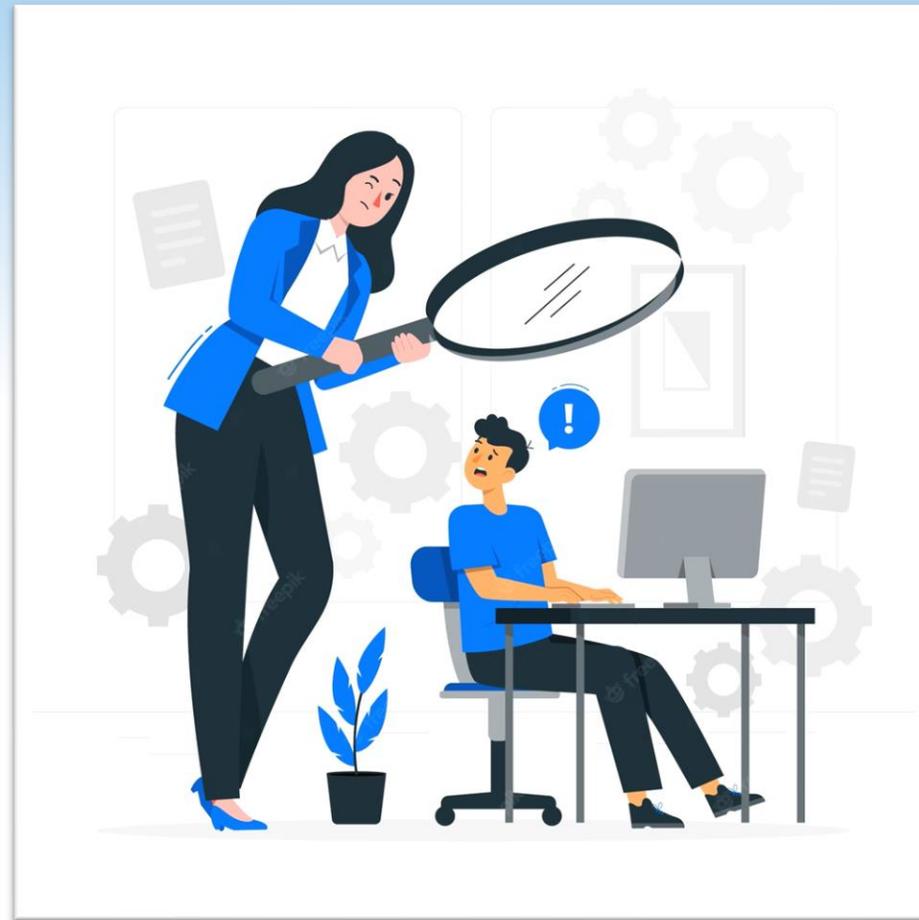
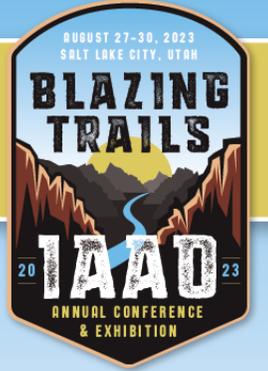


In this session we would like to:

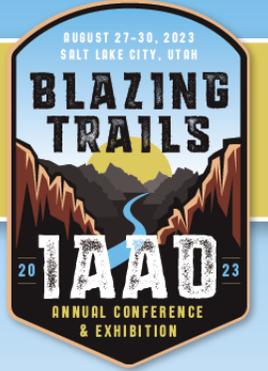
- Give some background information about our (Dutch) property tax system
- Explain why we have a higher risk of “sales price chasing”
- Provide insight into the solutions we have come up with



Our perspective: oversight agency



Program of this session



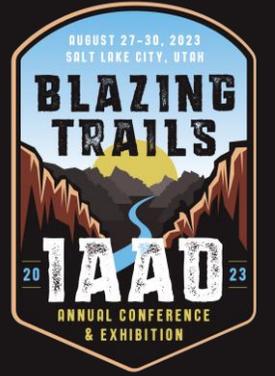
Introduction to the Dutch real estate assessment practice

Risk of sales price chasing in the Netherlands

Solution 1: Valuation audits at municipal level

Solution 2: Countrywide analysis

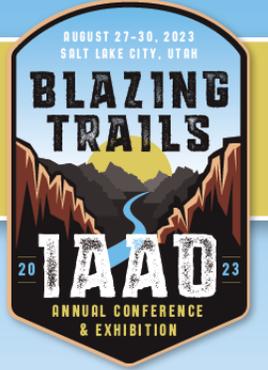
Q&A



Introduction to the Dutch real estate assessment practice



Some facts



Government type: ??

?? inhabitants

Area: 41,526 km² (16,221 sq mi)

?? real estate properties

Total value: \$3,000 billion

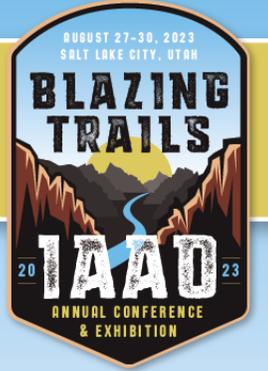
Sale price of average house: ??

More than € 11 billion tax revenues based on the assessed value

Total annual costs for appraisal and assessment: \$213 million



Some facts



Government type: **Constitutional monarchy**

?? inhabitants

Area: 41,526 km² (16,221 sq mi)

?? real estate properties

Total value: \$3,000 billion

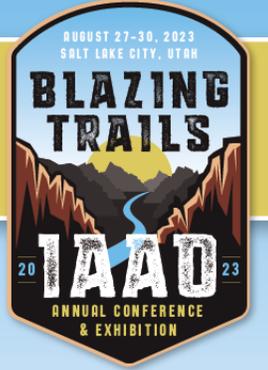
Sale price of average house: **??**

More than € 11 billion tax revenues based on the assessed value

Total annual costs for appraisal and assessment: \$213 million



Some facts



Government type: **Constitutional monarchy**

17.5 million inhabitants

Area: 41,526 km² (16,221 sq mi)

?? real estate properties

Total value: \$3,000 billion

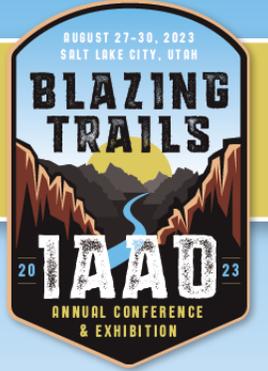
Sale price of average house: **??**

More than € 11 billion tax revenues based on the assessed value

Total annual costs for appraisal and assessment: \$213 million



Some facts



Government type: **Constitutional monarchy**

17.5 million inhabitants

Area: 41,526 km² (16,221 sq mi)

9.3 million real estate properties

Total value: \$3,000 billion

Sale price of average house: **??**

More than € 11 billion tax revenues based on the assessed value

Total annual costs for appraisal and assessment: \$213 million



Some facts

Government type: **Constitutional monarchy**

17.5 million inhabitants

Area: 41,526 km² (16,221 sq mi)

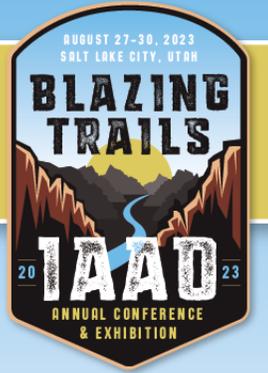
9.3 million real estate properties

Total value: \$3,000 billion

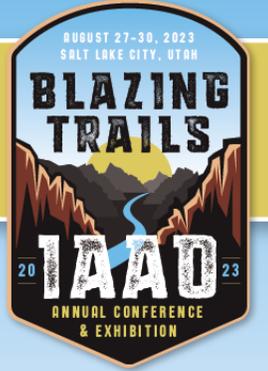
Sale price of average house: **\$450,000**

More than € 11 billion tax revenues based on the assessed value

Total annual costs for appraisal and assessment: \$213 million



Our property tax system in short



Municipalities, polderboards and national government levy property taxes

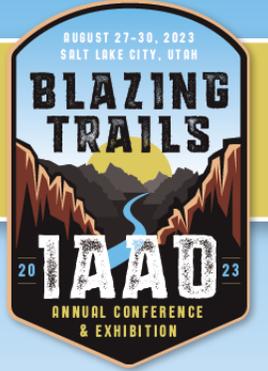
Municipalities responsible for the annual valuation (formal assessment) of all real estate properties

- All other organizations are obliged to use these assessed values for taxation purposes

Assessed values are used for property taxes

- Municipalities (342)
- Polderboards (21)
- Central government (1)
 - Imputed income for owner occupied houses (Income tax)
 - Limits fiscal depreciation of real estate (Corporation tax)
 - Inheritance tax

Our property tax system in short



Annual valuation

Tax base: full market value

Municipalities responsible

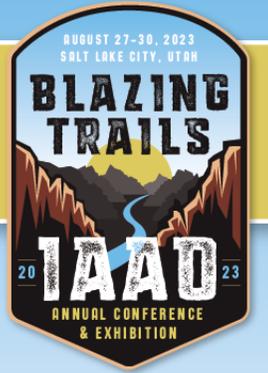
- But many municipalities cooperate in shared service centers

Central oversight

- Netherlands Council for Real Estate Assessment
- NCREA



Netherlands Council for Real Estate Assessment (NCREA)



Independent governing body

- Minister of Finance is responsible

Main task: quality control of mass valuation

Advisory body for mass valuation

Involved parties

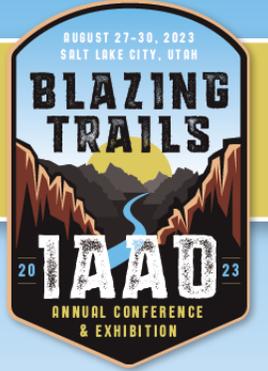
- municipalities
- polderboards
- central government
 - Tax and Customs administration

Council board has 11 members

- Staff 23 persons



Our “products”



Audits at municipal level

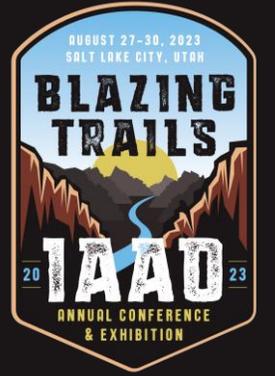
- Process audits
- Data audits
- Valuation audits

Guidelines

- How to execute the valuation process
- How to deal with recent case law

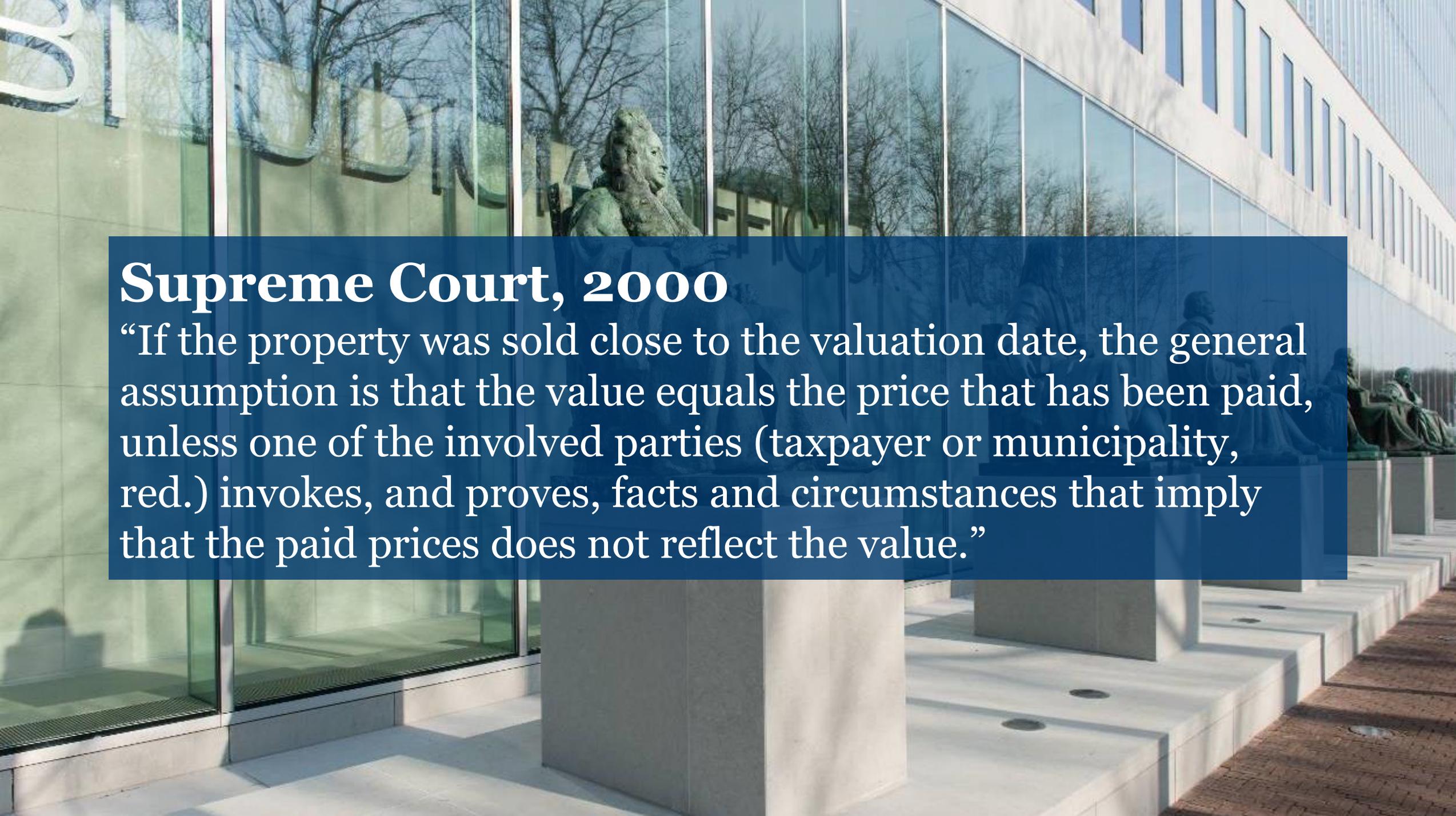
Knowledge and expertise center

- Questions from Ministry of Finance or parliament
- Questions from taxpayers



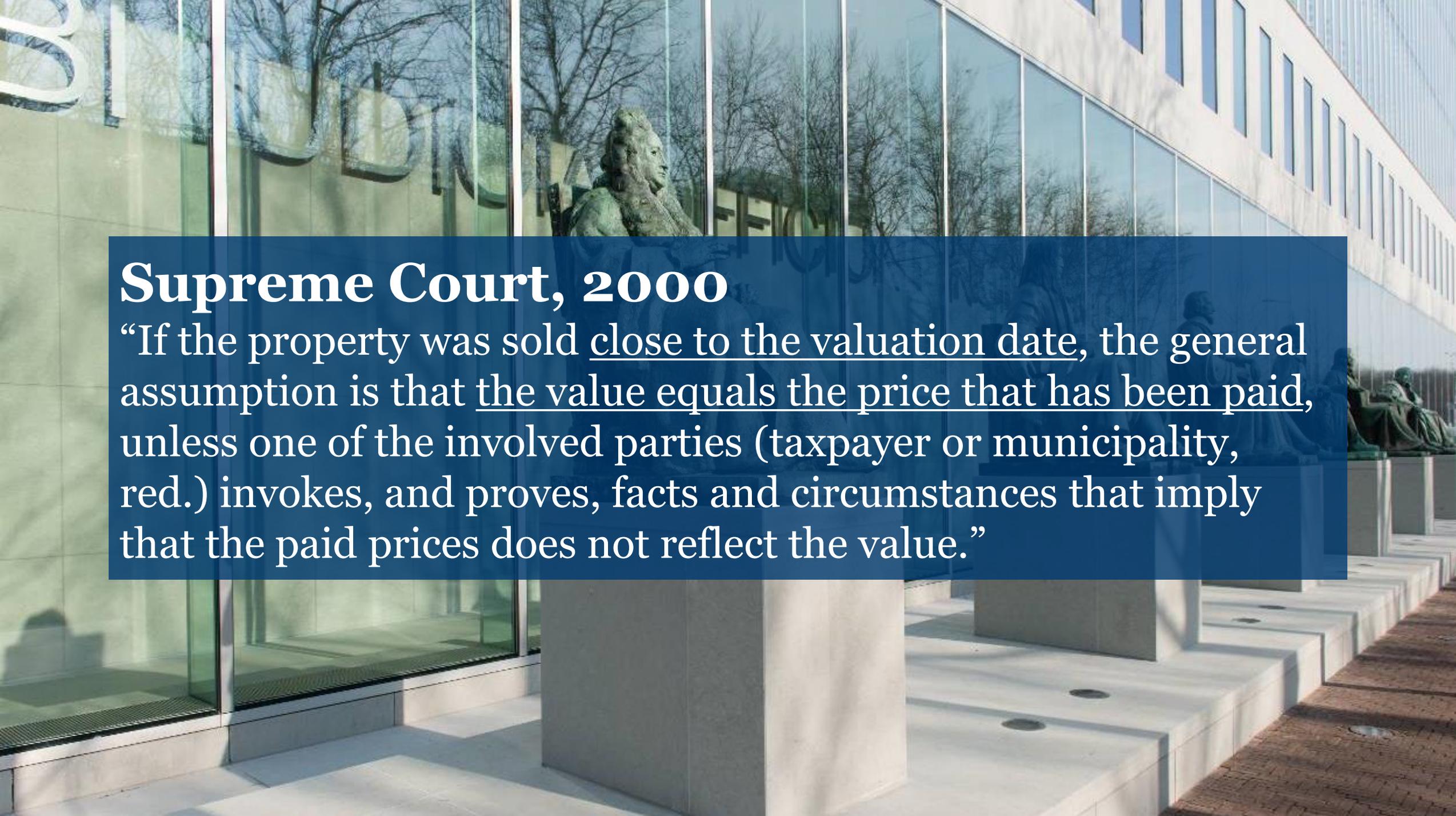
Risk of Sales Price Chasing in the Netherlands





Supreme Court, 2000

“If the property was sold close to the valuation date, the general assumption is that the value equals the price that has been paid, unless one of the involved parties (taxpayer or municipality, red.) invokes, and proves, facts and circumstances that imply that the paid prices does not reflect the value.”



Supreme Court, 2000

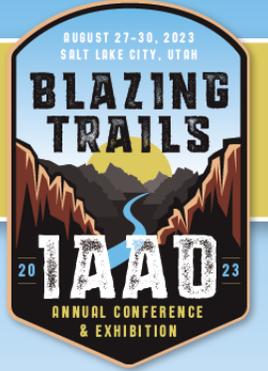
“If the property was sold close to the valuation date, the general assumption is that the value equals the price that has been paid, unless one of the involved parties (taxpayer or municipality, red.) invokes, and proves, facts and circumstances that imply that the paid prices does not reflect the value.”

IVS[®]CC

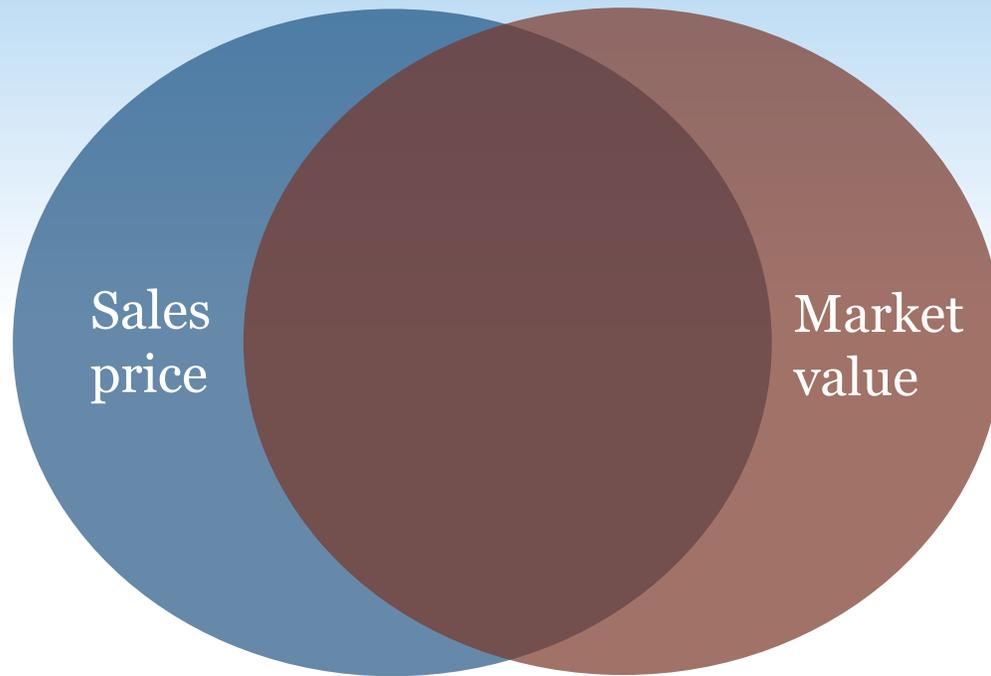
International Valuation Standards (IVS)

Market Value is defined in IVS as: “estimated amount for which an asset or liability should exchange on the valuation date between a willing buyer and a willing seller in an arm’s length transaction, after proper marketing and where the parties had each acted knowledgeably, prudently and without compulsion”

Sales Price \Leftrightarrow Market Value (schematic)



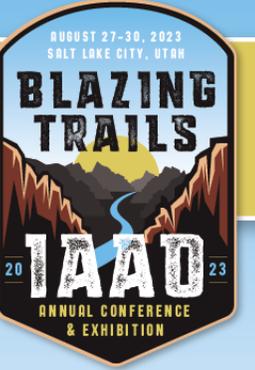
Concepts have different definitions



Sales price has a negotiation range

Market value estimate has a confidence interval





Background: objection and appeal procedures

Municipality sends assessed value to taxpayer

- Within eight weeks after January 1st

Six weeks objection period

- Informal contact between municipality and taxpayer

Taxpayer can object against the value at the municipality

- Or taxpayer hires a legal-fee-company to do this

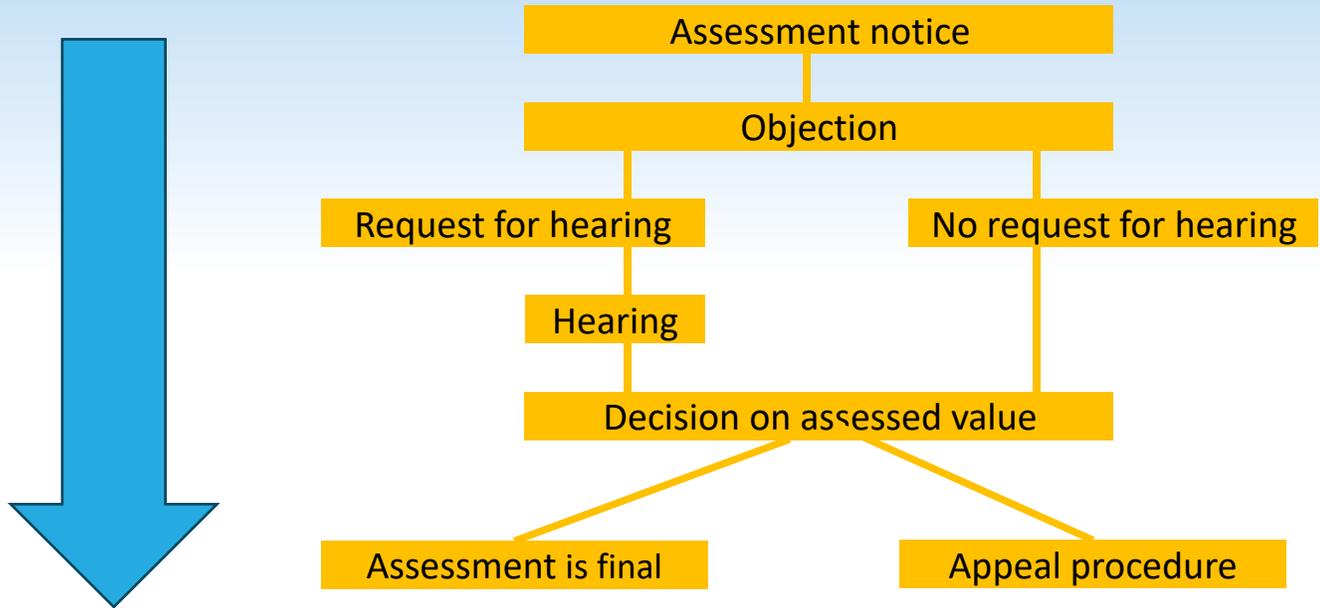
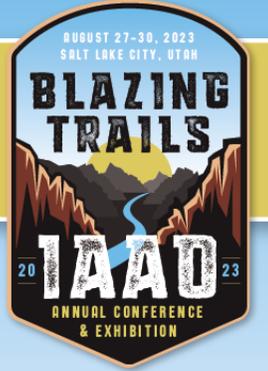
A formal hearing is part of the procedure, if requested by the taxpayer

- Or by legal-fee-company

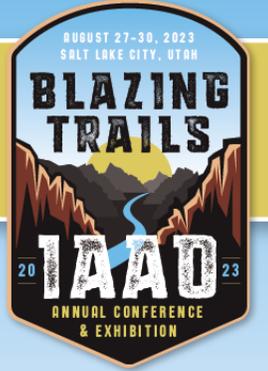
Municipality decides whether or not to change the value (within tax year)

Taxpayer can decide to go to court => appeal procedure

Schematic



Appeal procedures



Appeal procedure starts at court

- Administrative judge makes the ruling

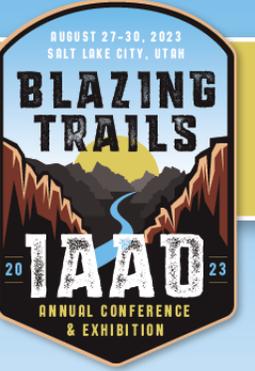
Second level of escalation

- Court of justice makes the ruling

Final level of escalation

- The Supreme Court makes the ruling

LFCs focus on the objection procedure, appeal procedure is too costly



Legal fee companies (LFCs)

If objection leads to change of assessment:

Municipality pay a fee to the legal fee company

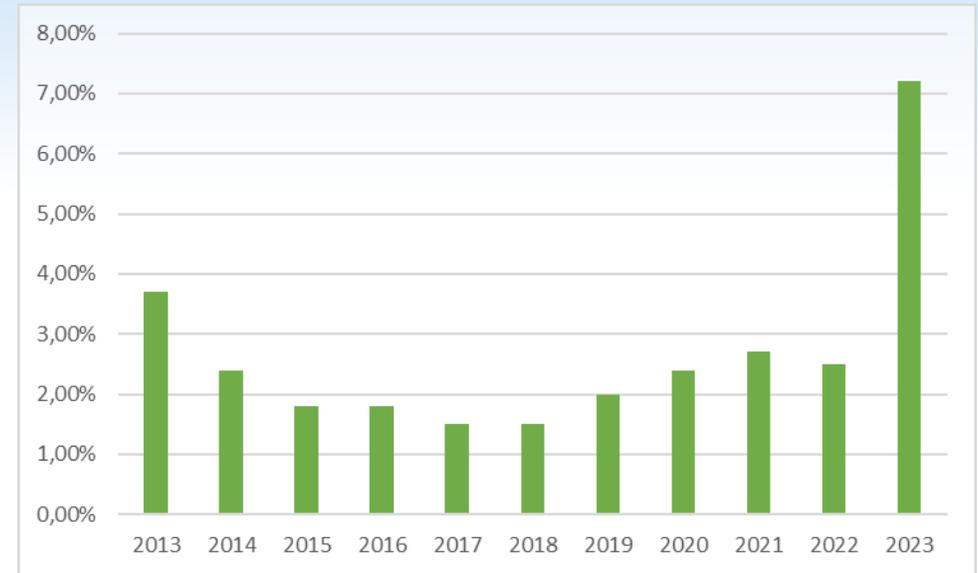
- \$325 for the objection
- \$325 for the hearing
- Extra for a valuation report
- Extra for an appeal procedure

So, for taxpayer hiring a legal fee company is “free”

Costs for legal fee company are lower than these amounts

For municipalities losing appeals are very expensive because of high costs (> \$1000)

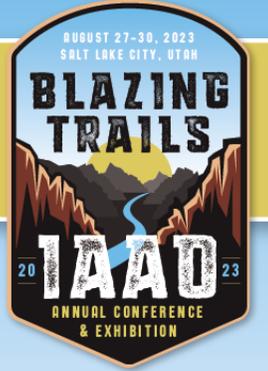
Development number of objections





Search for “eerlijke WOZ” on Youtube, or
<https://www.youtube.com/watch?v=SAEa1DQuho>

Result of Supreme Court ruling and Legal Fee Companies



1. **Municipalities have de tendency to “follow” the sales prices**
2. **Therefore, they apply manual corrections to the model values**
 - Huge impact on ratio studies
 - IAAO ranges not always optimal
3. **For NCREA it is difficult to stick to market value**
 - Risk of unexplainable differences between valuations of sold and unsold properties
 - Risk of inadequate horizontal equity



Kikkerwinde

\$470,000

\$450,000

\$450,000

\$450,000

\$470,000



Kikkerwinde

SOLD
\$420,000

\$470,000

\$450,000

\$450,000

\$450,000

\$470,000



Ligusterweg
Kikkerwinde

Model value:
\$510,000

Model value:
\$500,000
Manual adj.:
\$420,000

Model value:
\$500,000

Model value:
\$500,000

Model value:
\$510,000



Lijpkerwinde

+8,5%

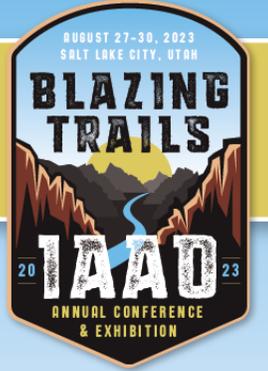
-5%

+11%

+11%

+8,5%

All assessed values publicly available



Akkerwinde 8, 2231WE Rijnsburg

▲ Filteren op de kaart

▼ Geselecteerd resultaat

Adres
Akkerwinde 8
2231WE
Rijnsburg

WOZ-waarde

Peildatum	WOZ-waarde
01-01-2022	454.000 euro
01-01-2021	366.000 euro
01-01-2020	349.000 euro

[> Alles weergeven](#)

WOZ-gegevens

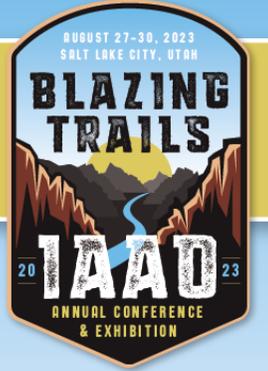
Identificatie: 053700036710
Grondoppervlakte: 110m²

Kenmerken

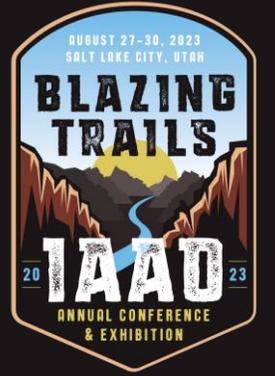
Bouwjaar: 1998
Gebruiksdoel: woonfunctie
Oppervlakte: 111m²
Adresseerbaar object: [0537010000022732](#)
Nummeraanduiding: [0537200000022732](#)

PDF genereren

Our approach



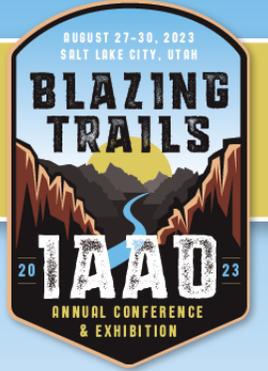
	Valuation Audits at municipal level	Countrywide Analysis
Comparison of average value changes (sold/unsold properties)	Regular part of our annual audits	Five years cycle
Comparison of average unit values (sold/unsold properties)	Regular part of our annual audits	Five years cycle
Comparison of assessed values with results of a control model	Pilot phase	Pilot phase



Solution 1: Valuation Audits at municipal level



Valuation Audits at Municipal Level



Goal: evaluation of the quality of the appraisals

- Before they are sent to the taxpayer
- Necessary to get permission to send assessed values (and tax bill) to the taxpayer

In the period before sending out the tax notices

- December – February

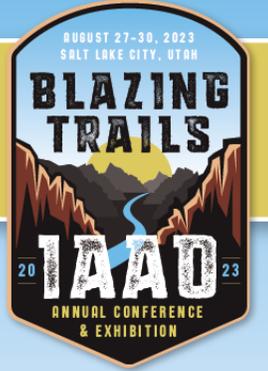
Risk based selection of approximately 25% of the municipalities

- We visit organizations that are responsible for $\pm 75\%$ of the assessments

Comply or explain principle



Valuation Audits at Municipal Level, three steps



Step 1

All municipalities send results of ratio studies to NCREA
(online form)

Step 2

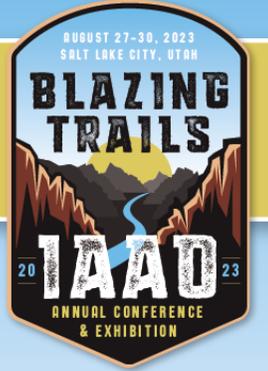
Valuation audit at 25% of
municipalities

75% municipalities

Step 3

Final judgement NRCEA if municipality can send out
assessed values

Step 1: Results of Ratio Studies



All municipalities send information about revaluation to NCREA

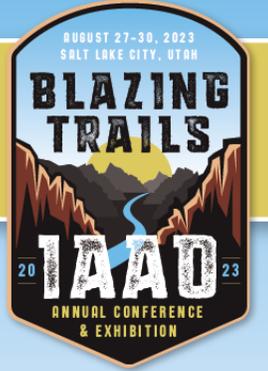
- Municipalities must do total revaluation of all properties
- Online form in a digitally protected environment to present valuation results (ratio studies)
- Municipality must be satisfied by its own ratio studies

Information about:

- Quality of revaluation

Information more and more in line with Standard on Ratio Studies





Step 2: Valuation Audit at Municipal Level

25% of municipalities are selected for audit

- 50% risk-based, 50% random selection

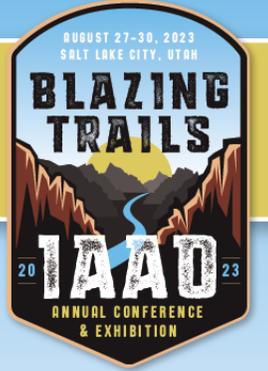
Municipality sends a digital copy of their valuation database to the NCREA

- Data files according to national standard
- Data is analyzed by data-analyst at NCREA
- Results are sent to inspector of NCREA

Inspector performs audit at municipality

- Comply or explain principle
- Audit contains:
 - Discussion of the results of ratio studies
 - Random checks (also of object characteristics)

Step 3: Final judgement NRCEA



For municipalities that are not selected for an audit

- Unconvincing results of ratio studies can lead to an individual audit

Approval formally confirmed in letter

- Letter send to municipal board
- Approval also published on website NCREA



Toon op de kaart Naar de gemeentesite mijn.overheid.nl

Toon tabel

Gemiddelde WOZ waarde: woningen, waardepeildatum 1-1-2021	€ 288.000	Ontwikkeling WOZ- waarde	
Aantal WOZ objecten:	57.334	13.2%	Waardepeildatum 2022 tov 2021

Toelichting oordeel

Dit algemeen oordeel is van toepassing op een gemeente die WOZ-taxaties van goede kwaliteit levert en daarnaast op alle onderdelen van het WOZ-werkproces voldoet... Lees meer »

Oordeel



Goed

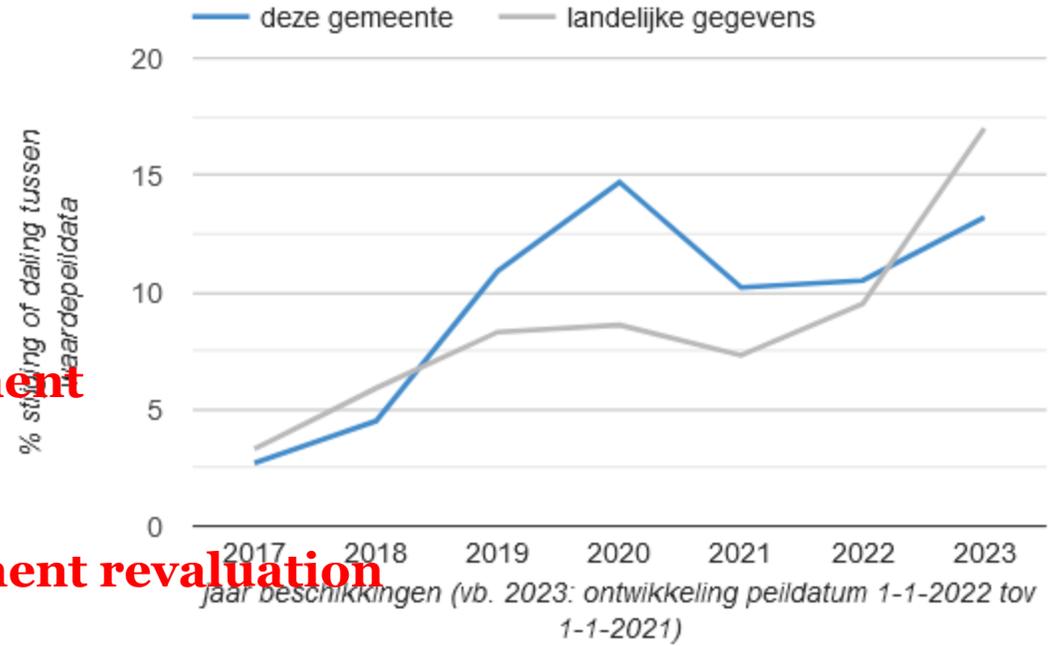
Waarderingskamer heeft ingestemd met bekend maken WOZ-waarden voor 2023.

General judgement

Judgement revaluation

Bekijk onderzoeksrapport(en) Hoe wij beoordelen

Marktentwikkeling woningen



Objectsoort	Totaal	9.936
1111 Woning normaal vrijstaand st	2.018	^
1112 Woning normaal vrijstaand se	25	
1113 Woning normaal vrijstaand br	51	
1114 Woning normaal vrijstaand vi	95	
1115 Woning normaal vrijstaand w	131	
1116 Vrijstaand herenhuis	28	
1121 Woning normaal 2/1 kap stan	2.655	
1122 Woning normaal 2/1 kap semi	31	
1123 Woning normaal 2/1 kap bung	3	
1125 Woning normaal 2/1 kap woo	147	
1126 2^1 kap herenhuis	6	
1131 Woning normaal rij standaard	1.528	
1133 Rij bungalow	13	
1138 Drive-in woning	53	
1141 Woning normaal hoek standa	1.050	
1143 Hoek bungalow	11	
1145 Hoek woonboerderij	1	
1148 Drive-in woning kop	6	
1171 Woning normaal geschakeld s	165	
1172 Woning normaal geschakeld s	23	
1173 Woning normaal geschakeld t	1	
1176 Geschakeld herenhuis	1	
1182 Maisonnette	4	
1183 Woning normaal etage appart	226	
1184 Portiekwoning	57	
1185 Duplex-woning	1	
1186 Woning normaal etage pentho	2	
1187 Woning normaal etage benede	167	
1188 Woning normaal etage bovenv	319	
1191 Woonwagen/standplaats	32	
1211 Recreatie vrijstaand standaard	7	
1213 Vrijst. recr. bungalow	2	
1312 Vrijst. bejrd. semi-bungalow	1	
1321 Bejaarden/aanleun 2/1 kap st	60	
1331 Bejaarden/aanleun rij standa	97	∨

Algemeen	
Aantal WOZ-objecten (excl. gc='80'):	11.097
- aantal daarvan woningen (srbjectcode < 2000 en 5100)	9.936
Aantal marktgegevens in xmlbericht (Marktinfo=T en Trans=K):	1.814
Periode marktgegevens in xmlbericht:van	20180102
- tot en met	20221230
- aantal daarvan binnen 1 jaar voor of na waardepeildatum	660
- aantal daarvan aangemerkt als bruikbaar (65.05 = '00')	338
- aantal daarvan nog niet gescreend (65.05 = '99')	73
- aantal daarvan niet bruikbaar (65.05 <> '00', '99')	249
Aantal marktgegevens gebruikt op taxatieverslagen:	392
- vanvan	20180108
- tot en met	20221214
- aantal daarvan met ratio >1,1 of <0,9	185
- aantal keren dat deze gebruikt zijn als onderbouwing	277
- percentage van het totale aantal onderbouwingen	51%
Aantal woningen zonder een marktgegeven op taxatieverslag:	522
Aantal woningen met 1 marktgegeven op taxatieverslag:	42
Aantal woningen met 2 marktgegevens op taxatieverslag:	34
Aantal woningen met 3 marktgegevens op taxatieverslag:	9.338
- Totaal	9.936
Woningen met een Gebruikscodes > 12 en < 50:	-

Bouwjaar Woningen zonder 1700	
Tot	9.680
B voor 1906 excl 19C	129
C 1906 t/m 1930	366
D 1931 t/m 1944	276
E 1945 t/m 1959	684
F 1960 t/m 1970	1.483
G 1971 t/m 1980	2.085
GEEN 1100	66
H 1981 t/m 1990	1.498
I 1991 t/m 2000	938
J 2001 t/m 2010	813
K 2011 t/m 2012	397

Sec Factor							Tot	9.936
K/L	O	U	D	V	L			
322	322	322	322	322	51			
1	217	81	11	13	2.185	12		
2	1.396	788	24	49	94	191		
3	7.339	8.177	9.561	9.547	7.322	9.678		
4	634	556	14	4	11	3		
5	28	12	4	1	2	1		

Transacties (geïndexeerd)		Betreft alleen Halfjaar I II III			
Tot	aantal	max	R<0,97	R>1,03	R=1
00 - Bruikbaar	306	1.469	116	21	63
62 - Meer WOZ-objecten	19				
64 - Niet reële transactie	84				
65 - Grondtransactie	32				

Vraagprijzen (geïndexeer)		Betreft alleen Halfjaar I II III		
Tot	aantal	R<0,9	R>1,1	R=1
99 - (nog) niet gescreend	25	0,000	1	3
Overige (ongeldige) codes	1			1

Aantal Vraagprijzen IWOZ: Status A: 15, Andere Status: 29

Top 10 onderbouwingen	
WOZ-nummer	Aantal
165900008797	944
165900021033	881
165900018689	850
165900019620	644
165900003411	408
165900004148	370
165900018665	365
165900006529	352
165900003282	351
165900006531	335
165900006532	332
LEEG	522

Bruikbare Transacties	
Niet gebruikt	40
Niet op taxatieverslag als onderbouwing	101

Scores		
Aantal	9.936	
aantal	Per	
0	522	5%
1	0	0%
2	20	0%
3	44	0%
4	75	1%
5	73	1%
6	104	1%
7	316	3%
8	583	6%
9	758	8%
10	647	7%
11	1.569	16%
12	5.225	53%

Afwijking onderbo Meth O		
categorie	aantal	perc
<= 20%	3.241	32,62
> 20%	6.695	67,38
> 36%	3.713	37,37
> 52%	1.880	18,92

Woningen

SrtObjectcode < 2000 en 5100
Laarbeek

DASHBOARD
Objectkenmerken

DASHBOARD
Waarderen

Detail Analyse
Woningen

WozDeelObjecten

Ratio
Studies

NAAR
NietWoningen

Scherm
Klein

Scherm
Groot

is doorklikken

Type	Taxatiemethodiek aantal *1		Aantal objecten in steekproef		Ratio *2 en *3			aantal	Gemiddelde grootte (in m2)		Waarde m2		Waarde stijging		Vraagprijzen	
	O verkocht	O niet-verkocht	verkocht	niet-verkocht	A	B	OutOfSample		verkocht	niet-verkocht	verkocht	niet-verkocht	verkocht	niet-verkocht	OutOfSample	aantal
Eengezins etc.	93	2411	93	2411	1,031	0,983	0,93	17	104	100	€ 1.947	€ 1.668	17,6%	16,9%	0,00	11
2 [^] 1-kap etc.	118	2452	118	2459	1,016	0,976	0,97	18	111	114	€ 1.835	€ 1.666	17,0%	19,0%	0,00	25
Vrijstaand etc.	91	1913	91	1961	1,044	0,994	0,96	20	185	171	€ 1.783	€ 1.578	17,6%	16,7%	0,00	17
Flats etc.	2	325	2	325	0,994	0,996	0,93	1	109	88	€ 3.784	€ 3.008	17,6%	14,7%	0,00	0
Etages etc.	2	571	2	571	1,084	0,960	0,93	1	103	81	€ 3.425	€ 2.389	22,4%	11,0%	0,00	0
Overige	0	5	0	55	0,000	0,000	0,00	0	0	104	€ -	€ 568	0,0%	1,5%	0,00	0
Alle Objecten	306	7677	306	7782	1,031	0,983	0,952	57	131	119	€ 1.877	€ -	17,5%	17,1%	0,000	53

*1 Taxatiemethodiek "Overig" wordt niet getoond. Aantal Objecten in de steekproef kan hoger zijn.

*2 Ratio A en B zijn gebaseerd op aantallen genoemd bij "Taxatiemethodiek". OutOfSample is gebaseerd op aantallen in periode IV (kolom M).

*3 Filter op 00- Bruikbaar en 99-Nog niet gescreend + Soortobjectcode < 1500 (en niet 1188, 1191) + Transactieprijs > 40000 + Oude en Nieuwewaard gevuld

Type	Alleen Gelijke woningen (PC + SoortObjectCode + Bouwjaar + Oppervlakte)									
	Huur Particulier					Verkocht/Niet Verkocht (m2)				
	Aantal Huur	Gemiddelde Meterprijs Huur	Aantal Particulier	Gemiddelde Meterprijs particulier	% m2 Huur/ Particulier	Aantal Verkocht Oppv	Gemiddelde Meterprijs Verkocht	Aantal NietVerkocht Oppv	Gemiddelde Meterprijs NietVerkocht	% m2 Verkocht/Niet Verkocht
Eengezins etc.	384	1448,08	310	1768,12	81,9%	74	1922,32	299	1807,87	106,3%
2 [^] 1-kap etc.	133	1232,29	214	1573,47	78,3%	86	1818,78	295	1725,55	105,4%
Vrijstaand etc.	0	0,00	0	0,00	0,0%	3	2111,33	5	1867,40	113,1%
Flats etc.	0	0,00	0	0,00	0,0%	2	3783,50	4	3142,75	120,4%
Etages etc.	3	2765,33	11	3362,27	82,2%	2	3424,50	9	3147,56	108,8%
Overige	0	0,00	0	0,00	0,0%	0	0,00	0	0,00	0,0%
Totaal	520	1400,49	535	1723,04	81,3%	167	1912,68	612	1797,10	106,4%

COD	PRB	gnificantie P	R ²
6,82%	0,000003	0,00000000	0,93100

Kengetallen Verkooprijzen	
Gemiddelde verkoopprijs	€ 446.433
Modus verkoopprijzen	€ 325.000
Mediaan verkoopprijzen	€ 382.250
Spreadingsbreedte	€ 1.470.000
Variante (€)	€ 44.423.885.818
Standaarddeviatie (€)	€ 210.770
Standaarddeviatie (tov gemid COV)	0,47211954756
Dispersion	0,070
Coëfficiënt of Dispersion (COD)	0,068
PRB	0,000003
MedianeRatio	1,032

TRIMMEN COD

Terug naar HOOFDSCHERM

Cijfers Samenvatting (zoals de gemeente het heeft weergegeven)

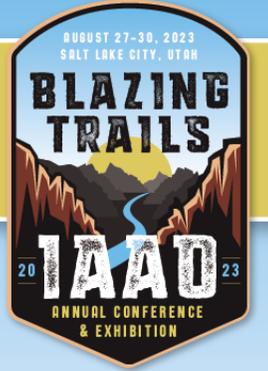
b - Marktgegevens voor periode halfjaar I II III per bruikbaarheidscode (65.05)	Aantal	Ratio_A	Ratio_B	Aantal_z_Oude Waarde
00 - Bruikbaar	306	1,031	1,037	0
62 - Meer WOZ-objecten	19	1,063	89,611	0
64 - Niet reële transactie	84	1,399	20,283	0
99 - (nog) niet gescreend	0	0,000	0,000	0
Overige (ongeldige) codes	0	0,000	0,000	0

b - Bruikbare transactiegegevens binnen periode, per half jaar	Aantal	Ratio_A	Ratio_B
I - 01/01/2021 t/m 30/06/2021	112	1,110	1,114
II - 01/07/2021 t/m 31/12/2021	115	1,018	1,020
III - 01/01/2022 t/m 30/06/2022	79	0,948	0,951
IV - 01/07/2022 t/m 31/12/2022	3	1,069	1,053

b - Bruikbare transactiegegevens binnen periode per categorie woning	Ratio_B
Eengezins etc.	1,037
2 [^] 1-kap etc.	1,021
Vrijstaand etc.	1,056
Flats etc.	1,012
Etages etc.	1,083
Overige	0,000

Open Samen-vatting TAX

Comparison of average value changes (sold/unsold properties)



Type	TaxatieMethode		aantal objecten in steekproef		Ratio *2 en *3				Gemiddelde grootte (in m2)		Waarde m2		Waardeverandering		Vraagprijzen	
	0 verkocht	1 niet-verkocht	verkocht	niet-verkocht	A	B	OutOfSample	aantal	verkocht	niet-verkocht	verkocht	niet-verkocht	verkocht	niet-verkocht	OutOfSample	aantal
Eengezins etc.	93	2411	83	2411	1,031	0,983	0,93	17	104	100	€ 1.947	€ 1.668	17,6%	16,9%	0,00	11
2 ^a 1-kap etc.	118	2452	113	2459	1,016	0,976	0,97	18	111	114	€ 1.835	€ 1.666	17,0%	19,0%	0,00	25
Vrijstaand etc.	91	1913	9	1961	1,044	0,994	0,96	20	185	171	€ 1.783	€ 1.578	17,6%	16,7%	0,00	17
Flats etc.	2	325	2	325	0,994	0,996	0,93	1	109	88	€ 3.784	€ 3.008	17,6%	14,7%	0,00	0
Etages etc.	2	571	2	571	1,084	0,960	0,93	1	103	81	€ 3.425	€ 2.389	22,4%	11,0%	0,00	0
Overige	0	5	0	55	0,000	0,000	0,00	0	0	104	€ -	€ 568	0,0%	1,5%	0,00	0
Alle Objecten	306	7677	306	7782	1,031	0,983	0,952	57	131	119	€ 1.877	€ -	17,5%	17,1%	0,000	53

Categories

Sold

properties

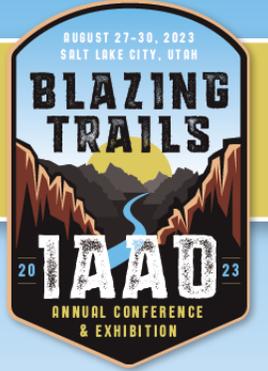
Unsold

properties

Value change
sold properties

Value change
unsold
properties

Comparison of average unit values (sold/unsold properties)



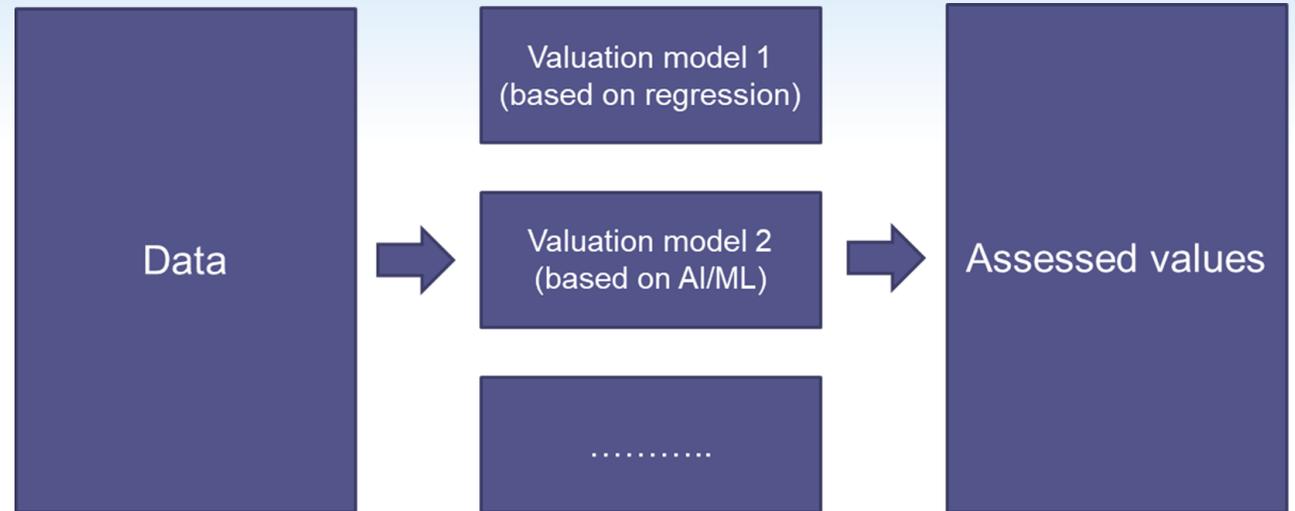
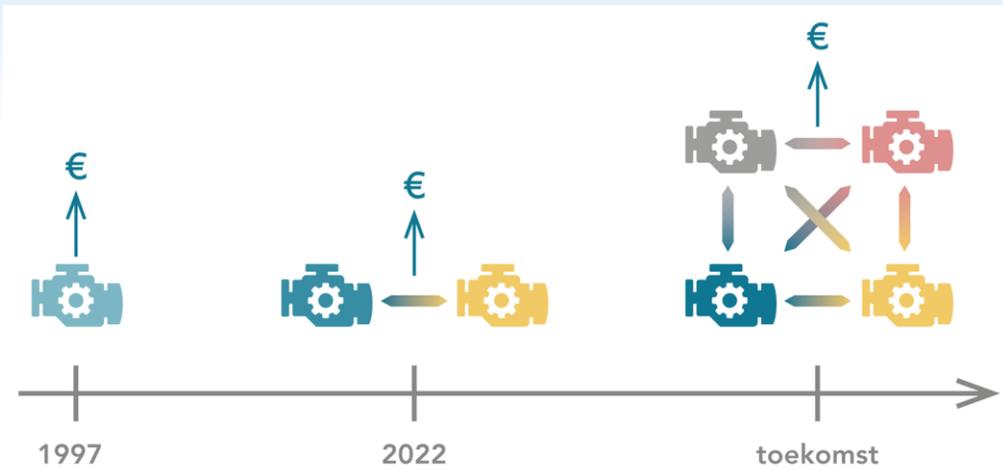
Type	Alleen Gelijke woningen (PC + SoortObjectCode + Bouwjaar + Oppervlakte)									
	Huur Particulier					Verkocht/Niet Verkocht (m ²)				
	Aantal Huur	Gemiddelde Meterprijs Huur	Aantal Particulier	Gemiddelde Meterprijs particulier	% m ² Huur/ Particulier	Aantal Verkocht Oppv	Gemiddelde Meterprijs Verkocht	Aantal Niet Verkocht Oppv	Gemiddelde Meterprijs Niet Verkocht	% m ² Verkocht/Niet Verkocht
Eengezins etc.	384	1448,08	310	1768,12	81,9%	74	1922,32	299	1807,87	106,3%
2 [^] 1-kap etc.	133	1232,29	214	1573,47	78,3%	86	1818,78	296	1725,55	105,4%
Vrijstaand etc.	0	0,00	0	0,00	0,0%	3	2111,33	5	1867,40	113,1%
Flats etc.	0	0,00	0	0,00	0,0%	2	3783,50	1	3142,75	120,4%
Etages etc.	3	2765,33	11	3362,27	82,2%	2	3424,50	9	3147,56	108,8%
Overige	0	0,00	0	0,00	0,0%	0	0,00	0	0,00	0,0%
Totaal	520	1400,49	535	1723,04	81,3%	167	1912,68	612	1797,10	106,4%

Unit values sold

Unit values unsold

Comparison of assessed values with results of a control model

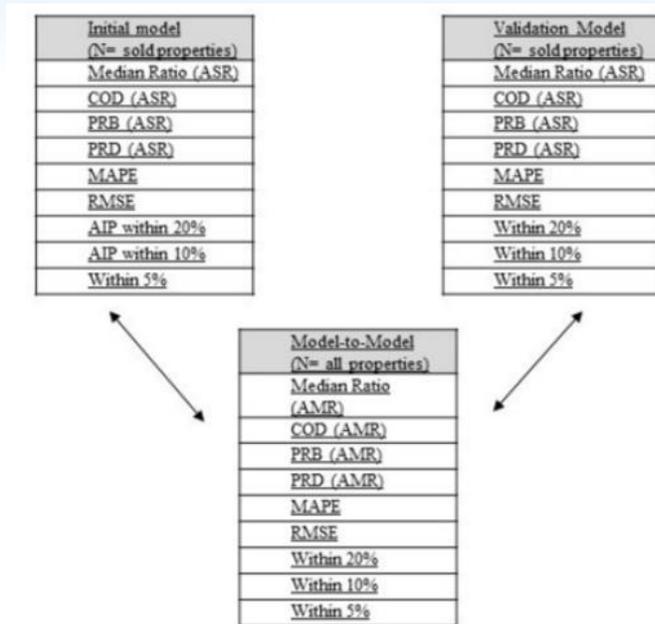
What is a validation model?



Comparison of assessed values with results of a control model

How do we use it?

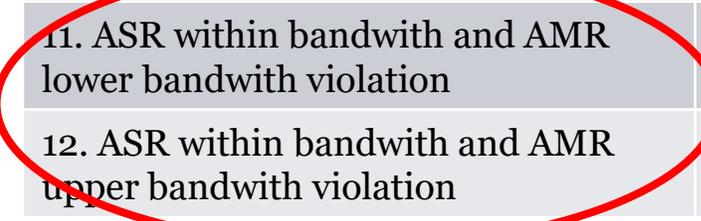
- Assessment to Sale price ratio = assessment / sale price (ASR)
- Assessment to model value ratio = assessment / validation model (AMR)

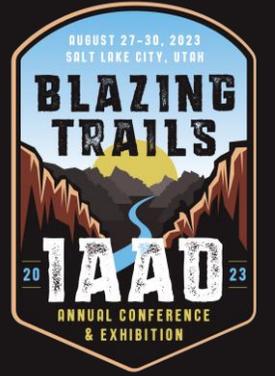


Scenario	Description	Composition value	Validation model value	Observed sales price	AMR	ASR
1.	Unsold and AMR lower bandwidth violation	200.00	240.00	X	0.83	X
2.	Unsold and AMR upper bandwidth violation	200.00	160.00	X	1.25	X
3.	Unsold and AMR within bandwidth	200.00	195.00	X	1.03	X
4.	ASR and AMR lower bandwidth violation	200.00	240.00	250.00	0.83	0.80
5.	ASR and AMR upper bandwidth violation	200.00	170.00	160.00	1.18	1.25
6.	ASR and AMR within bandwidth	200.00	195.00	205.00	1.03	0.968
7.	ASR lower bandwidth violation and AMR upper bandwidth violation	200.00	160.00	240.00	1.25	0.83
8.	ASR upper bandwidth violation and AMR lower bandwidth violation	200.00	240.00	160.00	0.83	1.25
9.	ASR lower bandwidth violation and AMR within bandwidth	200.00	205.00	160.00	0.98	1.25
10.	ASR upper bandwidth violation and AMR within bandwidth	200.00	205.00	160.00	0.98	1.25
11.	ASR within bandwidth and AMR lower bandwidth violation	200.00	160.00	195.00	1.25	1.03
12.	ASR within bandwidth and AMR upper bandwidth violation	200.00	160.00	195.00q	1.25	1.03

Description	Assessed value	Validation model value	Sales price	AMR	ASR
1. Unsold and AMR lower bandwidth violation	200,000	240,000	X	0.83	X
2. Unsold and AMR upper bandwidth violation	200,000	160,000	X	1.25	X
3. Unsold and AMR within bandwidth	200,000	195,000	X	1.03	X
4. ASR and AMR lower bandwidth violation	200,000	240,000	250,000	0.83	0.80
5. ASR and AMR upper bandwidth violation	200,000	170,000	160,000	1.18	1.25
6. ASR and AMR within bandwidth	200,000	195,000	205,000	1.03	0.97
7. ASR lower bandwidth violation and AMR upper bandwidth violation	200,000	160,000	240,000	1.25	0.83
8. ASR upper bandwidth violation and AMR lower bandwidth violation	200,000	240,000	160,000	0.83	1.25
9. ASR lower bandwidth violation and AMR within bandwidth	200,000	205,000	240,000	0.98	0.83
10. ASR upper bandwidth violation and AMR within bandwidth	200,000	205,000	160,000	0.98	1.25
11. ASR within bandwidth and AMR lower bandwidth violation	200,000	240,000	195,000	0.83	1.03
12. ASR within bandwidth and AMR upper bandwidth violation	200,000	160,000	195,000	1.25	1.03

Risk of sales price chasing

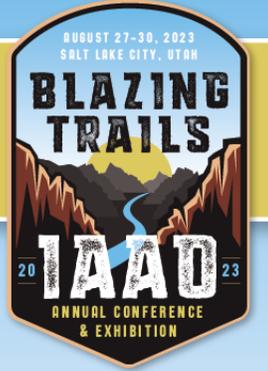




Solution 2: Countrywide analysis



Countrywide thematic analysis



Components:

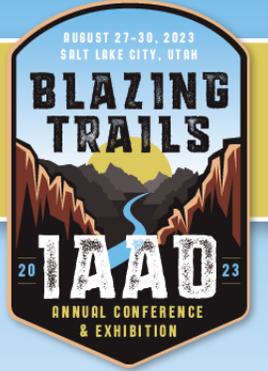
- Ratio studies
- Comparative regression model (Early form of validation model)
- Comparison of average value changes (sold/unsold properties)

Five years per period:

- 2012-2017
- 2018-2023



Countrywide thematic analysis (2023)



New partnering organization: University of Twente

Components:

- Ratio studies
- Comparative validation model
- Comparison of average value changes (sold/unsold properties)



Contact information

Luc Hermans luc.hermans@waarderingskamer.nl

Marco Kuijper marco.kuijper@waarderingskamer.nl

