

Article

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How tax policies create unexpected results when interest rates are low: A case study of Finnish housing company debt and private investor return¹

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Abstract: Finnish limited liability housing companies (LLHCs) are increasing their debt ratios quickly. In this paper, I argue that current tax rules encourage this behaviour owing to strong shareholder tax incentives for a higher debt ratio. Although tax rules are designed to be neutral, Finnish tax rules related to selling assets are profitable for LLHC shareowners in cases where debt rates are high owing to taxable profits being based not on actual acquisition costs but on presumed acquisition costs derived from the selling price. Both tax deductibility of LLHC financial charges and the presumed acquisition cost rule are from a time when interests and inflation were higher than they currently are. Both of these were used to counter the adverse effects of inflation and interest for asset owners and LLHC shareholders. Currently, when inflation and interest rates are close to zero, these rules have created an incentive for a behaviour that increases risks for the whole economy and reduces tax income.

Keywords: limited liability housing company, tax advantage, inflation, interests

1 Introduction

Interest paid for debt capital is often the focal point of tax policies (Jovanović and Klun, 2017). Housing is one area where tax policies and interest rates directly affect people, as housing prices directly affect most people in a country (He and Wen, 2017). Housing and housing markets play a significant role in society because housing is

a basic human need that must be fulfilled. The connection between housing and the economy is quite complex, but the significance of housing can be demonstrated by the fact that the majority of recessions are preceded by problems in the housing market (Jones *et al.*, 2012, p. 7–10). Property prices play a significant role in mortgage-based credit markets and bank lending (Goodhart and Hofmann, 2007, p. 111–115). Real estate lending may create significant risks for the financial system, and this risk has been realised several times in history (Beckworth, 2012, p. 10–16). There is a close link between housing credit and housing prices, which means that increasing housing credit increases housing boom risks (Cerutti *et al.*, 2017). National housing policies and ways to arrange housing have a significant impact on how housing markets behave in booms and busts (Norris and Byrne, 2018). Especially financial innovations have drastically altered financial and real estate markets in recent history (Allen *et al.*, 2014).

Real estate markets and mortgages have also played a vital role in the Finnish economy and its financial stability in recent years (Bank of Finland, 2019). In Finland housing-related debt has increased significantly during the last decade, and the risks it causes to the financial system and the whole economy are snowballing (Bank of Finland, 2018). Most of the debt increase is due to the increased indebtedness of Finnish limited liability housing companies, LLHCs (Bank of Finland, 2018). LLHCs are, in international comparison, a rather unique and little-understood way to arrange real estate management with several flats (Paukku and Flygare, 2020). The current governmental programme of Finland aims to reduce this indebtedness to reduce its risks to the whole economy (Programme of Prime Minister Sanna Marin's Government, 2019, 25). However, the governmental programme measures are criticised for focusing on the wrong issues as they only focus on tax policy. Still, increased indebtedness has several other reasons because it is beneficial to all major stakeholders that participate in building new housing (Paukku and Flygare, 2020).

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Even though the reasons for increased indebtedness by housing companies have been studied from a legal and economic viewpoint quite recently (Paukku and Flygare, 2020; Flygare and Paukku, 2020), an economic model of tax advantages of limited liability housing company debt does not exist. This article aims to model these tax advantages in the current environment of low to near-zero interest rates. The research contribution of this article is twofold. First, it seeks to provide information that can be used for policymaking in the future. Second, it aims to extend previous economic literature by proving that nationally beneficial tax policies created for an environment with high interest rates might encourage economic actors' adverse behaviour when interest rates are low.

This article has two research questions:

1. What advantages do Finnish tax laws give for housing investment for limited liability housing companies with high debt?
2. How are these advantages dependent on interest rates?

This article focuses on private persons' housing investments as several crucial tax advantages are restricted only to private persons who are not required to keep accounts of their income and assets. Privately owned houses are also relevant to study independently as they differ significantly from conventional assets as they are both investment and consumption goods (Flavin and Yamashita, 2002).

There are two different tax laws that can be applied to housing investments. The first one is the income tax law

(1,535/1,992), and the other is the business taxation law (360/1,968). Their application is presented in the table below:

Although some valuable tax advantages are limited to undertakings, like the possibility of deducting VAT, these are not discussed in this study (Paukku, 2020).

LLHC is a Finnish specialty for governing buildings with several flats. There are different forms of cooperative housing in different countries. The main difference between LLHC and condominiums is their legal status (Ruonavaara, 2005). LLHCs are their own legal entities, and their shareholders are not responsible for LLHCs' liabilities, but they have to pay fees specified in the articles of association. This differs from cooperatives in different Western countries owing to the separation of liabilities between the entity and its holders (Clapham, 2012, p. 306). The goals of these are also different: in some countries, cooperative housing is seen as leading to collective resident involvement and therefore providing effective property management. In Finland, these are the mainstream form of housing that do not have resident involvement due to separation of residents, management of common grounds and owning flats (Ruonavaara 2005, Clapham 2012, p. 306).

A Finnish LLHC differs from condominiums and other cooperatives on several key points (Nurmi *et al.*, 2017, p. 211–212). The first point is that an LLHC owns the building, all flats, and often the land where the building is. Shareholders have permanent rights to possess and use the flat, which is comparable with owning a part of the building in several cases. Possession and use rights are linked to

Table 1: Application of different tax laws in Finland.

	Income tax law	Business taxation law
The legal form of entity	Private and legal entities.	Natural and legal persons.
Incomes taxed	All incomes that are not taxed according to other business laws.	Business income.
Applicable to undertakings (see, for example, Kukkonen and Walden 2015, chapter 5)	Yes, if they have other than business income, ie income from owning shares of a listed company and if they are not an investment company.	Yes.
Applicable to private persons	Yes.	Yes, if their way of earning is closer to active business than earning a wage or investing their savings.
Applicable to housing investments	In most cases, yes.	In cases where owning flats and property is actually an active business, which requires a significant number of flats (Ossa, 2013).
Treats legal entities and private persons differently	Yes, some tax advantages are only applicable to private persons.	No.

ownership of shares, but the occupants are allowed to let the flat. However, the shareholder does not own a part of the building, and in some cases, the LLHC can take possession of the flat and evict the occupant or tenant from the flat (Jauhiainen *et al.*, 2010, p. 117–118). This form of property ownership is one main difference from condominiums, where individuals own the property and have undivided fractional ownership of common areas and infrastructure (Treffers and Lippert, 2020). This structure is similar to Swedish cooperative housing (Ruonavaara, 2005).

Another significant difference is that in an LLHC, all shareholders are only indirectly liable for the LLHC's debts and the LLHC's assets. The LLHC is treated as a regular limited liability company liable for its own debts and assets. However, the shareholders can lose their rights related to their shares if the LLHC faces financial difficulties. For example, all flats in the building can be liquidated for the LLHC's debts. Still, debts are not attributed to individual shareholders, and therefore a shareholder cannot prevent selling the flats just by paying off their own share of the debt (Flygare and Paukku, 2020). The third significant difference is that all shareholders are required by the LLHC Act 3:1 §² to pay maintenance fees, repair fees, and charges for financial costs, based on decisions made by shareholders' meeting. These fees are based on the actual costs that the LLHC has to pay for maintenance and depreciation. If one shareholder cannot pay her fees, other shareholders' fees need to be increased to compensate for the reduced income.

An LLHC is governed much like a regular limited liability company in Finland. LLHC has its own board and can make autonomous decisions on property management, such as reparations according to LLHC Act 7 §1. Only the most significant decisions need to be made by shareholders according to the same paragraph. However, LLHCs are regulated by a specific law, and there are several exceptions and special requirements for governing and making decisions in LLHC compared with a typical LLC (Norri and Palsala, 1991, p. 2). Although the general principle for governing an LLHC is that decisions are made according to the majority principle at the shareholders' meeting, there are several exceptions to that. The most significant limitation is that if a decision reduces a shareholder's rights for a flat or changes the basis on which their liability for the company is calculated, that shareholder's acceptance is required for such a change (Jauhiainen *et al.*, 2010, p. 270–271). In almost all cases, the articles of association state how a shareholder's liability for the company is cal-

culated, for example, based on their shares. The shareholder's meeting then decides how much liability is assigned to a share for the next year.

In this study, I do not consider banking regulations or their impact. The term 'housing investment' is used in this study, meaning investment where a private investor defined in the previous paragraph buys LLHC shares that entitle the owner of the shares to use and possess a particular flat in a building owned by the LLHC. This is a typical way of possessing a flat in Finland. In this study, the term 'housing investment' does not cover cases where a private person bought LLHC shares for their living as this is not an investment in the sense of making a profit but a form of arranging one's own housing. This means that most of the income tax provisions are not applied to these cases as they are not a form of income generation. Approximately one-third of Finns live in LLHCs of which they own the shares, one-third in owner-occupied houses, and one-third in rental dwellings (Ruonavaara, 2005; Tilastokeskus, 2020). In this study, 'housing investment' includes only instances where LLHC shares are bought to let forward flats that shares give the right to possess and use. This limitation of scope is made because tax laws offer several advantages when a flat owned in an LLHC is used for income generation. Several tax advantages are given to people living in their own flat in LLHC, but they are not linked to LLHC indebtedness or interest rates.

This study is conducted by using two methods. The first method used is a practical dogmatic legal method. This method is used in chapter 2 to analyse current tax laws without further systemising them (Aarnio, 2011). The second method is modelling tax advantages of housing investment depending on several variables, mainly LLHC debt and interest rates. This kind of modelling is quite common in economic research (Marekwica *et al.*, 2013). This method is used in chapter 3. However, the model does not entirely fit this category as it focuses only on one type of information to solve the asset allocation problem: the return of the assets after taxes. Chapter 4 includes conclusions and policy implications.

2 Finnish tax law and private housing investment

All relevant tax rules in this study are in income tax law. The first relevant article for this study is article 33, which states that it is possible to deduct interest paid from income if the loan is used to generate income. It needs to be highlighted that the deduction is made from gross income,

2 Asunto-osakeyhtiölaki 1599/2009.

not the amount of tax, which would be due and calculated based on gross income. For interest to be deductible, the loan must be taken to generate income. A loan is taken to generate income if the assets bought with the loan are used mainly for income generation; a small amount of personal use does not prevent deductibility (Ossa, 2013, p. 106). As tax credits for loans taken for one's own house will be removed in the oncoming years, interest on loans taken for income-generating activities will be the Finnish tax system's last possible deductible interest (Paukku and Flygare, 2020, p. 8). Letting even one flat on a permanent basis is counted as income generation. Interest on a loan taken for buying such a flat are therefore deductible. Letting several flats temporarily for short-term housing might be taxed according to business tax law, but this is not included in this study as long-term rentals are taxed according to income tax law if the flat number is not exceptionally high (Paukku, 2020).

When LLHC shares are sold, the profits are taxed according to income tax law. According to § 45 of that law, all profits from selling assets are taxed as capital gains. Capital gains tax is 30% for capital gains under 30,000 euros (€) and 34% for capital gains exceeding €30,000. Profit from asset sales is calculated according to articles § 46 and § 47:

- + Sale price of an asset
- + Depreciation made from the purchase price if used for business use according to business tax law
- + Insurance compensation for the asset from the last five years, if not used to restore asset as it was before the damage
- The acquisition cost of an asset
- Price of significant improvements made for property
- Costs from obtaining profit, for example, brokerage
- = Capital gains from selling an asset

There is a lot of case law and legal literature on defining an asset's acquisition cost and sale price (Andersson *et al.*, 2016, p. 278–284). However, most of these are not relevant to this study. Still, three different issues need to be covered to explain relevant tax rules for rental income and sale profits generated by LLHC shares: (1) the tax deductibility of renovations, (2) how charges for financial costs are treated when LLHC share acquisition cost is defined, and (3) presumed acquisition cost.

First, on the calculation of rental income, when an LLHC share owner lets a flat, he or she earns taxable rental income. In tax law, taxable income is calculated according to income tax law § 54, which includes a general rule according to which it is possible to deduct costs required to generate that income. On some occasions, these are called

'natural deductions', even in the case-law of the highest administrative court.³ So-called yearly costs such as electricity, insurance, heating, and repairs can be deducted from income generated by that flat, ie rental income. The possibly remaining surplus is taxed as capital gains (Ossa, 2013, p. 94). In most cases, renovation and costs of repairs of the flat are deducted as costs for acquiring income (Ossa, 2013, p. 94–98). This, of course, requires that the flat is used for income generation. In taxation, renovations are separated into two groups based on whether they improve the property or maintain it. Improvements are regarded as acquisition costs and are only tax-deductible when acquisition costs are deducted via depreciation or when assets are sold; renovations that preserve assets in the same condition can be deducted as natural deductibles (Andersson *et al.*, 2016, p. 279–284).

Another tax issue relevant for rental income and sale profits is the charge for financial costs. An LLHC decides in its accounting how it will treat charges it has collected from the shareholders. There are two options: recognition or funding of charges. Practically this means how the charges collected from shareholders will be treated in the LLHC's accounting. Recognition of charges means that the LLHC treats them as their income in their accounting, and funding charges means that charges are funded to cover future costs, and they are treated as equity until they are used. If charges are recognised, the LLHC will pay taxes on them, and the one paying the charges can deduct them in their taxation, assuming that the shares are used for income generation. If charges are funded, then the LLHC will not pay taxes on them, and the one paying them cannot deduct them (Tomperi, 2019, chapter 3). Instead, they are added to the acquisition cost of LLHC shares and are deducted when the shares are sold (Andersson *et al.*, 2016, p. 280–281).

If an LLHC has debt and it does not have any other source of income than charges from shareholders, which is often the case, the LLHC must recognise charges that are used to pay back loans and interests (Tomperi, 2019, chapter 4). Recognising means that funded charges are written down from equity and added to the income statement. This is because funded charges cannot be used to pay any costs without first recognising them so that they become taxable income in the accounting. Differences between these two options are summarised in the table below:

The traditional way of making a housing investment is that the value of the estate or flat is the purchase price. However, in an LLHC, an investor is actually buying shares

³ Highest administrative court judgement KHO 2009:106.

Table 2: Different ways of handling charges.

	Funding charges	Recognising charges
In accounting	Treated as capital.	Treated as income.
In LLHC taxation	No effect until the funding is ended, and then all funded charges are taxed.	Treated as taxable income.
Can be used to cover costs or loan paybacks	Not without ending the funding.	Yes. The only way to do so if the LLHC does not have other income sources.
For an LLHC shareholder who lives in the flat	Monthly fee, not tax-deductible.	Monthly fee, not tax-deductible.
For an LLHC shareholder that lets the flat forward (investor)	Monthly fee, not tax-deductible.	Monthly fee, tax-deductible.
The tax effect for LLHC shareholder that lives in the flat when the flat is sold	Funded charges are added to the acquisition cost of the flat, therefore decreasing taxable profit.	No effect.
The tax effect for the investor when the flat is sold	Funded charges are added to the acquisition cost of the flat, therefore decreasing taxable profit.	No effect.

in a company. Therefore, in the case of an LLHC, the purchase price of shares is not the value of the flat the investor gives possession rights to, but the value of that flat deducted from LLHC liabilities attributed to those shares. It is nowadays quite common for an LLHC to take a high amount of debt to fund the construction of the building and then collect fees from shareholders to pay back the loan. Before 2010, it was more common for a building company that owned all LLHC shares to take the loan in their name and then pay it back by selling LLHC shares to investors and those who bought the flat for themselves (Paukku and Flygare, 2020). In practice, the price the buyer pays for the shares/flat is called ‘price with debt’, which is calculated from deducting the debt the shareholder is responsible for from the market price of the flat without debt ‘price without debt’.

The LLHC pays back the debt and interests by collecting charges from shareowners. If the shareowner is letting their flat, they can deduct all charges paid to the LLHC, which means that from their perspective, the loan repayment for the flat becomes deductible. This makes it much easier to finance a flat in an LLCH with a high indebtedness as the investor can deduct loan repayments as long as LLCH recognises the charges it uses to pay back the loan.

Should an LLCH not have debt, the purchase price would be higher, and the investor would not be able to deduct the repayments of the loan she takes for herself to cover the higher purchase price (Paukku and Flygare, 2020). In this case, the LLCH does not have loans, and it does not need to collect charges for financial costs; it

collects charges only for running costs such as cleaning, heating, and so on. If the investors take the loan themselves, they can deduct only the interest on the loan. Note also that in taxation, the acquisition cost of LLHC shares is the purchase price added with some other expenses. This means that the LLHC’s loan attributed to shares is deducted from the shares’ debt-free price (Kasso, 2014, p. 398).

It is quite common in Finland that the price of LLHC shares is only 20%–40% of the debt-free price of the flat they give rights to owing to the high indebtedness of the LLHC (Flygare, 2019, p. 22). Most of the LLHC debt is from the construction period as it is becoming more common that it is the LLHC that takes the debt for construction, rather than the construction company that owns the LLHC shares (Paukku and Flygare, 2020). This means that the investors’ acquisition cost for the shares used in taxation might, in extreme cases, be as low as 20% of the debt-free value of the flat. In this case, if the LLCH pays off the debt during the years that the investor owns the shares, the profit from selling the shares is 80% (minus some minor costs) as sales profit is calculated from the nominal selling prices without taking into account the debt attributed to the shares. For example, if the shares’ market value without debt is €100,000 and there is €80,000 worth of LLHC debt attributed to the shares, the buyer is willing to pay only €20,000 for that flat. If the debt is paid off during the period one owns the shares and the flat value remains the same, the shares can be sold for €100,000 after the debt is paid off. In this case, the taxable profit is calculated to be a

nominal selling price of €100,000 – a nominal acquisition price of €20,000.

Capital gains taxes are paid based on this latter profit (€80,000). Those who do not use the flat for income generation have not deducted charges for financial costs during the years of ownership. This means that taxation is quite heavier for them than for those who have used the flat for income generation and have deducted charges for financial costs, which have been used to pay off the loan of the LLHC.

Another significant tax rule is the so-called presumed acquisition costs. According to income tax law § 46, if a natural person sells assets, the acquisition cost can be presumed in some cases (Andersson *et al.*, 2016, p. 283–284). Acquisition costs can be presumed to be 20% of the sale price in all cases. If one has owned the assets for more than ten years, the acquisition cost can be presumed to be 40% of the sale price. This presumed acquisition cost can be used in two cases. The first one is if the actual acquisition cost is unknown. The second one is if the presumed acquisition cost is higher than the actual acquisition cost, in which case the more beneficial cost for one liable for the tax is used. This means that presumed acquisition cost cuts down capital gains tax if taxable profits would constitute a significant portion of the selling price.

3 Interest rates and tax advantages

At the beginning of this chapter, the profits from housing investment are analysed and calculated in different cases, and significant factors relevant for total profit after taxes are recognised. At the end of this chapter, the impact of the tax system under different interest rates is analysed. Although the timing and choosing of a relevant market sector are crucial for generating profits in the real estate market at a larger scale, this study focuses on small private investors who do not have assets for choosing market sectors or timing, making these questions irrelevant.

Section 1. Profits from letting a flat

First, gross profits from letting a house in the year following are:

$$P_r = R - M - F - C \quad (1)$$

Where

P_r = profits from letting a flat

R = yearly rental income

M = yearly maintenance fees

F = yearly charges for financial costs

C = other yearly rental costs

Although maintenance costs and rental income are linked to each other and ownership time, they are treated as constants in this article as ownership time is relatively short, less than ten years. Rental income is supposed to be constant for the sake of simplicity (see, for example Blazenko and Pavlov, 2004). However, taxable profit is based on whether financial costs are funded or recognised. Taxable profit might differ from gross profit due to taxation rules. I then compare taxable gross profits from letting a flat (TP_r) in cases where charges are recognised and where they are funded. In both cases, gross profits (P_r) are the same.

If charges are recognised ('the first case'), taxable gross profits equal gross profits:

$$TP_{R1} = P_r = R - M - F - C \quad (2)$$

And if financial costs are funded, LLHC's accounting, instead of charging ('the second case'), is

$$TP_{R2} = R - M - C \quad (3)$$

Total profits (P_1) after taxes in the first case (equation 2) are:

$$\begin{aligned} P_1 &= (1 - TR) \times TP_{R1} = (1 - TR) \times P_r \\ &= (1 - TR) \times (R - M - F - C) \end{aligned} \quad (4)$$

Where

TR = tax rate

And total taxes (T_T) in this case are:

$$T_{T1} = TR \times TP_{R1} = TR \times P_r = (TR) \times (R - M - F - C) \quad (5)$$

Total profit after taxes in the second case (equation 3) is:

$$\begin{aligned} P_2 &= P_r - TR \times TP_{R2} = R - M - F - C - TR \times TP_{R2} \\ &= R - M - F - C - TR \times (R - M - C) \\ &= (1 - TR) \times (R - M - C) - F \end{aligned} \quad (6)$$

And total taxes in this case:

$$T_{T2} = TR \times TP_{R2} = (TR) \times (R - M - C) \quad (7)$$

As gross profits from both cases are the same, the difference between total profits from the first case (equation 4) and the second case (equation 6) is the difference in taxes paid according to equations 5 and 7:

$$\begin{aligned} P_1 - P_2 &= T_{T2} - T_{T1} \\ &= TR \times (R - M - C) - TR \times (R - M - F - C) \\ &= TR \times F \end{aligned} \quad (8)$$

This means that the difference in total profits between these two identical cases differs based on how LLHC treats charges for financial costs in their accounting.

Section 2. Profits from total ownership time

From the state's viewpoint, there is also a difference in whether LLHC recognises or funds charges for financial costs. LLHC is taxed according to the corporate tax rate, which is 20% according to income tax law § 124. A private investor is taxed, as a function on the amount of income, according to the capital gains tax rate, which is between 30% and 34%. However, it is rare that LLHCs would pay taxes since they are not meant to make a profit. The building itself is so large a base for the depreciation that all 'accidental' profits can be written down at the end of the financial year (Tomperi, 2019, chapter 4). Therefore, from the state's point of view, the total amount of taxes from income generation based on LLHC shares come only from private investors. Next, I shall show the total amount of taxes collected in cases where charges are either recognised or funded. In these cases, taxes are analysed from total ownership time when shares are sold at the end of ownership time.

In the first case, charges are recognised, and the flat is sold at the end of the ownership period. In the case of recognised charges, total taxes from letting during ownership time (T_{TR1}) are taxes paid from letting (T_{T1}) according to equation 5, multiplied by the ownership time O_T :

$$\begin{aligned} T_{TR1} &= O_T \times T_{T1} = O_T \times TR \times TP_{R1} = O_T \times TR \times P_R \quad (9) \\ &= O_T \times (TR) \times (R - M - F - C) \end{aligned}$$

In this case, total taxes from sales of shares are:

$$T_{TS1} = TR \times TP_{S1} = TR \times (I_S - A_1 - C_S) \quad (10)$$

Where:

I_S = income from selling the flat

TP_S = taxable profits from selling the flat

A = acquisition cost

C_S = Other costs from selling a flat

Therefore, in this first case, total taxes over ownership time (T_T) are total taxes from letting (T_{T1}) added to total taxes from selling the flat (T_{TS1}):

$$\begin{aligned} T_{T1} &= T_{TS1} + T_{TR1} \quad (11) \\ &= TR_1 \times (I_S - A_1 - C_S) + O_T \times TR_2 \times (R - M - F - C) \end{aligned}$$

It is necessary to use different tax rates as it is likely $TR_1 > TR_2$ since it is easier to make larger taxable profits when selling a flat than from letting it. Higher yearly income is taxed on a higher rate of profits that exceed €30,000.

In the second case charges are funded and the flat is sold at the end of the ownership time. In the case of funded charges, total taxes from letting during ownership time

(T_{TR2}) are taxes paid from letting (T_{T2}) according to equation 7, multiplied by the ownership time O_T :

$$T_{TR2} = O_T \times TR \times TP_{R2} = O_T \times TR \times (R - M - C) \quad (12)$$

Furthermore, total taxes from share sales in the second case, in principle, are the same as in equation 10:

$$T_{TS2} = TR \times TP_{S2} = TR \times (I_S - A_2 - C_S) \quad (13)$$

However, when funded financial costs are added to acquisition cost in the second case, acquisition cost in case 2 (A_2) equals the acquisition cost in case 1 (A_1), and the total taxable income from sales is actually:

$$T_{TS2} = TR \times TP_{S2} = TR \times (I_S - A_1 - C_S + O_T \times F) \quad (14)$$

Which makes total taxes in the second case:

$$\begin{aligned} T_{T2} &= T_{TS2} + T_{TR2} \quad (15) \\ &= TR_1 \times (I_S - A_1 - C_S + O_T \times F) + O_T \times TR_2 \\ &\quad \times (R - M - C) \end{aligned}$$

Equation 15 would imply that if $TR_1 = TR_2$, then total taxes in equation 11 = total taxes in equation 15, $T_{T11} = T_{T15}$. But since $TR_1 > TR_2$ is likely true, then $T_{T11} > T_{T15}$. This means that recognising charges for financial costs would not benefit private investors owing to higher total taxes. It is necessary to note that although the real estate markets are not perfect due to asymmetric information and a low number of sales in relevant market sectors, this is not relevant for this study (Chau *et al.*, 2010).

Section 3. Presumed acquisition cost

However, the situation changes when I take into account the last-mentioned tax rule: presumed acquisition cost. If a flat has been owned for over ten years, the presumed acquisition cost that can be used in taxation is 40% of the sale price due to the tax laws explained in section 2, which means that total taxes from sales are, in the first case where presumed acquisition cost is not applied, as follows:

$$T_{TS} = TR \times TP_S = TR \times (I_S - A - C_S) \quad (16)$$

This applies only if:

$$0.4 \times I_S \leq A \quad (17)$$

and in the second case where presumed acquisition cost is applied:

$$T_{TS} = TR \times TP_S = TR \times 0.6 \times I_S - C_S \quad (18)$$

This is only applied if:

$$0.4 \times I_S \geq A \quad (19)$$

Next, for the sake of simplicity, I assume that the debt-free price of LLHC shares has not changed during ownership time. After equation 35 it is explained how the increased price of LLHC would change the situation. Therefore, the sale income of shares is the acquisition cost added to financial costs that are incurred to repay the loan, which is the total yearly financial costs (F_T) without yearly financial costs that are used to pay interest F_I , and both are multiplied by ownership time O_T :

$$I_S = A + O_T \times (F_T - F_I) \quad (20)$$

Presumed acquisition cost is used only when it is more profitable for the taxpayer. Therefore, it is used only if profits are over 60% of the sale price, meaning that the sale price must be at least 2.5 times higher than the acquisition cost meaning that the price increase should be 1.5 times the acquisition cost. Therefore, the presumed acquisition cost is not applied if:

$$\begin{aligned} 0.4 \times (A + O_T \times (F_T - F_I)) &\leq A \quad (21) \\ \rightarrow O_T \times (F_T - F_I) &\leq 1.5 \times A \end{aligned}$$

And it is applied if:

$$\begin{aligned} 0.4 \times (A + O_T \times (F_T - F_I)) &\geq A \quad (22) \\ \rightarrow O_T \times (F_T - F_I) &\geq 1.5 \times A \end{aligned}$$

In the first case where presumed acquisition cost is not applied, I use case the sale income from equation 20 and add it to equation 16 to get total taxes paid from sales in the first case:

$$\begin{aligned} T_{TS1} &= TR \times TP_{S1} = TR \times (I_S - A - C_S) \quad (23) \\ &= TR \times (A + O_T \times (F_T - F_I) - A - C_S) \\ &= TR \times (O_T \times (F_T - F_I) - C_S) \end{aligned}$$

In this case, the total profits from sales (P_{S1}) can be derived from equation 23:

$$\begin{aligned} P_{S1} &= I_S - A - C_S - T_{TS1} \quad (24) \\ &= O_T \times (F_T - F_I) - C_S - TR \times (O_T \times (F_T - F_I) - C_S) \end{aligned}$$

And in the second case where the presumed acquisition cost applies, sale profits can be derived from equation 18 and add sale income derived in equation 20 to it to get total taxes:

$$\begin{aligned} T_{TS2} &= TR \times TP_{S2} \quad (25) \\ &= TR \times 0.6 \times (A + O_T \times (F_T - F_I)) - C_S \end{aligned}$$

And total profits

$$\begin{aligned} P_{S2} &= I_S - A - C_S - T_{TS2} \quad (26) \\ &= O_T \times (F_T - F_I) - C_S - TR \\ &\quad \times (0.6 \times (A + O_T \times (F_T - F_I)) - C_S) \end{aligned}$$

Section 4. Total profits from ownership time with presumed acquisition cost

Thus, I can define total profits during ownership time in four different cases. The cases are constructed by combining two different legal aspects that affect the tax treatment of LLHC investment: the decision between recognising and funding charges and whether the presumed acquisition cost applies.

FIRST OPTION: Charges for financial costs are recognized, and presumed acquisition cost applies. In this case, profits from sales (P_{S1}) come from equation 26 and profits from letting the flat from equation 4 (P_{R1}), multiplied by the length of ownership (in years). In this case, total profits are:

$$\begin{aligned} P_1 &= P_{S1} + P_{R1} \quad (27) \\ &= O_T \times (F_T - F_I) - C_S - TR_1 \\ &\quad \times (0.6 \times (A + O_T \times (F_T - F_I)) - C_S) + O_T \times (1 - TR_2) \\ &\quad \times (R - M - F - C) \end{aligned}$$

SECOND OPTION: Charges for financial costs are recognized, and the presumed acquisition cost does not apply. In this case, profits from sales (P_{S2}) come from equation 24 and profits from letting the flat from equation 4 (P_{R1}), multiplied by the length of ownership (in years). In this case, total profits are:

$$\begin{aligned} P_2 &= P_{S1} + P_{R1} \quad (28) \\ &= O_T \times (F_T - F_I) - C_S - TR_1 \times (O_T \times (F_T - F_I) - C_S) \\ &\quad + O_T \times (1 - TR_2) \times (R - M - F - C) \end{aligned}$$

THIRD OPTION: Charges for financial costs are funded, and the presumed acquisition cost does apply.

As charges need to be recognised in order to pay interest, there will be no interest part for charges, and they all increase the value of shares. In this case, profits from sales (P_{R1}) come from equation 26 without F_I , which means $F = F_T$, and profits from letting the flat (P_{R2}) come from equation 6:

$$\begin{aligned} P_3 &= P_{S1} + P_{R2} \quad (29) \\ &= O_T \times F - C_S - TR_1 \times (0.6 \times (A + O_T \times F) - C_S) \\ &\quad + O_T \times ((1 - TR_2) \times (R - M - C) - F) \end{aligned}$$

Table 3: Different options.

Option	Funding or recognition	Presumed acquisition cost	Sale profits equation	Letting profits equation	Requirement
1	Recognition	Yes	26	4	$O_T \times (F_T - F_I) \geq 1.5 \times A$
2	Recognition	No	24	4	$O_T \times (F_T - F_I) \leq 1.5 \times A$
3	Funded	Yes	26	6	$O_T \times (F_T - F_I) \geq 1.5 \times A$
4	Funded	No	24	6	$O_T \times (F_T - F_I) \leq 1.5 \times A$

FOURTH OPTION: charges for financial costs are funded, and the presumed acquisition cost does not apply. In this case, profits from sales come from equation 24 without F_I , which means $F = F_T$, and profits from letting the flat come from equation 6:

$$\begin{aligned}
 P_4 &= P_{S1} + P_{R2} & (30) \\
 &= O_T \times F - C_S - TR_1 \times (O_T \times F - C_S) \\
 &\quad + O_T \times ((1 - TR_2) \times (R - M - C) - F)
 \end{aligned}$$

In the comparison of profits from options one and two, where charges for financial costs are recognised, but presumed acquisition cost applies only in the first option, comparing profits between equations 27 (P_1) and 28 (P_2) can be discovered when $P_1 > P_2$ is true. It needs to be noted that tax rate for selling the flat (TR_1) is different for sales in different scenarios due to different acquisition cost and therefore different taxable profit. The tax rate for profits from letting a flat (TR_2) is the same for both scenarios as the applied tax rules are the same. This applies to all the following examples.

$$\begin{aligned}
 &O_T \times (F_T - F_I) - C_S - TR_{11} & (31) \\
 &\quad \times (0.6 \times (A + O_T \times (F_T - F_I)) - C_S) + O_T \times (1 - TR_2) \\
 &\quad \times (R - M - F - C) > O_T \times (F_T - F_I) - C_S - TR_{12} \\
 &\quad \times (O_T \times (F_T - F_I) - C_S) + O_T \times (1 - TR_2) \\
 &\quad \times (R - M - F - C) \\
 &\rightarrow -TR_{11} \times (0.6 \times (A + O_T \times (F_T - F_I)) - C_S) > -TR_{12} \\
 &\quad \times (O_T \times (F_T - F_I) - C_S)
 \end{aligned}$$

It can also be noticed that $TR_1 < TR_3$ is true if the rest of the equation would be true without them as higher taxable profits mean a higher tax rate, and the remaining terms are both taxable profits, which are the only difference between these two cases. Therefore $P_1 > P_2$ is true if:

$$1.5 \times A < O_T \times (F_T - F_I) \quad (32)$$

From this comparison, it can be seen that if charges are recognised, profits are higher in the option where presumed acquisition cost is applied if LLHC debt has been

paid ($O_T \times (F_T - F_I)$) 1.5 times the acquisition cost ($1.5 \times A$). The same applies in a comparison of profits in cases where charges for financial costs are funded from equations 29 and 30, $P_3 > P_4$, if $1.5 \times A < O_T \times F$. This case is not likely to happen. This would mean that the LLHC would have collected and funded 1.5 times more money than the LLHC shares' market value including debt. It must be recalled that charges funded cannot be used to pay off debt or any other costs.

It is possible to illustrate the significance of debt with the following example: suppose an LLHC has debt equal to 80% of the flat's value and interest rates are low. We take the flat's debt-free market value, use the symbol M , and then with equation 32, present acquisition cost with 0.2M due to A representing debt-free value:

$$\begin{aligned}
 1.5 \times 0.2M &< O_T \times (F_T - F_I) & (33) \\
 \rightarrow 0.3M &< O_T \times (F_T - F_I)
 \end{aligned}$$

If interest rates are low, F_I is close to zero. In that case, it is necessary only to levy charges for financial costs at a bit more than 30% of the flat's debt-free market value to repay the loan to make $1.5 \times A < O_T \times (F_T - F_I)$ to be true. As the third option presented in equation 29 is an unlikely scenario, it would require a significant increase in apartments market price of substantial savings (previously funded charges) in an LLHC. It can be dropped out of the comparison. We are comparing the second option presented in equation 28 and the fourth option presented in equation 30 and then the first option presented in equation 27 and the fourth option presented in equation 30.

If and we compare the profits from cases where charges for financial costs are recognised, the presumed acquisition cost does not apply (P_2), charges for financial costs are funded, and presumed acquisition cost does not apply (P_4), we can find when $P_2 > P_4$ is true. In this case,

all tax rates are different.

$$\begin{aligned}
 & O_T \times (F_T - F_I) - C_S - TR_{11} \times (O_T \times (F_T - F_I) - C_S) \quad (34) \\
 & + O_T \times (1 - TR_{21}) \times (R - M - F - C) > O_T \times F - C_S \\
 & - TR_{12} \times (O_T \times F - C_S) + O_T \\
 & \times ((1 - TR_{22}) \times (R - M - C) - F) \\
 \rightarrow & O_T \times (F_T - F_I) - TR_{11} \times (O_T \times (F_T - F_I) - C_S) + O_T \\
 & \times (1 - TR_{21}) \times (R - M - F - C) > O_T \times F - TR_{12} \\
 & \times (O_T \times F - C_S) + O_T \times ((1 - TR_{22}) \times (R - M - C) - F)
 \end{aligned}$$

This one is a bit trickier to compare owing to different tax rates. First, it can be seen that if charges for financial costs are funded, the sale price of the flat is a bit higher as the larger part of charges has been used to increase the flat's value:

$$O_T \times (F_T - F_I) < O_T \times F$$

However, this difference is reduced owing to differences in tax rates of sales:

$$TR_{11} \times (O_T \times (F_T - F_I) - C_S) < TR_{12} \times (O_T \times F - C_S)$$

Rental income also differs:

$$\begin{aligned}
 & O_T \times (1 - TR_{21}) \times (R - M - F - C) \\
 & > O_T \times ((1 - TR_{22}) \times (R - M - C) - F)
 \end{aligned}$$

First, it can be seen that longer ownership time increases the profitability of recognising charges. When we compare yearly differences, the result is:

$$\begin{aligned}
 & (1 - TR_{21}) \times (R - M - F - C) \\
 & > ((1 - TR_{22}) \times (R - M - C) - F)
 \end{aligned}$$

As incomes without taxes are the same, the tax differences are:

$$\begin{aligned}
 & -TR_{21} \times (R - M - F - C) > -TR_{22} \times (R - M - C) \\
 \rightarrow & F < \frac{TR_{22}}{TR_{21}} \times (R - M - C) - (R - M - C)
 \end{aligned}$$

This one is always true as $TR_{21} > TR_{22}$, meaning that the term is less than 1, meaning the right term of the equation is below 0, which is impossible for F as charges cannot be negative.

In this case, it can be seen that recognition is more profitable if higher rental income after taxes during the whole length of ownership makes up the flat's lower selling price with a lower tax rate. This is more likely to be true if interest (F_I) is low, charges for the financial cost (F) are high, or tax rate differences between rental income scenarios are high. As tax varies between 30% and 34%, the tax

difference is not that high, if we take into account that tax differences are likely to be higher when the owner sells the flat, as the tax rate is based on yearly capital income after deductions. It can be concluded that recognising charges becomes more profitable compared with funding if interest rates are low and charges for financial costs are high, practically meaning higher indebtedness. However, in the case of higher indebtedness, the presumed acquisition cost is likely to apply, as was shown above.

To comprehend the tax differences fully, it is possible to compare the first and fourth cases presented in equations 27 and 30 and thereby find out when $P_1 > P_4$ is true.

$$\begin{aligned}
 & O_T \times (F_T - F_I) - C_S - TR_{11} \quad (35) \\
 & \times (0,6 \times (A + O_T \times (F_T - F_I)) - C_S) + O_T \times (1 - TR_{21}) \\
 & \times (R - M - F - C) > O_T \times F - C_S - TR_{12} \times (O_T \times F - C_S) \\
 & + O_T \times ((1 - TR_{22}) \times (R - M - C) - F) \\
 \rightarrow & O_T \times (F_T - F_I) - TR_{11} \\
 & \times (0,6 \times (A + O_T \times (F_T - F_I)) - C_S) + O_T \times (1 - TR_{21}) \\
 & \times (R - M - F - C) > O_T \times F - TR_{12} \times (O_T \times F - C_S) \\
 & + O_T \times ((1 - TR_{22}) \times (R - M - C) - F)
 \end{aligned}$$

First, the same thing can be seen as in the previous comparison: if charges for financial costs are funded, the sale price of the flat is a bit higher as the larger part of charges has been used to increase the flat's value:

$$O_T \times (F_T - F_I) < O_T \times F$$

The tax differences are a bit trickier to analyse:

$$\begin{aligned}
 & TR_{11} \times (0,6 \times (A + O_T \times (F_T - F_I)) - C_S) \\
 & < TR_{12} \times (O_T \times F - C_S)
 \end{aligned}$$

This equation is more likely to be true if the acquisition cost is lower and interest rates are high. However, it is necessary to remember the precondition for case one:

$$O_T \times (F_T - F_I) \geq 1,5 \times A$$

Therefore, although tax treatment becomes more profitable with higher interest rates, it makes this comparison impossible at some point.

Rental income does differ similarly than in the previous comparison:

$$\begin{aligned}
 & O_T \times (1 - TR_{21}) \times (R - M - F - C) \\
 & > O_T \times ((1 - TR_{22}) \times (R - M - C) - F)
 \end{aligned}$$

This comparison tends to favour presumed acquisition cost and recognising charges in cases where ownership time, and yearly charges for financial costs are higher, and

interest rates are low. Therefore, it can be stated that when interest rates are low, the more the investor pays LLHC charges for *financial* costs, the more likely it is to be more profitable to use presumed acquisition costs and recognised charges than actual acquisition cost and funded charges. As the equation tends to be true if the acquisition cost is lower, in the investor's perspective, it is better to have an LLCH with a higher debt ratio as it lowers the acquisition cost and therefore increases total profits. It can also be seen that if the flat price has increased so that there are even more considerable differences between I_s and A , the more profitable recognised charges are for investors as presumed acquisition costs cut the price increase from an increase in market value and paying off LLHC debt.

In the analysis of case comparisons from cases one, two, and four, it is possible to see that the following factors can make a high LLHC debt rate profitable for the investor:

- Low interest rates
- Low difference between tax rates for sale profits and yearly rental profits

4 Interest rates and tax policy

To begin with, it is necessary to state that although inflation and interest rates might not correlate in the short-term, the Fisher effect has been proved to exist in the long term (Mishkin, 1992). When we talk about a period closer to decades than years, it is relevant to state that interest rates correlate quite well with inflation and otherwise. Therefore, the data about inflation rates and policy apply links to inflation or interest and vice versa. As inflation is more relevant to some historic tax policies, data and sources are more widely available about those.⁴ However, as interest rates are the main factor affecting excessive tax advantages nowadays, it is necessary to determine what effect interest might have had on some period when those tax rules were given.

The presumed acquisition cost is based on the idea that it is sometimes hard to define actual acquisition costs if the owner has to keep an account of her assets as companies must keep.⁵ The presumed acquisition cost is based on the idea that inflation has created extra taxable profits

as the prices rise. Therefore, it has to be higher when assets have been owned for a more extended period.⁶ Average inflation since the last check of presumed acquisition costs has been around 1.5% (Tilastokeskus, 2019). However, the actual tax rule dates further back than the income tax law from 1992.⁷ During that period, interests and inflation were much higher, and since then, the presumed acquisition cost has been reduced from 50% and 30% to 40% and 20%. When the presumed acquisition cost was adopted to tax regulation, inflation was 10%–20% at its worst (Tilastokeskus, 2020). When the presumed acquisition cost was reduced from 50% and 30% to 40% and 20% at the beginning of the 21st century, inflation was below 3% (Tilastokeskus, 2020). Therefore, presumed acquisition cost levels chosen 20 years earlier were not suitable for the new monetary environment.

The rule about the presumed acquisition cost was taken into the older income tax law in 1985, and before that, profits from asset sales were taxed at much lower rates.⁸ In 1988 the tax law was amended to increase the taxation of profits from sale of assets with a high increase in value during a short period.⁹ However, it was seen to be necessary to protect the owner of assets from taxation of an increase in sale prices without actual increase in market value of the asset, ie inflation, which was done by adding presumed acquisition cost rule to the tax laws. Even if inflation was not mentioned in the governmental bill, it can be seen from the preparation documents that legislators found it evident that the price of assets would increase as time passed. When those tax laws were passed during the 1970s, 1980s, and 1990s, inflation was much higher, which made a nominal increase in asset prices natural (Tilastokeskus, 2020).

It has been stated on occasion that the tax rules relevant for asset sales are partly dependant on inflation. Some of these tax rules have been given when inflation was around 10%–20%. As inflation is currently between 0% and 1%, it is clear that the same laws and even the same principles are not applicable (Tilastokeskus, 2020).

Tax policies that were designed to counter the adverse effects of inflation were effective at the time. They did cut taxable profits created only by a nominal increase in prices. This policy was sufficient to increase asset sales as

⁴ Government bill 1988 vp. – HE n:o 109 Hallituksen esitys Eduskunnalle tulo- ja varallisuusverolaiksi ja siihen liittyväksi lainsäädännöksi p. 18.

⁵ Government bill HE 96/2004 vp Hallituksen esitys eduskunnalle laeiksi tuloverolain sekä perintö- ja lahjaverolain muuttamisesta p 2.

⁶ Government bill HE 96/2004 vp p 2.

⁷ Government bill HE 200/1992 vp Hallituksen esitys eduskunnalle tuloverolaiksi sekä laiksi eräiden yleishyödyllisten yhteisöjen veronhuojennuksista annetun lain 1 ja 6 §:n muuttamisesta p. 37.

⁸ Government bill 1988 vp p. 17.

⁹ Government bill 1988 vp p. 18.

taxation did not produce adverse incentives for that. However, the mistake might have been made when policymakers chose to use a fixed rate to cut the effects of inflation. This fixed rate was effective at the time, but at times of lower inflation, it would create excessive profits as it would reduce taxable profits more than was required to counter inflation. Some policies – for example, pension rates according to pension law (395/2006)¹⁰ article §98 – are linked to inflation, but this policy option was not used in tax policies.

These fixed rates were checked at the beginning of the 21st century, but since then, inflation has come down lower or even to a non-existent level. Tax policies designed to counter the adverse effects of inflation on exchanges are currently not relevant. They currently create undersigned tax advantages as owning assets longer might yield tax advantages when selling them. Still, inflation creates barely any taxable profit that is not based on an actual increase in the value of assets.

5 Conclusions and policy implications

This study aimed to answer two research questions. The first one was ‘What kind of advantages does Finnish tax laws give for housing investment for limited liability housing companies with high debt?’ This question is answered in chapter 3. Finnish tax laws give investors tax advantages if an LLHC has a high debt rate. This is because investors can make tax deductions for charges for financial costs used to pay off the debt that reduces the value of LLHC shares. This tax advantage could, in principle, be negated when the LLHC shares are sold because paying off debt increases the sale price of these shares and therefore creates profits because the asset acquisition price used is the LLHC share price with debt. However, this negation effect does not apply if the presumed acquisition cost is used, and the acquisition cost is presumed to be 20% or 40% of the sale price. Tax advantages for LLHC debt are even higher if the assets are not sold, as adverse tax effects are not realised in this case at all. These tax advantages are even more significant if the value of the LLHC shares has increased during ownership time as the presumed acquisition cost reduces profits from sales.

The second research question was ‘How are these advantages dependent on interest rates?’ In chapter 3, it is

shown that these advantages are dependent on interest rates. These tax advantages make the overall investment significantly more profitable if interest rates are lower. This is because more tax-deductible costs are used to increase the flat’s value, rather than capital costs. As tax policies are designed for an environment where inflation and, therefore, interest are high, they are not meant for this kind of environment and thus create unintended tax advantages. These tax advantages have created incentives for high LLHC debt as they provide higher profits for housing investments.

This study has two main contributions. The first one is academic: this paper extends the literature related to tax policy studies. It also analyzes how tax policies might depend on interest rates and how they might create unintended results when interest rates change significantly. The second significant contribution is the policy recommendations. Even though there are other reasons why LLHC debt has increased in the last decade, tax policy still does have its role. This paper proves theoretically that lower interest rates increase the profitability of LLHC debt for the investor. In addition to this, this paper criticises the fact that policies determined to counter inflation are not tied to inflation but to fixed rates that are not checked as inflation changes. Of course, there are other reasons for fixed rates, such as administrative economics, but they are not the subject of this study. As LLHCs are not a typical way to arrange housing in other countries, it is impossible to prove a link between interest rates and LLHC debt as there are no other countries to compare Finland with. In addition to this, there are other factors recognised in previous studies that are likely to affect debt rates – for example, loan restrictions for the mortgage. Due to this, this phenomenon can most likely be analysed only on a theoretical level, and discussion about regulation needs to be based on that.

However, these results might provide some suggestions for tax policies. The current tax system related to LLHC investments does not meet the goals the rules were designed for. As interest rates are low, the role and impact of the presumed acquisition cost rule should be assessed, as the rule might create other undesired effects not covered in this study. Another policy aspect is that the deductibility of charges for financial costs should be assessed critically. In order to reduce undesired effects, it might be beneficial to limit deductibility only to the interest part of the charge.

¹⁰ Työntekijän eläkelaki (395/2006).

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