FINAL REPORT

REVIEW OF VALUATION PRACTICES
OF THE
LAND REGISTRY OF ICELAND

Prepared for

THE LAND REGISTRY OF ICELAND
MINISTRY OF FINANCE

By

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Introduction

This report summarizes observations and recommendations regarding operations and valuation practices of the Land Registry of Iceland. It is based on a review of available documents and interviews conducted with key staff during a three-day visit to the agency headquarters in Reykjavik on 19-21 February 2007.

The report is divided into the following sections: legal setting and background, valuation methodology, strengths and weaknesses of the current system, and recommendations for future improvements. The appendix presents results from a pilot model developed for commercial properties in the Reykjavik area.

The Land Registry has accomplished much since it was established and serves a key mission in Iceland's capital markets and fiscal system. It is hoped that this brief report will contribute to further progress and success.

Legal Setting and Background

The Land Registry (LR) of Iceland was established in 1976. LR functions as an agency with its own revenue sources (chiefly annual payments by the municipalities and a tax on insurance values paid by property owners), under the Ministry of Finance. The LR is responsible for registering real property, determining valuations and assessments, and maintaining the land registry database, which includes location, ownership, building,

valuation, and related information. The agency has a total staff of approximately 65 people with various backgrounds and skills located at five regional offices.

The LR values properties for several different purposes. Market-based values are used for the local property tax and inheritance tax and previously for the net wealth tax, which was abolished in 2005. Market-based values are also the basis for equalisation payments made by the government to areas outside the metropolitan area. Depreciated cost values are used to establish the basis for premiums for mandatory fire insurance (provided by private companies), as well as maximum compensation in the event of a fire or natural disaster. Cost values for fire insurance recognize physical depreciation but not economic or functional obsolescence (the current deprecation reaches a maximum of approximately 30% after 100 years).

Regulations require LR to determine a "reference value" for real properties, which shall then be adjusted to market value and separated between land and buildings. The rationale for this is that most land is rented from the cities (e.g., under a 75 year lease) at an annual rent dependent on LR land values. Land rents vary among municipalities with a range of 0.08% (Reykjavik) to 3.75% of land value. If the city fails to renegotiate expired leases, they must compensate the owner for the value of the real property.

The basis of assessments for the local property tax and inheritance tax is market value as of the prior November, except that real estate assessments for farms are based on use-value. LR must determine values by December 31. In January municipalities determine tax rates subject to a maximum limit of 0.62% for residential properties and 1.65% for commercial properties (typical current rates are 0.40% and 1.60% respectively). In addition, there are separate levies for water and sewer service (typically 0.25% to 0.50%). Values must be updated annually.

A number of other parties, most importantly the municipalities and 26 local offices of the Ministry of Justice, input data to a land registry maintained by LR. Municipalities "pre-register" building plans in the form of "performance tables" that delineate the size and use of sections or spaces in a building according to a format specified by LR. The performance plan is prepared by an architect, draftsman, or engineer and must be approved by the local planning and building committee before a building permit is issued. The municipality submits the performance table to the LR. In the case of condominiums the performance table is a part of ownership apportionment that must be registered by the local registrars. Plans exist to change and simplify the cooperation of these key parties in the maintenance of the LR database.

Local registrars submit contracts and deeds of sale. Deeds are always publicly registered. Contracts are usually also recorded, although they may not be if the seller makes full payment at time of sale and, unfortunately, commercial contracts are only recorded on about half of sales. Beginning in June 2006 contracts are scanned and thus available electronically.

Both the private sector and public can access valuation and basic building data free by real estate number or address. Ownership and additional building data are available for a subscription fee (200 visits for 43 Euros per month). Mortgage companies and banks can obtain mortgage information for a higher fee. There are currently over 1,000 registered users of the system.

LRI has begun a major project to add spatial data and thus provide a cadastral map of registered properties. The cadastral component will enable LR to validate existing data, query and analyze data spatially, and produce more accurate property values.

Valuation Methodology

Sales data includes the amount of mortgage, interest rate, and monthly payments. LR adjusts sales prices to net present value (NPV) based by discounting the payment stream at the current market rate of interest. Thus, if a buyer takes over a mortgage contract with a favorable, below-market rate of interest, the sale price will be adjusted downward to reflect the value of the favorable mortgage terms. (Atypical ratios of NPV to sale price are used as a flag in sales editing.) Unfortunately the sale price is not broken out between real property and other (personal) property that may be included in a transfer (particularly commercial sales), although plans are in place to make the separation in the future. An experienced data entry clerk reviews sales contracts to determine if they constitute valid open-market transfers usable for valuation. Sometimes valuers are consulted to make a proper determination.

The LR conducted a general reappraisal of urban areas in 2001. Two additive models were developed for residential properties in metropolitan areas: one for detached structures and one for apartment units (condominiums). The model for single-family buildings included variables for replacement cost new less depreciation (RCNLD) determined from the cost approach, building size, building age, lot size, and percentage ownership for multiple buildings (or units) on the same lot. The apartment model was similar except that lot size was not found to be significant.

Values developed in this manner were then decomposed between land and buildings. Terms relating to lot size and ownership percentage were, of course, attributed to the land and terms based on RCNLD were allocated to the building. Terms relating to building size were allocated partly to building value and partly to land value based upon several factors: the typical construction cost associated with each, any available land sales, and a consideration of prior land values. This produced indicated land and building values for each property in the metro area.

Next, location factors were developed for the non-metro areas by comparing predicted values from the metro model against actual sales prices. However, these factors could not be applied equally to land and building values, since land values were a smaller percentage of total value in rural areas. Accordingly, it was assumed that land value

ratios diminish linearly with location desirability, e.g., a metro land ratio of .32 and local location factor of .50 would produce a local land ratio of .16 (one-half as much).

To illustrate further, for convenience, assume that application of the metro model produces an indicated total value of 100 and land value of 32 for a rural residence with a location factor of .50. The adjusted total value of the property is 100 x .50 = 50. The adjusted land value is 32 x .50 x .50 = 8 and thus the residual building value is $50 – 8 = 42$, giving a land/total value of 16% (half of a comparable property in the base metro area).

LR undertook a supplemental reappraisal for the Eastfjords in 2004, where values had escalated due to construction projects, including hydroelectric and aluminum plants. In 2005 the agency reappraised summerhouses and in 2006 it reappraised the Municipality Grundarfordur. These models included variables for date of sale. The summerhouse model included variables for site desirability (e.g., lakes and rivers).

Property owners can appeal assessments to an independent oversight commission known as Yfirfasteignamatsnefnd (YFN). In addition, YFN decides annual indexes that LR must adopt. Separately, LR develops and publishes its own trend factors or indexes designed to capture changes in value from the prior year.

The real estate market in Iceland, particularly the Reykjavik area, has been strong in recent years. Values in Reykjavik have, on average, approximately doubled since 2001, the date of the last general revaluation. These robust increases heighten the importance of annual indexes.

Cost values are based on detailed unit-in-place or quantity survey methods constructed from local cost data obtained from building suppliers and engineers. In all the system maintains approximately 140 building components and 700 unit prices. Depreciation is an engineering breakdown method, in which each building component is separately depreciated based on age-life tables. Cost values are indexed monthly.

Strengths of Current System

1. <u>Registration process</u>. The current system of registering properties and ownership transfers is speedy and reliable. It provides security of ownership and thus a strong foundation for Iceland's efficient property and mortgage markets. In addition, sales prices are reliable and thus provide a strong basis for valuation and informed decisions on the part of all market participants.

2. <u>Centralized database</u>. LR maintains a centralized database of ownership, location, building, sales, mortgage, and valuation information for all registered properties. This enables it to conduct efficient valuation analyses. The database is also an important resource to the private sector and the public. Both have free, limited access to the database and can obtain additional information for a fee. Although

property data maintained in the system can be improved, the concept of a complete and current centralized database is an important one.

3.   <u>Strong GIS platform</u>. LR has a strong GIS platform based on modern hardware and software. Aerial photos cover urban areas and cultivated land. The use of a common parcel identification number is another desirable feature. Although there is much to be done, the agency has developed a plan for doing so.

4.   <u>Skilled, professional staff</u>. LR staff includes skills in law, valuation, data analysis, information technology, geographic information systems, and other support tasks. Valuers are especially skilled in single property appraisals and the cost approach.

5.   <u>Active market</u>. Iceland's robust real estate market provides a rich source of sales data for sales comparison models (unfortunately, however, land rarely sells and only about half of commercial sales contracts are recorded).

6.   <u>Modeling capability</u>. Users can efficiently extract data for analysis and modeling. Key staff members possess required modeling expertise.

7.   <u>Depreciation year</u>. LR maintains data on both year built and "depreciation year", which is adjusted for new construction or additions to property and used for depreciation purposes.

8.   <u>International exposure</u>. LR staff participates in international conferences on valuation practices and methodology and as a result has gained an important awareness of accepted professional practices and alternative methodologies. These perspectives and knowledge allow LR to enhance its practices efficiently while avoiding pitfalls encountered by those who have gone before.

Weaknesses of Current System

1.   <u>Cadastral boundaries and building sketches</u>. Although the current system employs the latest technologies, includes aerial photos of urban areas and cultivated lands, and accounts for all registered properties, a cadastral map of parcel boundaries has not been established. Nor are building sketches digitized and building footprints cannot be represented on maps.

2.   <u>Infrequent revaluations and over-reliance on indexing.</u> The last full revaluation was conducted in 2001, now six years ago, while values have approximately doubled. This over-reliance on value indexing runs counter to the general notion that properties should be revalued annually or on a regular, frequent cycle with indexing used to keep values current and reasonably in line in intervening years.

3.   <u>Separation of land and building values</u>. As explained, LR must separate market values between land and buildings to provide for the contingency that cities may not renegotiate land leases upon expiration. Since land and buildings are usually sold together (not separately), this forces LR to determine separate values that, especially in the case of apartment units, exist in concept only, thus complicating the valuation process.

4.   <u>Data maintained</u>. If anything, LR maintains too much building data of sometimes excruciating detail. While it can be argued that this data is required for the present cost appraisals, very little of it is used or needed to determine market values, so that the marginal benefit of data used only for present cost calculations values must be questioned. At the same time, LR lacks data on important site or location characteristics for most properties. Examples include waterfront location, golf courses, parks or greenbelts, view, street type or traffic (which can detract from residential values but add to commercial values).

5.   <u>Commercial valuation</u>. Commercial property valuation appears to be the orphan child in the current system. Such properties are best appraised by the income approach but the income approach is not used due to the absence of income data and emphasis is placed on the cost approach. Sales information is available for only about half of commercial transactions.

6.   <u>Valuation culture</u>. While valuers are skilled and experienced, they are primarily rooted in single-property appraisal techniques and the cost approach. They stand to benefit from exposure to modern mass appraisal methods related to the sales comparison and income approaches.

Recommendations

1.   <u>LR should continue to develop the parcel and building cadastres</u>. LR has established a cadastral mapping department and developed a plan for incrementally building a modern cadastre with fixed parcel boundaries and three-dimensional surface. The plan should be implemented.

2.   <u>The respective roles of the LR and YFN should be clarified or redefined</u>. As the agency responsible for and proficient in valuation, the LR should determine values for all properties annually, including the development of indexes in non-revaluation years. The YFN should stand as the arbiter for valuation appeals made by property owners. It should not have authority to unilaterally challenge valuations or valuation methodologies absent the filing of a grievance by the owners of property. (This follows the usual model for the division of responsibilities for property tax administration).

3.   <u>LR should revalue regularly, decreasing its reliance on index factors</u>. When real estate markets are changing rapidly, annual or biannual revaluations maximize the

accuracy and equity of values. Indexing can be used for short periods of time but becomes problematic when markets are changing rapidly, as they have been in Iceland in recent years. The law should require or at least encourage and facilitate regular revaluations.

4.   Obtain data on location attributes. Both land and building characteristics are important in determining market value and, while the LR if anything possesses too much building data, it is weak in land data (the only attribute consistently available is urban lot size). It should formulate plans for adding important land attributes such as proximity to the sea, rivers, golf courses, and heavy traffic. Many of these attributes may be available through GIS.

5.   Sales comparison models for residential properties should be direct market models not dependent on RCNLD. RCNLD is appropriate for fire insurance values but is a flawed basis for market values that compromises the proper specification and calibration of market models. It also complicates the explanation of models. A cleaner (and much more common) approach is to model sales data directly from property attributes. Multiplicative models are recommended for apartment properties.

6.   Consider alternative methods of developing land values. The method used in 2001 can be simplified or improved. In the case of apartments, for which land values for individual units exist in theory only, a total land value could be assigned to the site either by direct valuation (based on any available land sales and/or costs of development) or by allocation (e.g., 15% land and 85% building). The total land value can then be allocated to individual units based on ownership percentage. Nonlinear models, which are directly decomposable into land and building portions, could be tested for single-family residential properties.

7.   Expand modeling capabilities. Although certain staff has experience in model development from prior revaluations, LR should provide training to additional staff in this key area. It is recommended that at least three staff be proficient in mass appraisal model development, although none need work solely in this area.

8.   Improve the commercial valuation process. Commercial properties are best appraised by the income approach and the LR should seek legislation requiring the submission of income information for use in revaluations. The legislation should also protect the confidentiality of submitted data. Of course, valuers will also have to develop training and familiarity with the income approach. At the same time LR should explore the development of direct sales models for the most common types of commercial properties (the appendix provides a prototype commercial sales comparison model).

9.   Overhaul the commercial classification scheme. The current system uses two codes: NYNOT (one digit) and NOTK (3 digits). The first contains only four commercial groups (office/retail, industrial, warehouse, and other commercial).

The latter contains many groups that are often similar and must be aggregated to obtain adequate samples for analysis. A coding system somewhere midway between the two is needed. Happily, LR is now in the process of adopting an alternative system.

10. <u>Transition to a simpler cost system</u>. LR should consider transitioning to a simplified cost system requiring less detailed building characteristics. A much simpler comparative unit approach, that expressing typical building costs per square meter for various types of construction, would seem adequate for at least residential properties. Comparative unit cost systems in North America use building "grades" (e.g., 1-8) that represent relative construction quality. As might be imagined, the variable is also helpful in market models.

11. <u>LR should start planning for the 2008 metro revaluation</u>. The revaluation is increasingly imminent and LR needs to begin working on the structure of models and addressing various other issues needed to ensure a successful revaluation, such as the review of existing neighbourhood boundaries. In any case, the first step is to identify the issues to be addressed and tasks to be accomplished and to set out a timeline for accomplishing the required tasks.

12. <u>Performance tables</u>. Current plans for clarifying and the role of each agency in the preparation and approval of performance tables should be implemented. The process can (and should) be streamlined and simplified.

13. <u>Continue participation in international valuation seminars</u>. This is especially important in that Iceland is an island and LR does not have ongoing contact with sister agencies sharing the same land mass (as do North American assessment agencies). LR has gained greatly from its participation in prior conferences and stands to continue benefiting from experiences elsewhere. To this end, the agency should consider site visits to selected jurisdictions that have successfully implemented best practices in specific areas of interest to LR, such as GIS and mass appraisal applications of the sales comparison and income approaches.

Appendix
Exploratory Commercial Model

An exploratory multiplicative model was developed for commercial properties classified as office/retail (Nynot = 6) in the Reykjavik area (SVFN = 0, 1000, 1100, 1300, or 1400). A number of atypical properties, including 13 outlier ratios, were excluded. The final model used 561 sales from January 2002 through June 2006. Initial models, which included time variables, indicated strong inflation over this time span. This tend was captured by a variable, MONTHS (coded 1-54), raised to the 1.5 power. The analysis indicated a total upward adjustment of 85% over the sales period. The two graphs below show the indicated trend. Sales prices used in the final model were adjusted to the end of the period (June 2006) at the indicate rate.
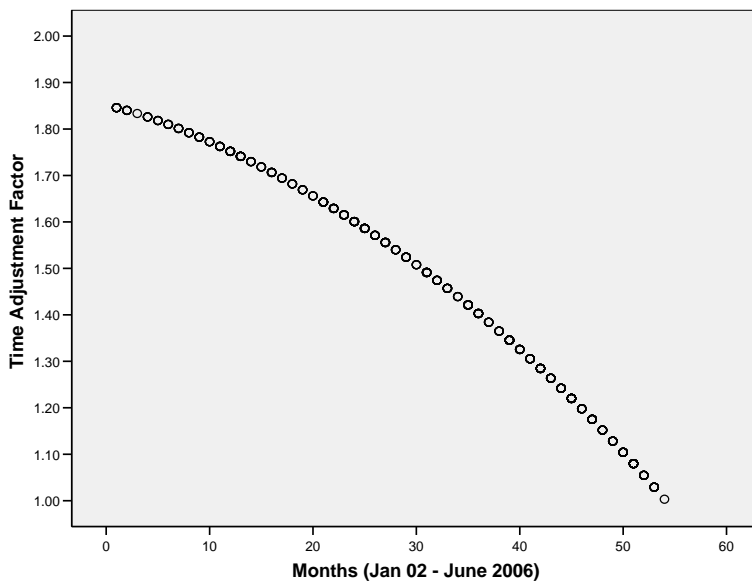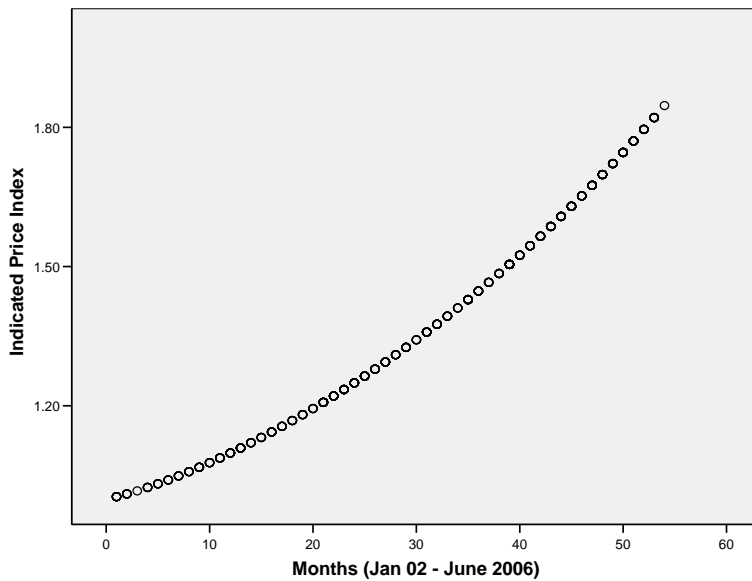
The final model, based on the adjusted sales prices, produced an adjusted R-Square of .889 and COD of 24.2. The model is shown below.

Model: 8

R	R Square	Adjusted R Square	Std. Error of the Estimate
.945	.893	.889	.31858

Model: 8

	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
(Constant)	10.350	.035		294.085	.000
LN_M2	.957	.016	.959	61.461	.000
LN_PCTGOOD	.123	.080	.029	1.533	.126
RETAIL	.072	.031	.037	2.290	.022
WAREHOUSE	-.366	.086	-.062	-4.241	.000
SALON_STUDIO	.235	.080	.048	2.955	.003
LIGHT_INDUSTRY	-.231	.079	-.043	-2.920	.004
GUEST_HOUSE	.267	.148	.026	1.810	.071
RESTAURANT	.097	.063	.023	1.545	.123
SVFN_1300	-.120	.075	-.023	-1.607	.109
SVFN_1400	-.117	.056	-.031	-2.081	.038
NB_11	.203	.040	.098	5.068	.000
NB_14_18	.213	.108	.028	1.966	.050
NB_15	-.189	.097	-.029	-1.951	.052
NB_17	.548	.099	.079	5.556	.000
NB_25_28	-.249	.120	-.033	-2.079	.038
INCOMPLETE	-.098	.067	-.021	-1.466	.143
LN_LB_RATIO3	.051	.021	.042	2.444	.015

Excluded Variables[h]

Model: 8

|	Beta In	t	Sig.	Partial Correlation	Collinearity Statistics Tolerance
NB_13	.011	.254	.800	.011	.112
BANK	-.008	-.532	.595	-.023	.948
MED_OFFICE	-.007	-.466	.642	-.020	.975
SVFN_1100	-.008	-.539	.590	-.023	.894
SVFN_1000	.016	1.019	.309	.044	.814
NB_42_43	-.016	-1.091	.276	-.047	.936
NB_46_49	-.016	-1.114	.266	-.048	.920

h. Dependent Variable: LN_TASP

The following charts and graphs show sales ratio results.

Ratio Statistics for Estimated Price / Time-Adjusted Price

SVFN	Sales	Median	Weighted Mean	Minimum	Maximum	Price Related Differential	Coefficient of Dispersion
0	449	1.018	.937	.382	2.148	1.125	.252
1000	42	1.032	.835	.563	1.443	1.184	.192
1100	12	1.029	1.047	.788	1.499	1.011	.103
1300	20	1.027	1.064	.493	1.598	.975	.217
1400	38	1.067	.935	.391	1.875	1.130	.234
Overall	561	1.023	.932	.382	2.148	1.126	.242
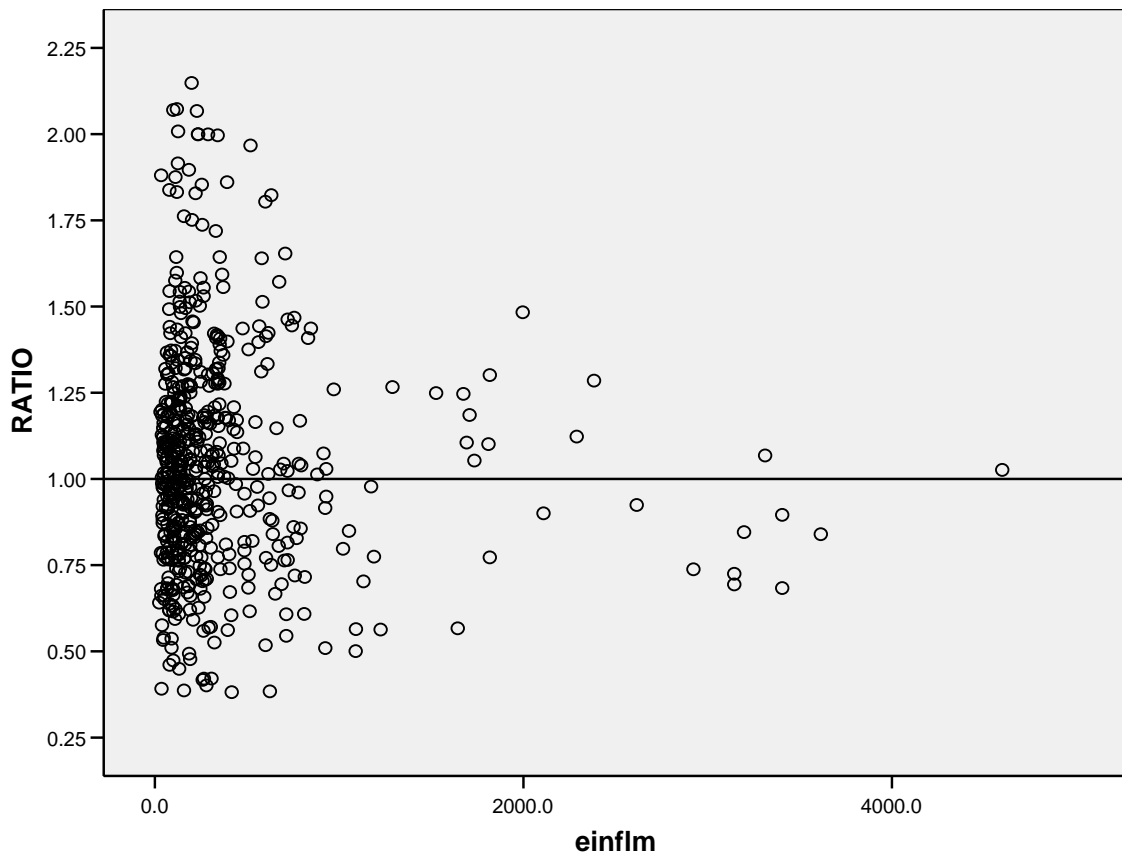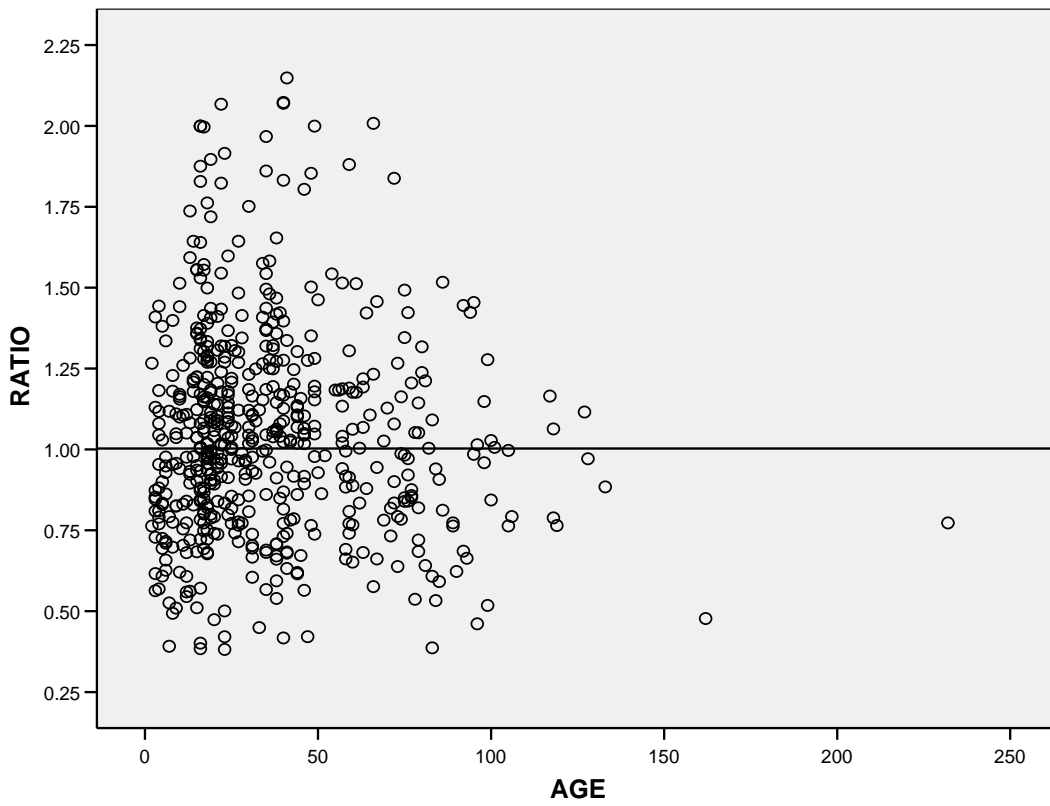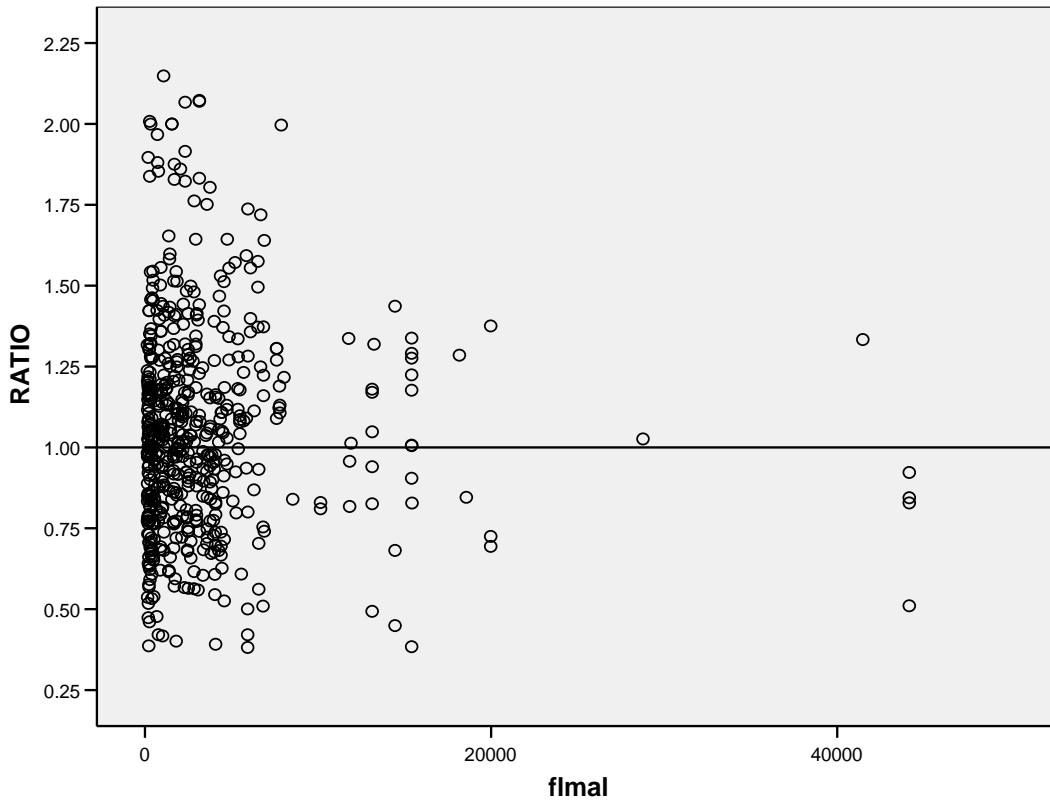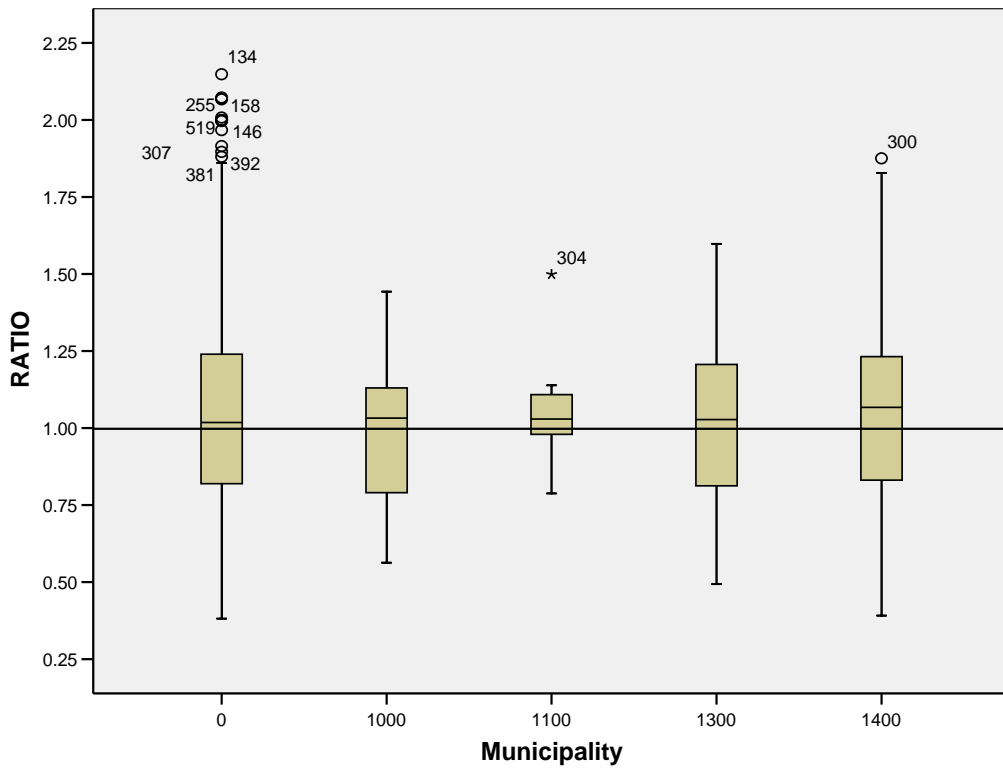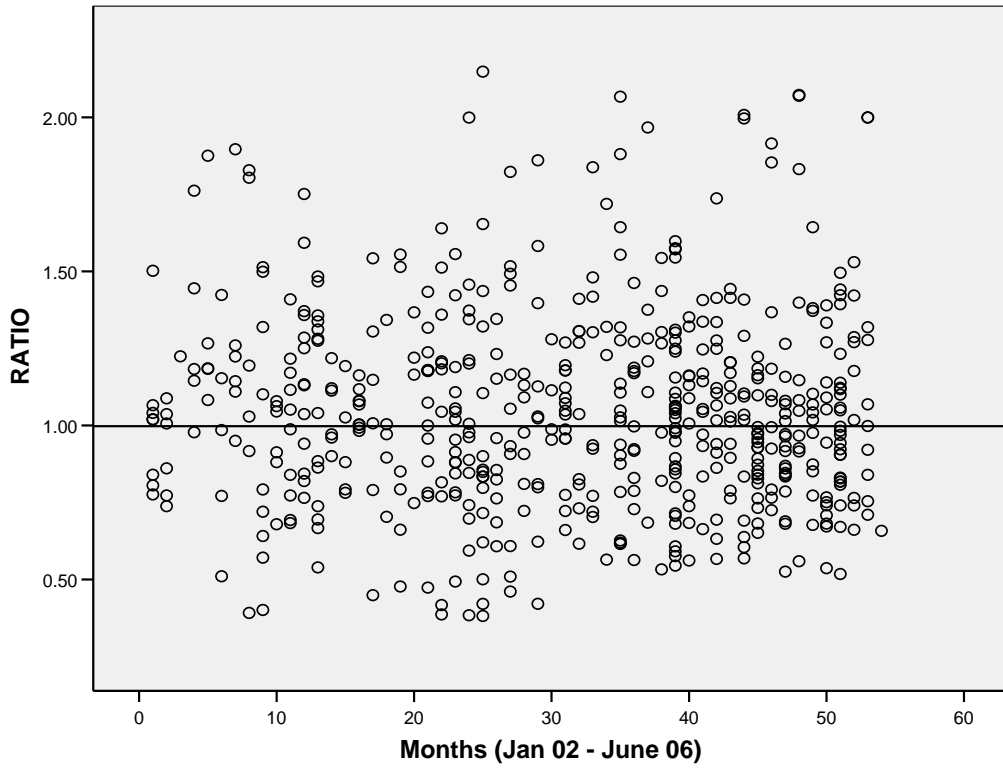
The table below converts the model to a non-logarithmic format.

Value =	31265
(Einflm/200)^	0.957
(1-Age50/100)^	0.123
1.074^	RETAIL
0.693^	WAREHOUSE
1.265^	SALON_STUDIO
0.793^	LIGHT_INDUSTRY
1.307^	GUEST_HOUSE
1.102^	RESTAURANT
0.886^	SVFN_1300
0.890^	SVFN_1400
1.225^	NB_11
1.237^	NB_14_18
0.828^	NB_15
1.729^	NB_17
0.779^	NB_25_28
0.907^	INCOMPLETE
(Flmal*pro/100)/Einflm^	0.051

The constant (31,265) represents the value (in thousands of kronas) of a 200 square meter office in neighbourhood 12 (the base location). The following variables were significant in the model:

- Effective area (einflm), which was divided by 200 so that the constant would represent the value of a property with 200 m2. The exponent of .957 indicates that value per square meter falls slightly with size.
- Property type. There are positive adjustments (multipliers above 1) for retail, salon/studio, guesthouses, and restaurants and negative adjustments (multipliers below 1) for warehouses and light industrial properties.
- Location. Downward adjustments (relative to NBHD 12 in municipality 0) are indicated for municipalities 1300 and 14000, as well as neighbourhoods 15, 25, and 28. Upward adjustments are indicated for neighbourhoods 11 (the old downtown area), 14, 18, and 17. Note that some neighbourhoods were combined due to small sample sizes.
- Age capped at 50 years. Moderate depreciation is indicated for the first 50 years of age.
- Lot size expressed as a land-to-building ratio (which was capped at a maximum value of 3). The model indicates that value per square meter of building area increases moderately with land-to-building ratios (and declines as land-to-building ratios decline).
- Incomplete construction. An approximately 10% downward adjustment is indicated.