

# Effects of VAT-exemption for financial services in Sweden:

## Impact on Swedish banks and their customers compared to a full VAT system

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## **Preface**

In Sweden as in many other countries, the crisis has triggered a renewed interest in the taxation of the banking sector. A key area of political focus is the VAT exemption on credit provision and other financial services contained in the EU VAT directive.

In Sweden, it has led to the establishment of a government committee that is to review possible remedies.

That is the background of this study commissioned by Svenska Bankföreningen (Swedish Bankers' Association) that has asked Copenhagen Economics to review who actually gains from the tax exemption and identify the consequences of this exemption.

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## List of abbreviations:

GVA: Gross value added

VAT: Value added tax



# Key findings and executive summary

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## Key findings: the effects of tax exemption for financial services in Sweden

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- The exemption leads to higher costs for enterprises:
    - With a standard VAT system, enterprises would be able to deduct all incoming VAT against their outgoing VAT i.e. deduct the VAT banks pay on inputs *and* the VAT on value added in banks etc. Now they have to pay the hidden input VAT related to financial institutions purchase of equipment, premises etc. that do not appear as VAT cost items on bills from financial service suppliers.
    - We expect large corporate customers to be less affected because their funding costs are much more determined by international capital markets (preventing full pass through of banks' input VAT to this customer segment).
  - By contrast consumers face lower costs.
    - They pay the hidden VAT on input but avoid paying VAT on the value added in the financial sector.
  - The exemption also leads to a revenue loss of 16-18 billion SEK: the under-taxation of private consumers is higher than the over-taxation of enterprises.
  - This tax loss must not be confused with a tax advantage for the financial sector: in line with other reviews, we expect that the lower/higher costs for financial services are passed on to consumers in the form of lower/higher prices with the caveat about international competition in financial services.
  - The *VAT exemption in isolation* may lead to a higher demand for financial services in Sweden in the order of around 7 per cent and hence also larger gross profits before return on capital. For the banking sector alone this may amount to roughly 2½ billion SEK.
  - However, the overall welfare and revenue effect for Sweden are more complicated. There is a number of taxes on financial services in Sweden that reduce demand for these services: should they be reduced/restructured in the advent of introduction of a Swedish tax to compensate for the VAT exemption? In that case, what are the consequences for revenues as well as the structure and composition of financial services?
  - This larger question is beyond the remit of our study, but we recommend such considerations to be included in a wider review of the taxation of financial firms and products in Sweden.
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Most countries having a VAT tax system have refrained from applying standard VAT on all financial services. This applies in particular to credit intermediation, i.e. the process where financial institutions accept funding such as deposits and lend these funds at higher rates, earning an interest margin. Clearly, this intermediation process requires the use of real resources such as IT equipment and software, as well as staff to assess credit applications and follow up on the subsequent re-payment of loans. The standard solution would be to apply VAT to the final delivery to customers, e.g. a VAT on interest income charged while allowing the financial institution to reclaim input VAT. Yet, in the current EU VAT system, most financial services are VAT exempt.

This creates a number of effects, with two key dimensions noted here. First, businesses face higher costs, as the VAT exempt banks cannot reclaim the input VAT related to purchases of production inputs. In turn, banks will pass on these costs through higher fees and/or interest margins. However, since these extra costs do not appear as outgoing VAT for their customers but just as a higher price, businesses cannot reclaim the hidden VAT in their own VAT assessment. Second, for private consumers the VAT exemption act as a subsidy: they do pay the hidden VAT, but they do not pay VAT on the value added created inside the bank, which has its counterpart in salary costs, gross profit margins etc. In short, the tax exemption leads to higher costs for business and lower costs for private consumers.

From a government point of view, it can also lead to a direct net fiscal loss. There is a fiscal loss associated with the VAT exemption on financial services provided to final consumers. Partially offsetting this effect is a fiscal gain from the non-recovery of input-VAT on production of services to VAT-registered enterprises. We estimate that there is a net static fiscal loss for the Swedish government in the order of 16-18 billion SEK.

By contrast, we see no advantage for the financial sector per se from the exemption. In line with empirical evidence as well as standard economic theory, we expect banks to pass on the costs directly to their final customers. One caveat is the large corporate customers. For a high-VAT country such as Sweden, the VAT exemption might represent a competitive disadvantage given that large corporates have access to finance from international capital markets dominated by banks facing lower hidden VAT rates. Hereby, Swedish banks are not able to pass on the higher hidden VAT costs to their large corporate customers, meaning that prices will only change marginally.

The question is: what would happen if a full VAT system was implemented? We find that the costs for financial institutions and prices for final customers would change:

Businesses would see lower financing costs, in turn boosting their demand for financial services, investment, productivity, and real wages. This applies in particular to small and medium sized enterprises that primarily rely on Swedish financial institutions for finance. In relation to large corporate customers, removing the hidden VAT would rather help Swedish banks to gain market shares in the competition against foreign banks operating from countries with lower hidden VAT costs.

Private consumers would buy fewer financial services. The impact is likely to be largest for low income / low collateral household, where the interest margins are higher due to a higher labour cost, higher prospective losses etc.

Based on assumptions about the behaviour of different customer segments, we find that a full VAT system would reduce the production (value added) in the Swedish financial sector by about 7 per cent. This is equivalent to a fall in gross profit margins before return of capital of roughly SEK 4 billions for the financial sector as a whole – SEK 2½ billions for the banking sector – as a smaller sector also require less capital and a corresponding lower gross return.

However, the wider overall effect for Sweden, including effects on net revenues and welfare, depends very much on the indirect effects through other sectors as well as the context in which a VAT on financial services would be implemented. In this perspective, it is key to consider the range of currently existing tax instruments, either targeting financial institutions or activities, bringing in an overall revenue of approximately 20 billion SEK. One could well argue that, for example, the stamp duty that serve little if any economic

rationale, seen from either an overall taxation or welfare perspective, should be removed as a counterpart to the introduction of full VAT on financial services. Indeed, it is not a priori clear that overall economic welfare would be improved or indeed optimised if the new VAT was just implemented on top of existing taxes. Thus, we recommend that such a wider perspective is adopted in the further work on the potential introduction of a VAT system for financial services.

### Key numbers from the study: consequence of VAT exemption

	<b>Consumers</b>	<b>Enter- prises(small)</b>	<b>Total</b>
Total direct tax loss from the VAT exemption (billion SEK)	21-23	-(4-5)	16-18
Increase in demand for financial services	13%	-4%	7%
	<b>Banks</b>	<b>Other</b>	<b>Total</b>
Increase in gross profit in financial institutions (billion SEK)	2½	1½	4

Source: Copenhagen Economics

# Chapter 1 VAT treatment of financial services: concepts and distortions

In this chapter, we examine the key conceptual issues related to the VAT treatment of financial services and, in particular, the distortions created by the current EU framework as applied in Sweden. We start by describing the EU framework and the VAT options it presents for the member states (Section 1.1), followed by a short recap of the well-known consequences related to the general principle of not taxing the value added in the financial sector (Section 1.2). We then describe the essential components of the theoretical VAT tax base for financial services (Section 1.3) and the effects of the VAT exemption on the costs of providing financial services to different customer segments (Section 1.4). In the end, we look at whether the bank or its customers will end up paying the extra costs if a full VAT system is introduced (Section 1.5).

## 1.1 The EU framework for VAT for financial services

Nowhere in the world is there an ideal VAT system in place for financial services. The reason is chiefly that there are real difficulties associated with determining a proper VAT base of credit provision. In the EU, these challenges have been deemed so insurmountable that an exemption system is in place, according to which no VAT is levied on most financial services. In return, the financial institutions cannot deduct the VAT they pay for their inputs.

### Applying the option to tax in Article 137 of the EU VAT Directive 2006/112/EC

Within the context of this exemption,<sup>1</sup> there are at least four broad areas where the member states must decide on framing the choice for financial institutions when making use of the option in the Directive. That said, in Sweden the option is currently not introduced by the legislator:

- Scope:
  - Customers: What are the customer segments that the financial institution is allowed to pay tax for? Would it be both households and businesses?
  - Transactions: What kinds of transactions can be taxed?
  - Financial institutions: Who has the option – leasing companies, retailers selling on credit, banks etc.?
- Flexibility of application:
  - Choice menu: *i*) Can financial institutions decide whether to pay tax on a transaction-by-transaction basis, *ii*) must they extend their choice to all similar customers and transactions, *iii*) or is it all customers/transactions or nothing?
  - Irrevocability: If a financial institution opts in but regrets at a later stage, can it change course?
- Incentives: Are there other benefits than deduction of input VAT? For instance, if a financial institution opts in and pays tax, will it earn a rebate on other taxes?
- Cross-border trade: What would the option look like in case of exports and imports?

<sup>1</sup> Council Directive 2006/112/EC (“VAT Directive”); European Banking Federation (2009); The exception is case C-172/96 of 14<sup>th</sup> of July 1998 where the tax base for buying and selling foreign exchange, debt securities and derivatives (but not loans) was ruled to be the net margin.

For example, Austria restricts the option to only two types of transactions, namely credit for the purpose of acquiring a taxable good or service and certain credit card transactions. Germany allows financial institutions to apply the option on a transaction-by-transaction basis, but restricts it to taxable customers. Likewise, the rules in Belgium, Estonia, Lithuania, and France differ considerably.<sup>2</sup>

Member states are also allowed to forbid an option to tax, or to restrict it in any way they want. The only thing they cannot do is to mandate value added taxation. However, they can provide incentives that would make it desirable for firms to opt in. In addition, if opt-in is sufficiently desirable for most customers and transactions, a choice menu might incentivize financial institutions to include *all* customers and transactions.

Despite the existence of the option to tax, most member countries of the EU do not make use of it. Moreover, in the six countries that do use it, financial institutions often do not opt in.<sup>3</sup> As a result, the prevailing VAT regime for financial services in Europe is exemption.

## 1.2 Effects from the current VAT exemption system

In the following, we explain the six different types of effects resulting from the exemption:

**i) Insourcing bias:** the VAT exemption is likely to distort the prices that banks pay for their inputs, incentivising internal production at the expense of outsourcing. The reason is that banks cannot deduct the VAT they pay for their inputs as other non-exempt businesses can. As a result, inputs become too expensive. Hence, from a cost minimization perspective, banks have incentives to produce goods and services internally rather than buying from subcontractors. Importantly, these incentives emerge because sourced goods and services are taxed – not because internal production is economically efficient given the real cost of production. This means that the demand from subcontractors will be lower and in-house production higher.

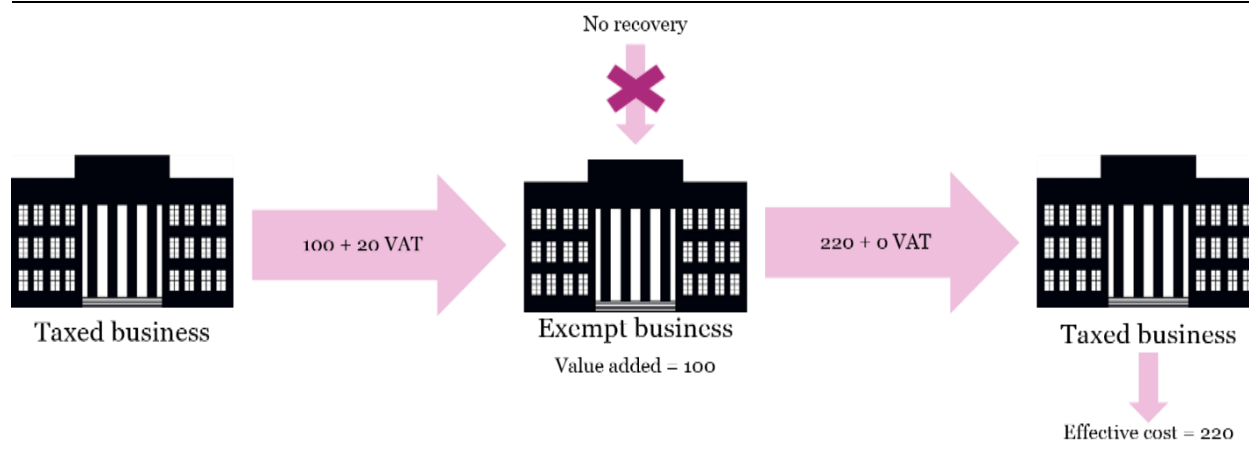
**ii) Inflated costs for business customers:** Non-financial VAT-registered firms buying financial services are likely to pay too much for these services. In a competitive market, banks recover some of their cost from non-deductible input-VAT by increasing the prices charged to their customers. As a result, the input-VAT of banks ends up in their interest rates as so-called "hidden VAT", and VAT-registered buyers of financial services pay too much for their loans cf. Figure 1.1. At the same time, the exemption from VAT does not make financial services cheaper, since VAT-registered buyers would simply deduct the VAT on financial services. As a result, the prices of loans are increased, leading to reduced business demand for financial services.

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<sup>2</sup> European Banking Federation (2009).

<sup>3</sup> European Banking Federation (2009).

**Figure 1.1 Taxed business pay hidden VAT from upstream suppliers to financial institutions**



Source: PwC (2011), "How the EU VAT exemptions impact the Banking Sector."

**iii) Subsidies for private consumers:** Households consuming financial services may pay too little. If financial services were treated as all other goods and services, private consumers would have to pay the standard VAT rate. Instead, they have to pay the hidden up-stream VAT only. The hidden VAT is typically lower than the standard VAT, since the value added created in banks are not included in the hidden VAT, and because banks may be able to deduct some of their input-VAT. Hence, the VAT-exemption represents a subsidy towards private consumption of financial services (account and payment services, consumption or housing loans etc.), and the private consumption of financial services.

**iv) Compliance costs for banks and tax authorities:** The VAT exemption rules are likely to carry compliance costs. Financial institutions face two difficulties. Firstly, the VAT directive defines which financial services are exempt from VAT, and which services are not. Many financial institutions provide both types of services, and it is a burden for them to distinguish between them in their tax reporting. Despite detailed guidelines, the distinction is often blurry and may seem arbitrary. Secondly, the input VAT on inputs used in the provision of taxed services is recoverable, while the input VAT on inputs for the VAT-exempt services is not. As a result, it is necessary to distinguish between the inputs that are used for each kind of service, which is difficult and seem meaningless in an integrated financial institution.

**v) Affecting competition between banks providing financial services from different countries:** Firstly, in countries with relatively high VAT rates, the exemption system represents a cost disadvantage for domestic banks vis-à-vis foreign competitors. The reason is that higher VAT rates result in higher non-recoverable VAT cost for banks. Secondly, to the extent that firms still use domestic banking services, firms in low-VAT countries face lower rates of hidden VAT and lower cost of financial services compared to firms in high-VAT countries, which also results in unfair competition. This problem has increased in recent years, especially given the increased use of online banking, making physical proximity to one's bank less and less important.

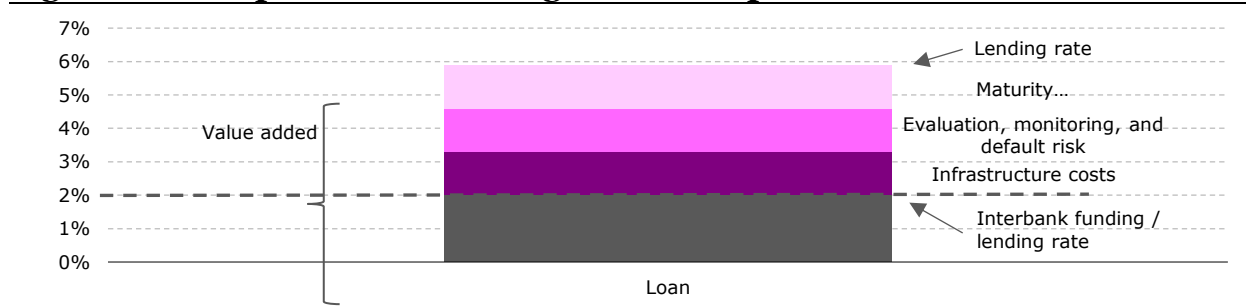
**vi) Competition between financial services provided by banks and financial services provided from non-financial firms:** The exemption system may distort competition between financial

and non-financial firms. Non-financial firms also provide financial services. For example, car retailers often offer their customers to pay off the car over several years, i.e. they offer them a loan. However, in doing so, they typically do not face the same input VAT cost as banks, since their main product (cars) is non-exempt, which allows them to deduct their input VAT. As a result, car retailers and other non-financial firms competing with banks will have a competitive advantage.

### **1.3 Understanding the value added tax base of financial services**

In a full VAT system, the main VAT base of financial services would be the margins that banks earn when providing credit. In essence, credit provision is intermediation where banks use their position in the capital markets to borrow funds that firms and households do not have access to on their own, and then make them available for consumption, housing, or investment. This process is not risk free and requires infrastructure and due diligence in order to minimize losses. The value that banks add is all the resources they commit in order to make the intermediation happen, for which they charge a margin. It is this value added that would be taxed by the VAT.

To understand a bit deeper what the VAT base is exactly, notice that the margins or spreads between lending rates and funding rates are basically driven by three key cost factors. Firstly, banks have infrastructure costs associated with taking in funds and passing them on to customers. Examples are buildings and IT-systems. Secondly, banks incur costs as they evaluate the credit worthiness of individuals or groups of customers, that is, their likely ability to pay back loans at the agreed rate of interest. The evaluations require use of real resources up front, but also during the lifetime of the loan in order to monitor customer behaviour and reduce credit losses (so-called “agency costs”). The larger the loss probability and the larger the need to assess creditworthiness, the larger the spread between the funding and lending rates of the bank. Thirdly, the spread also reflects a maturity transformation in that banks typically lend long-term while funding the loans at the cheaper short end of the market. This involves compensation for liquidity risks and risks associated with changes in interest rates. The VAT base or interest rate spread between lending and funding rates is the sum of these three components, as illustrated in Figure 1.2.

**Figure 1.2 Components of lending rates and spreads**

Note: The lending and funding rates are hypothetical, as are the sizes of the three components of the spread (purple/pink nuances).

Source: Copenhagen Economics

## 1.4 Impact of VAT on the cost of providing financial services for different customer segments

Before embarking upon a description of how a full VAT system for financial intermediation would affect different consumer segments, we need to understand how it works.

### The basic idea of how a full VAT system works

Our point of departure is that a full VAT system for financial services would be a destination-based VAT as currently applied to other services provided over borders within the EU<sup>4</sup>. By destination, we mean the country in which the consumer is residing and from which the financial service is deemed to be procured. In other words, if a Swedish household obtained a consumer loan from a bank, the bank would have to charge VAT on the value added, which equals the interest charged minus a proxy for the risk free interest rate as explained above. This applies to all loans, no matter if the bank operates from Sweden, US, Germany or other countries<sup>5</sup>. At the same time, Swedish banks would be able to deduct the input VAT related to the production of financial services, while export to Sweden from foreign banks would be zero-rated.

In this system, more or less all the current distorting mechanisms would be eliminated (see the explanation in Section 1.2): First, when banks are able to deduct VAT on the input, there will be no *insourcing bias* (i). Second, there would be no hidden VAT; non-financial firms would be able to deduct VAT costs related to their financial inputs, meaning that only private consumers will have to pay VAT on financial services – as is the case for most other goods and services. This removes the price distortions between the consumption of financial services and consumption of other goods and services (ii & iii). It also eliminates the so-called *cascading effect* where private consumers pay VAT of hidden VAT when purchasing non-financial goods and services.

In addition, there would no longer be any price distortion between financial services produced domestically and abroad (v). The basic point is that Sweden has a higher VAT rate than most other countries, implying

<sup>4</sup> In Copenhagen Economics(2016a) we have provided a blueprint for how such a comprehensive system for a destination based VAT-system could look like

<sup>5</sup> In practice, this would likely imply that the foreign bank would impose a VAT equal to the gross interest charged minus the Swedish risk free interest rate, not the risk free rate in the country providing the loan. Any differences in the risk free nominal interest free nominal rate between the two countries would likely to be linked in particular to the differences in inflation rates, business cycles etc.



that Swedish banks currently have a higher rate of hidden VAT than the average of their competitors. To compensate for these extra costs, Swedish banks have to charge higher prices for financial services (including interest rates) than their international competitors, which makes it harder for them to compete in international capital markets. Hence, by introducing a full VAT system without hidden VAT, the Swedish banks would increase their international competitiveness, allowing them to increase their market shares.

In the end, this system should apply not just for the financial sector, but also for other systemic providers of credit finance, i.e. car dealers and other retailers providing loans to finance the purchase of consumer goods. Hereby the system would also eliminate price distortion between financial services provided by banks *and* financial services provided from non-financial firms. The point is that neither the car dealer nor the bank today charge VAT on the income for credit provision from a car loan. (vi)

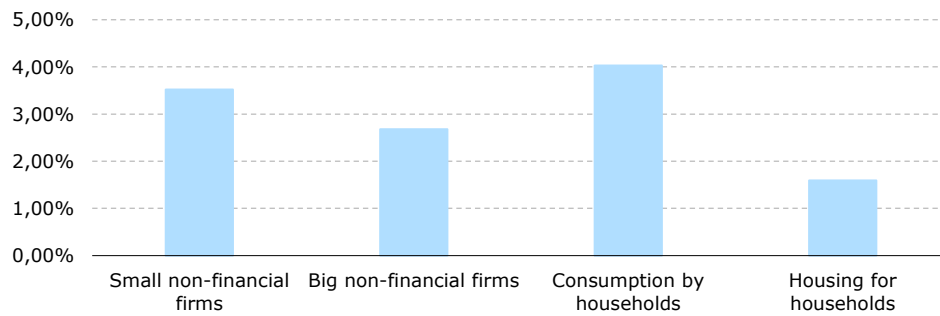
### **The cost effect for different customer segments**

A full VAT system would affect the cost of credit provision to different customer segments very differently.

For VAT-registered businesses, the costs of financial intermediation would fall as they are able to deduct the input VAT on the invoice from the bank. In fact, the costs would especially decrease for SMEs. The argument is that it does not take much more infrastructure resources to process a large loan relative to a small loan: the current non-recoverable input VAT per loan amount is higher for small loans than for large loans. For instance, the costs of premises (owned or rented) and purchased IT-systems are not proportional to the size of the loan. Hence, by introducing a full VAT system, the hidden VAT related to infrastructure costs would decrease more for small loans to SMEs than to large loans.

On the other hand, the cost of servicing households would go up, since they have to pay the full VAT on the entire value chain. In relative terms, the costs would increase particularly for households with low incomes and low collateral values. As mentioned above, a VAT on financial intermediation is a VAT on the spread between the funding rate and the actual lending rate. There are two reasons why this is higher for low-income/low-collateral households: Firstly, similar to loans to businesses, the cost per unit of loan provided is higher for smaller loans than it is for larger loans, as the bank does not spend more efforts on evaluation in proportion to the loan size. Hence, low-income families who only borrow small amounts would be relatively more costly to service, implying that the bank's value added is higher. Secondly, the typical lower collateral value of these households means that it takes more resources for the bank to assess and control the credit risk, again resulting in a higher value added in the bank.

These cost tendencies are also reflected in market interest rates. As can be seen in Figure 1.3, bigger firms have access to cheaper loans, and loans for housing for which there is collateral are cheaper than loans for consumption. While the interest rates faced by customers depend on other factors than bank costs, they should nonetheless give an indication of bank costs. We have for the spread between lending rates to small and large firms used an average over the last 10 years as the current spread is historically very low in Sweden and also substantially below rates in other comparable countries cf. Box 1.1.

**Figure 1.3 Interest rates by customer segments and loan purpose**

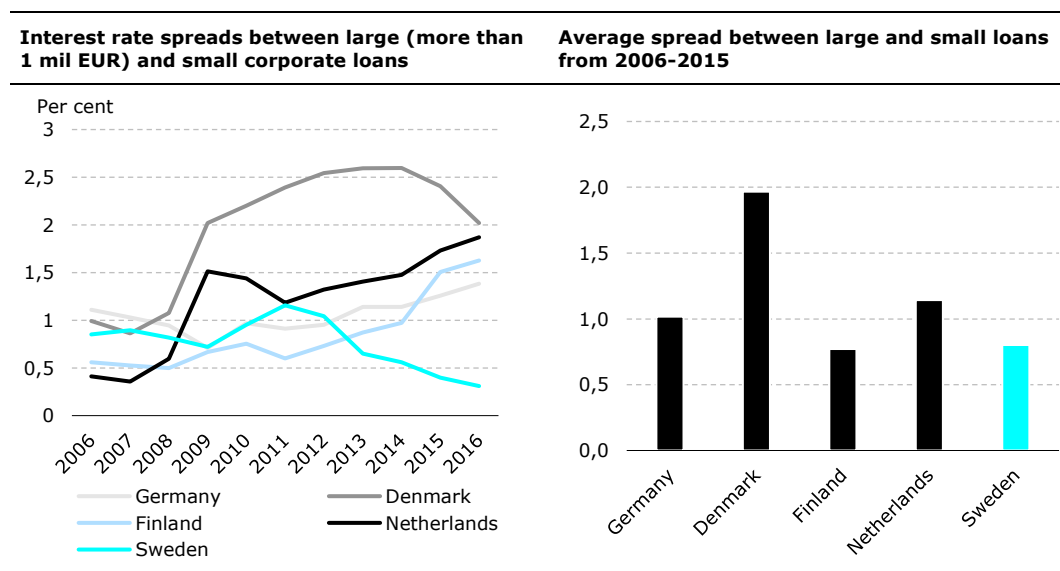
Note: Small firms are defined as those who borrow less than 1 million EUR, and larger firms are those who borrow more than 1 million EUR. Data is for Sweden and loans are in Swedish Kronor; Annualized Agreed Rate/Narrowly Defined Effective Rate; Loans provided by Credit and other institutions (MFIs except MMFs and central banks); Loan types are Loans other than revolving loans and overdrafts, convenience and extended credit card debt; Interest rate fixing periods are below 1 year. The interest rates are averages from 2006-2015 for corporate loans and for new loans in December 2015 for private loans.

Source: European Central Bank

### Box 1.1 Interest rate spreads between small and large corporate loans in the last decade in four different countries

Swedish interest rate spreads between small (less than 1 mil. EUR) and large (more than 1 mil. EUR) corporate loans are historically low. While Swedish pre-crisis levels were comparable with most northern European countries, there seems to have been a diverging trend with spreads decreasing since August 2011 compared to increasing trends in the other countries. In March 2016, the spread was merely 0.26 per cent per annum.

The average Swedish spread from 2006-2015 was 0.8 per cent, which was comparable to Finland, but lower than in the Netherlands, Germany, and especially Denmark.



Source: Copenhagen Economics based on ECB data.

## 1.5 Who would pay for the VAT – tax incidence

In general, when introducing a new tax, the entity legally paying the tax is typically not the entity who bears the cost of the tax in terms of lower profits. The reason is that input and output prices typically change in response to the introduction of a new tax. In the case of VAT costs related to financial services, banks might cover their VAT cost by increasing the price and passing all the cost on to the customers.

The way in which the tax burden is shared between the financial institution and its customers is important as it tells us who has the tax advantage and disadvantage in the current exemption system as compared to a full VAT system.

In general, there is strong theoretical and empirical support for the conclusion that broad changes in costs of providing financial services will be passed on from banks to their customers. For instance, a rate rise initiated by the Riksbanken hits the funding cost of the bank – a very important cost component that affects

all customers in the same way. We know that such rate rises are passed on to deposit and loan interest rates, at least in a longer term perspective<sup>6</sup>.

A VAT on financial services is also a broad change to the cost of financial service provision, and, as such, we should expect that the cost changes would be fully passed on to the customers. These hypotheses are broadly backed up in the literature. Table 1.1 shows in unequivocal terms that broad-based taxes are assumed to be passed on to customers in a broad range of studies. The empirical evidence on the VAT pass-through is scarce since few countries have as yet introduced VAT also for consumer loans. However, the existing evidence as well as modelling experiments in the literature points to almost full pass-through on other broad-based taxes. Still with the exception of large companies operating in multiple tax jurisdictions, who respond strongly to changes in taxes by shifting around their activities.<sup>7</sup> The parallel in terms of financial services is that large companies may rely on foreign banks whenever financial services provided domestically become more expensive, while small firms do not have that option.

**Table 1.1 Tax incidence of different kinds of taxes**

Result	Type of broad-based tax	Study	Details
Pass-through between 80% and 100%, primarily to customers through higher net interest income	VAT	Erbe and Büttner (2014)	Full pass-through assumed
		Chiorazzo and Milani (2011)	VAT-proxy not reliable, but authors are confident about high pass-through of VAT.
	Corporate Income Tax	Albertazzi and Gambacorta (2010)	At least 90% pass-through. The net interest income increase is borne by borrowers, not depositors.
		Chiorazzo and Milani (2011)	80% pass-through.
Pass-through lower than 80%	Non-resident dividend withholding tax	Huizinga, Voget, and Wagner (2011)	Almost all of the tax burden is passed through (~86%)
	NA	NA	NA

Note: Chiorazzo and Milani (2011) attempt as the first to estimate the effect of input VAT, and use a cost variable as a proxy for the unknown input VAT cost.

Source: Copenhagen Economics based on the academic literature.

Our basic conclusion from this section is that an introduction of a VAT on financial services in Sweden would have the following effects:

- For private households the costs for financial services would go up – in particular for small income / small collateral customers. At least in the long run, the higher VAT costs are likely be fully passed on to private customers. Hence, private customers has a tax advantage of the current system.
- Costs of providing financial services to business customers would go down – in particular to smaller firms, as hidden VAT per unit of service is larger for these. The VAT savings are expected to be fully passed on to small firms, meaning that small firms will experience a large price effect. Hence, small firms has a tax disadvantage in the current system.

<sup>6</sup> Liebeg & Schwaiger (2006)

<sup>7</sup> Mintz and Smart (2003)

- For large corporates, we expect the price effect to be relatively small. The reason is that the cost of providing financial services to large corporates only decrease marginally, and only a small fraction of these (small) savings will be passed on to them.
- By the same token, large Swedish commercial banks may in fact be able to capture some market share from their international competitors who today operate with smaller cost burdens from hidden VAT. They also have a tax disadvantage in the current system.

## Chapter 2 Economic and welfare consequences of the VAT exemption on financial services

If a full VAT system for financial services were to be introduced it would have broad effects in all sectors of the economy, not just the financial sector. Moreover, the welfare gains from such a system can only be evaluated by examining the overall tax environment affecting demand for financial services. Especially, this should also include the pre-existing taxes that are currently reducing the demand for financial service.

As a result, our review of the current exemption, as well as the consequences of removing it, is assessed stepwise. We start out by explaining how to analyse and understand the expenditure and welfare cost of financial services being VAT exempt (Section 2.1). Further, we briefly explain our methodology for estimating the VAT expenditure from the financial sector (Section 2.2). Then we present our static tax expenditure estimates, assuming that nobody changes their behaviour in response to the tax change (Section 2.3), followed by our results when we incorporate behavioural responses (Section 2.4). In the end, we discuss the welfare effects (Section 2.5).

### 2.1 How to analyse and understand the tax expenditure and welfare cost

The estimation of the total tax expenditure can be divided into four parts:

**i) The static revenue analysis of the direct effect:** First we analyse the direct loss of VAT revenues related to the consumption of financial services.

**ii) The dynamic analysis of the direct effect:** Second, we add behavioural responses, where different customer segments react differently to the changes in prices, decreasing their demand for financial services when prices increase and *vice versa*, while keeping all other tax rates constant. This will change the quantities of financial services produced and eventually sold to households – when banks sell financial services directly to households or when they sell to companies, using the financial service as input in the production of other VAT included goods or services.

For large corporates, we have to remember two special mechanisms: *a)* Given their access to international capital markets, the prices for large corporates may not change fully in response to the cost change *b)* There may be a substitution effect where large corporates change the consumption of financial services from foreign banks to domestic banks or *vice versa*.

**iii) The indirect effects through other sectors and taxes:** Third, there are also indirect effects working through other sectors. Naturally, when a customer's demand more or less financial services they tend to substitute and increase or decrease their demand for other goods. This will have two types of effects: *a)* given that other goods may or may not include VAT, this will naturally affect the total tax revenue collected on other goods (unrelated to the value of financial services). *b)* Specifically for financial services, demand

changes may involve a range of other tax effects. The costs of providing loans with limited underlying collateral increase more than loans with high collateral and hence the small interest margin. This would tend to increase the savings rate, and affect capital tax revenues.

**iv) Changes in other taxes:** Looking even more broadly, an introduction of a full VAT system for financial services would probably not stand alone. Currently, the Swedish financial sector is subject to a range of special taxes. With a full VAT system, the arguments for keeping some of these taxes may disappear or at least diminish.

## 2.2 Direct fiscal loss: methodology brief

We now proceed to the calculation of the tax expenditure associated with the VAT exemption, i.e. the missing tax revenue due to the fact that VAT is not levied on financial services. As a first approximation, we assume that the banks and customers do not change their desire to lend, borrow and buy other types of financial services as a result of the tax change.

We calculate the tax expense relying on publicly available national accounts data, such as value added and investment by industry and so-called input-output tables. Such tables quantify the flows of goods and services by destination and origin in the economy, and they are often used to approximate both the input VAT of the financial sector as well as to divide the consumption of financial services into VAT-registered customers and non-registered customers. Both are crucial for the estimation of the tax expense.

This way of calculating the tax expense follows OECD guidelines and has been used in Denmark and Norway. However, it has a number of deficiencies. Firstly, it is based on aggregated data that could obscure the reality faced by the banks. Secondly, the data are crude and do not allow for precise estimations of, e.g., the share of financial services that are VAT-liable in the exemption system and the allocations of hidden VAT costs etc. related to the production of services for different customer segments (final consumption and VAT registered business).

Therefore, we combine this method with micro data on individual Swedish banks. The five biggest banks in Sweden have been assisting us, providing us with data on loan and deposit amounts, interest expenses and income, fees, VAT and wage costs. All of this information is broken down on four customer segments, namely households, small non-financial firms, large non-financial firms, and the government sector. Crucially, we have also obtained estimates of the share of bank services that is VAT-liable and the shares of bank inputs being used to provide services to each of the customer segments. We have combined this information with supplementary data of more aggregate character in order to be able to estimate a number of crucial parameters in the calculations.

The micro data is used to address the typical disadvantages of the national accounts approach, and by applying micro data we increase the precision and relevance of the estimates significantly. Of course, the data are confidential in order not to expose the trade secrets of the participating banks. The calculations of the static revenue loss are documented in more detail in Appendix A.

## Main results (to cover both static and dynamic results? – or is the static analysis considered to be most relevant?)

### 2.3 Static calculations

We will do the static analysis in two steps. First, it is important to determine the size and allocation of the potential VAT tax base. When this is in place, we analyse the actual tax revenue effect of a full VAT system. Our calculations are explained in Appendix A in more detail.

**Estimating the tax base** using data from 2013, the total value added in the Swedish financial sector was 230 billion SEK (see the right most column in Table 2.1). This gives an indication of the size of the total VAT base. However, we want to focus on the financial sector as a whole and, hence, we have to deduct internal sale in the sector, e.g. when bank supply services to other banks, pension and insurance etc. Further, a fraction of the financial services already includes VAT in the current system and another fraction is sold to non-EU countries, which is zero-rated. When deducting these, we estimate that the non-taxed value added sold to non-financial businesses and final consumers within the EU were close to 200 billion SEK. The main part of this is banking services, a smaller part is pension and insurance products and yet a smaller part is other financial services (see the middle columns of Table 2.1).

**Table 2.1 Potential VAT tax base**

Billion SEK	Banking	P&I	Other financial services	Total
Total value added in the financial sector	164,9	51,2	14,0	230,2
- Internal sale in the financial sector	9,9	2,5	4,5	16,9
- Exports to non-EU countries	9,5	0,9	0,4	10,9
- Sales to non-financial sector currently including VAT	1,8	0,5	0,1	2,4
<b>= VAT exempt sales to non-financial sector</b>	<b>143,1</b>	<b>47,4</b>	<b>8,8</b>	<b>199,3</b>
<i>of which sold to households</i>	82,9	38,7	1,3	123,0
<i>of which sold to VAT-registered SMEs</i>	26,8	4,0	3,8	34,6
<i>of which sold to large corporates</i>	33,4	4,5	3,8	41,7

Note: These numbers are quite sensitive, especially to the share of services provided to non-VAT registered enterprises, i.e. enterprises that act as final consumers.

Source: Copenhagen Economics and micro data from Swedish banks – see Appendix A.

Further, since a full VAT system will have very different effect for different customers, it is crucial to allocate the value added on different segments. Of the almost 200 billion SEK in VAT exempt sale to non-financial firms, we find that 123 billion SEK is sold to households, 35 billion SEK is sold to VAT-registered SMEs and 42 billion SEK is sold to large corporates.

The gross value added in the Swedish financial sector as a share of GDP has stayed roughly constant at just below 6 per cent since 2005 cf. Figure 2.1. This suggest that any cyclical swings in margins between lending and borrowing rates in banks have in practice been offset by countervailing swings in lending levels and other economic transactions.



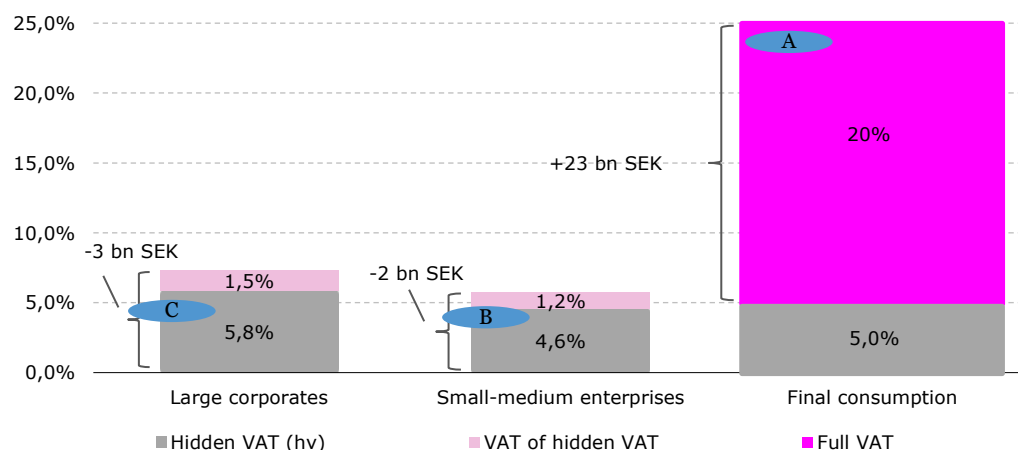
**Figure 2.1 GVA sold to the non-financial sector as a share of nominal GDP**

Source: Copenhagen Economics and SCB

### Estimating the static tax revenue loss

Based on these figures, the static net revenue loss following from the tax exemption is estimated to be around 18 billion SEK. This calculation consists of different parts, as shown in Figure 2.2. First, considering the VAT revenue paid directly from households. In a full VAT system, households would have to pay 25 per cent of the full value added purchased, which we find to be around 30 billion SEK in VAT payments.<sup>8</sup> (do you mean that you take for granted that no considerations will be taken by the bank as to the fact that it can deduct its input tax and thus the increase in price will not have to be the full 25%? I would agree with you though, I think the behaviour normally looks like that when you introduce VAT on something which is exempt, but maybe you should spell this out since there are many VAT specialists that would argue that not the full 25% would/should be added on top of the price) However, from our estimations, final consumers currently pay around 5,9 billion SEK in hidden VAT, which they would not have to pay in a full VAT system. Hence, the loss in VAT revenue related to final consumers – i.e. the immediate tax loss – is estimated to be around 23 billion SEK, see area A in 2 Figure 2.2.

<sup>8</sup> The true value added sold to households equals the 123 billion minus the current hidden VAT related to the production of the services, which is currently around 5,9 billion SEK (5 per cent).

**Figure 2.2 Components in the static revenue loss calculation, 2013 figures**

Note: These are our main estimates, and they are subject to some uncertainty.

Source: Copenhagen Economics

Second, this loss is partly offset by the hidden VAT and VAT of hidden VAT currently paid through VAT-registered business customers. This part would be recoverable in a full VAT system. For small businesses, we estimate this tax revenue to be around 2 billion SEK (area B in Figure 2.2), while the revenue from for large corporates is in the area of 3 billion SEK (area C in Figure 2.2). This represents a tax revenue in the area of around 5 billion SEK to be lost with a full VAT system.

Taken together, we end up with a main estimate of 18 billion SEK. Furthermore, it is important to do some uncertainty checks. Specifically, we find indications that our numbers regarding the share of financial services already including VAT may be rather low, especially if our micro based figures do not consistently include all types of financial services – for example financial leasing. In addition, in a recent analysis by the Danish Ministry of Taxation, they find this number to be considerably higher for the Danish economy. If we assume the same share of financial services already including VAT in Sweden as in Denmark, we find a slightly smaller tax revenue of 16 billion SEK<sup>9</sup>.

Taken together, we find that static tax revenue is in the range between 16 and 18 billion SEK.

## 2.4 Behavioural responses related to financial services (dynamic effects)

As for the static calculation, the dynamic effects will be explained through a number of steps. First, we outline the general principals. Second, we estimate how changes in costs result in changes in prices, and finally we calculate the response in demand for financial services for different customers and explain the results.

### The general concept of dynamic calculations

When prices change, consumers respond by adjusting their demand. If a product becomes more expensive, consumers buy less of it, and if it becomes cheaper, they buy more. As found above, the cost of financial services faced by private consumers are currently subsidised due to the absence of a VAT. The cost faced by

<sup>9</sup> In Sweden financial leasing is fully taxed with VAT, unlike some other countries where it may be exempt, or part of the consideration)

VAT-registered businesses on the other hand is higher. Hence, if a full VAT system was imposed, private customers would probably scale back on their purchase of banking services, for example by saving more before buying a new car, freezer or their first house. This would tend to increase deposits and reduce lending. As lending is more resource intensive, this would reduce the size of the overall financial sector. Businesses would probably use the bank more, and use less internal funding such as retained earnings.

### Estimates of cost change and cost pass-through to prices

The first step in our dynamic calculation is to estimate the cost changes for providing financial services respectively to consumers, small businesses and large businesses. From the figures in Figure 2.2, we are able to calculate the cost changes relative to the initial price (including hidden VAT). Cost related to sales to households are expected to increase by 19 per cent, while the costs for SMEs and large corporates are expected to fall by 4.4 and 5.5 per cent, respectively cf. Table 2.2.

**Table 2.2 Dynamic calculations of demand and production of financial services Sweden**

	Households	SMEs	Large corporates	Total
Cost change	19.0%	-4.4%	-5.5%	9,8%
Price pass-through rate	1.0	1.0	0.1	
Price change	19.0%	-4.4%	-0.5%	12,4%
Own price elasticity incl. foreign market substitution (range)	(-1.0,-0.5)	(-1.0,-0.5)	(-5,-10)*	
Total demand change (range)	(-19.0%, -9.5%)	(2.2%, 4.4%)	≈0%	
Volume changes supplied by Swedish banks (range)	(-19.0%, -9.5%)	(2.2%, 4.4%)	(2.7%, 5.5%)	
Own price elasticity incl. foreign market substitution (main estimate)	-0.7	-0.8	-7.0	
Total demand change (main estimate)	-13.3%	3.5%	0%	
Volume change production in Sweden (main estimate)	-13.3%	3.5%	3.8%	-7,3%

Note: \*) Only for large corporates, we assume a substitution between foreign and domestic banking services. For large corporates, the table reports the elasticity of substitution between foreign and domestic banking services.

Source: Copenhagen Economics and micro data from Swedish banks.

Further, we estimate how the cost changes affect prices for different customers. As found in Section 1.5, we expect full cost-pass through for all customer segments except for large corporates with access to international capital markets. For large corporates we expect prices to be determined internationally, meaning that prices for large Swedish corporates might be rather unaffected by a new VAT system. However, it may result in a shift towards larger market shares for Swedish banks. Bottom line, we expect prices for households and SMEs to adjust fully, while prices for large corporates are only marginal, cf. Table 2.2.

### Volume change

The final step is to calculate the volume change from the change in prices. Here, we use rough estimates based on the earlier empirical literature. We suggest however to use existing empirical evidence with substantial caution in particular with regards to effects on households. First, both the costs of providing credit and providing fee based services will go up. Therefore, we cannot just look at how consumers react to changes in the interest rates. Moreover, the nature of financial services to consumers have changed radically in recent decades with the digitalisation of payment services, making historically based assessment much more uncertain. Moreover, different households will be affected differently: households able to borrow at rates close to the risk free interest rates will face small change in costs, while families with small incomes and in particular low collateral will see the largest increases in absolute borrowing costs.

As a pragmatic approach, we have used for our calculation purposes price elasticities of financial services generally in the range between -1 and -0.5. A price elasticity of -0.5 means that the demand/volume falls by 0.5 per cent when prices increase by 1 per cent. We expect that households have the smallest price elasticities, while SMEs have the largest. For our main estimate we will assume a price elasticity of -0,7 for households and -0,85 for SMEs<sup>10</sup>.

The price elasticity of large corporates does not really matter; for them the price change is very limited and it will not result in changes in final demand. Instead, price changes will affect Swedish banks' market shares because large corporates have a high elasticity of substitution between domestic and foreign demand. We have suspected they could be in the range between -5 and -10.<sup>11</sup> For our main estimate, we will assume an elasticity of substitution of -7.

Combining the price changes and our main assumed price elasticities from Table 2.2, we find two mechanisms working in different directions. For households, a higher price results in lower consumption of financial services, while for SMEs the price deductions mean a higher demand for financial services.<sup>12</sup> For large corporates, we think the effect is mainly insourcing of financial services to Sweden.

These demand changes will affect the total value added in the financial sector and eventually the profit earned. In 2013, the value added sold to non-financial sector (within the EU) was 200 billion SEK cf. Table 2.1. If a full VAT system is implemented with no other changes in taxes for the financial institution or products, we find that this number would drop to around 185 billion SEK, i.e. a drop of around 14.4 billion SEK (7.3 per cent). cf. Table 2.2, column 4. The Swedish financial sector has a net operating surplus and mixed income of almost 60 billion SEK, which equals 26 per cent of the total value added. Hence, when the value added increase by 14.4 billion we should expect an increase in the net operating surplus and mixed income of about 3.7 billion SEK, which is a proxy for the profit before return on capital.

As for the static calculations, it is important to remember the uncertainty in the dynamic calculation. For example, when combining the price changes and our price elasticities range in Table 2.2, we find that demand from household falls between 9.5 and 19 per cent depending on whether we assume an elasticity of -0.5 or -1, cf. the bottom of Table 2.2. The demand from SMEs increases by between 2.2 and 4.4 per cent. Demand from large Swedish corporates may not be much affected as price setting is very much determined by international capital market conditions, but Swedish based providers of services will gain market share as lower costs allow them to bid for more business.

## 2.5 Other effects and welfare implications of the VAT exemption

We can now turn to the even more tricky aspect of the dynamic revenue effects, see point *iii* and *iv* in Section 2.1. First, the indirect effects of a lower private consumption and a higher consumption from businesses. Second, we review the broad changes in other taxes, and, in the end, we discuss the total welfare effects.

### Indirect effects of lower private consumption

Consumer demand is falling, thus reducing the direct VAT revenues from taxing credit intermediation. However, from a general equilibrium / dynamic revenue perspective, the interesting question is; what is the reduced demand a result of?

<sup>10</sup> Erbe and Buttner (2014) uses a comparable price elasticity of -0.55.

<sup>11</sup> Similar to the price elasticity, an elasticity of substitution of -5 means that domestic demand falls by 5 per cent when prices increase by 1 per cent.

<sup>12</sup> Regarding the demand from businesses, this will be use in the production of other goods and services, and at some point the product is sold to final consumers where the total value added is taxes, including the higher input of financial services.

- Does it imply that households in-source some of the financial services they previously bought from the financial sector, affecting labour supply (more hours spent on internet banking at home, less time spent working in the formal economy paying taxes? In this case labour tax revenues will decrease.
- The reduced demand for banking services may also lead to less purchase of capital intensive consumer goods (houses, cars, white goods) or more spending on foreign holidays, restaurant visits etc. That is also important because foreign holiday spending is largely untaxed while restaurants have a reduced VAT-rate.
- It may also result in a higher structural savings rate, which will reduce the revenue from consumption taxes, while the taxes from higher returns on financial savings may increase. To gauge the effect of such a transition we would need to look at the effective marginal tax rates on financial savings in Sweden. In reviewing the effect, one must take into account that both deposits, buying shares and fund participation, and life/pension insurance are all savings products that would be subject to VAT affecting the private consumer in a world with VAT on financial services.

In reality, we would expect that higher cost for consumers would lead to all three dynamic mechanisms. The net effect would probably be that the dynamic effects partly would undermine the static effect, since demand does not simply move to other consumption taxed at 25 per cent. Some will go to activities taxed effectively at lower rates.

### **Indirect effects of higher consumption from businesses**

The same kind of dynamics apply to the business side. They would switch their purchase towards capital-intensive goods for which costs are lower in a full VAT system. Lower costs for businesses means, more investments for SMES and a general shift of economic effect towards SMEs. In fact, we would see SMEs reducing their capital costs vis-à-vis corporates. This should help boost productivity and real wages, lifting income from corporate taxes and wage taxation on a structural level.

### **Effects of related tax changes**

As mentioned in point *iv* in Section 2.1, it is also important to consider other related changes in the taxation of the financial sector. Currently, the Swedish financial sector is subject to a range of special taxes and fees, see Table 2.3. A relevant question is whether *all* these are still maintained if a full VAT system is introduced.

**Table 2.3 Current taxes and fees on Swedish financial institutions**

Type of Tax	Tax Base	Revenue	Tax Purpose
<b>Fees on financial institutions</b>			
Deposit Insurance fee	0.6-0.14 % of the guaranteed deposits in the previous year (depending on institutions capital adequacy ratio)	1.5 billion SEK (2015)	Financial stability
Resolution Fee	0,036% of the institutions liabilities excluding equity capital and some junior securities	3,3 billion SEK (2015 estimate)	Financial stability
Supervision fee	Varies with the type of institution and its historical need for supervision	409 million SEK (2014 estimate)	Financial stability
<b>Fees on financial services</b>			
Fee when taking mortgage loan	Fixed sum on each mortgage, between 60-825 SEK	9,2 billion SEK (2014)	
Stamp duty	Price or taxation value for the year that the title deed is granted, 1,5% for households and 4.25% for firms		

Source: Copenhagen Economics

The analysis could go even further and include the capital income tax system. Demand for financial services is affected by the households' ability to deduct interest rate expenses when calculating the income tax bases, as well as the effective taxation of owner occupied accommodation, which influences households demand for housing and hence also their demand for credit to purchase houses.

This just shows that the broader effects of the tax exemption cannot be evaluated without evaluating other policy instruments affecting households' incentives to hold financial and physical assets<sup>13</sup>.

### Total welfare effects

A highly simplified way of analysing the welfare effects of a full VAT system is to calculate the so-called deadweight losses. The point is that today consumers may purchase financial services at market prices below the costs to society while the reverse holds true for businesses. When relative prices are not reflecting the cost of production, we have a deadweight losses.

As stated a number of times, to calculate the effects of introducing a VAT on financial services – as well as the consequences of not having a VAT on financial services – we need to know what other taxes as well as regulation that is affecting the demand for financial services.

Similarly, the overall level of financial sector activities could well be at the same level in more optimal tax system with a full VAT on financial services combined with much scaled down revenues from other taxes on the sector.

Hence, we suggest that a comprehensive approach to the taxes affecting particularly the financial system is undertaken in Sweden as well as in other countries.

<sup>13</sup> Copenhagen Economics (2016a) provided a recommendation for a cost-benefit framework to be used in the context of environmental measures. The key conclusions about taking into account all relevant measures when analysing the welfare effects of changes in use on measuring affecting a particular activity is also valid in the context of reviewing the effect of removing the VAT exemption for financial services.

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## Appendix A

# The static VAT revenue calculations

In this appendix, we explain our calculations of the static revenue loss, meaning the loss in VAT revenues if financial services were fully subject to VAT, and if no customers changes their demands. Our calculations are done for Sweden in 2013, mainly based on the methods used by the Danish Ministry of Taxation (2014), and partly the methods in Huizinga (2002) and PwC (2011).

The remainder of this appendix is organised as follows: first, we explain our data (A.1), and, in particular, the structure of the micro data collected from individual banks. Further, we outline our framework for calculating the static tax expenditures of the VAT exemption of financial services (A.2). Then we apply the framework and calculate the static VAT revenue for the Swedish economy in 2013 (A.3).

## A.1 Our data

To estimate the VAT revenue loss, there are certain important parameters and figures, which are not available from national accounts and other public data sources. These parameters have to do with the business model of the individual banks – explained in more details below.

To find this information, we have asked the five biggest banks in Sweden to fill out a detailed questionnaire, as shown in Figure A.1. This resulting micro data is of course confidential.

Aggregating these numbers and combining with public figures, we are able to give broad estimate of the important parameters not available from public data sources. We consider five main types of consumers: *i*) financial firms, *ii*) non-financial large corporates, *iii*) non-financial SMEs, *iv*) final consumers, and *v*) government. For each we estimate:

1. How big a share of the total value added is sold to the given customer segment (including both sale of standard services and financial intermediation calculated as FISIM).
2. How big a share of the value added for each customer segment is already including VAT in the current system.
3. What are the costs of production in terms of hidden VAT in the current system for the different consumers segments.

**Figure A.1 Questionnaire for the five biggest banks in Sweden**

	Bank name:						Year:						
	Intermediation						Services and other income			Inputs			
	Liabilities: Deposits (D)	Interest expenses on deposits (ID)	Liabilities: Indebt securities (S)	Interest expenses on Indebt securities (IS)	Assets: Loans (L)	Interest Income on loans (IL)	Defaults / losses on loans (DL)	Financial services (FS)	Other income (OI)	Share services and other income that are VAT included (SVAT)	Total VAT amount on invoices (TVAT)	Non-recoverable VAT (NVAT)	Labour costs (LC)
	Average 2014, mSEK	Total 2014, mSEK	Average 2014, mSEK	Total 2014, mSEK	Average 2014, mSEK	Total 2014, mSEK	Total 2014, mSEK	Total 2014, mSEK	Percentage	Total 2014, mSEK	Total 2014, mSEK	Total 2014, mSEK	
Government													
Financial sector													
Non-financial firms													
- of which are: Stora bolag													
- of which are: Other													
Private Customers													
<b>Total</b>													
Out of the total net income of the year related to banking activities, how big a share is approximately covered in this reporting?											Percentage		
Out of the total VAT costs related to banking activities, how big a share is approximately covered in this reporting?											Percentage		

Note: The reporting should only include banking activities, excluding the very complicated activities such as trading of securities. However, we ask how much is left out (the last two questions). The reporting should include all sales, loans and borrowings from establishments on Swedish territory to customers both domestic and abroad. Loans, deposits and sales done from foreign branches and rep offices should not be included. The reporting should include all sales, loans and deposits to external customers. Sales, loans and deposits to Swedish subsidiaries, foreign branches and rep offices should not be included.

Source: Copenhagen Economics

## A.2 Our framework of calculating the static VAT revenue

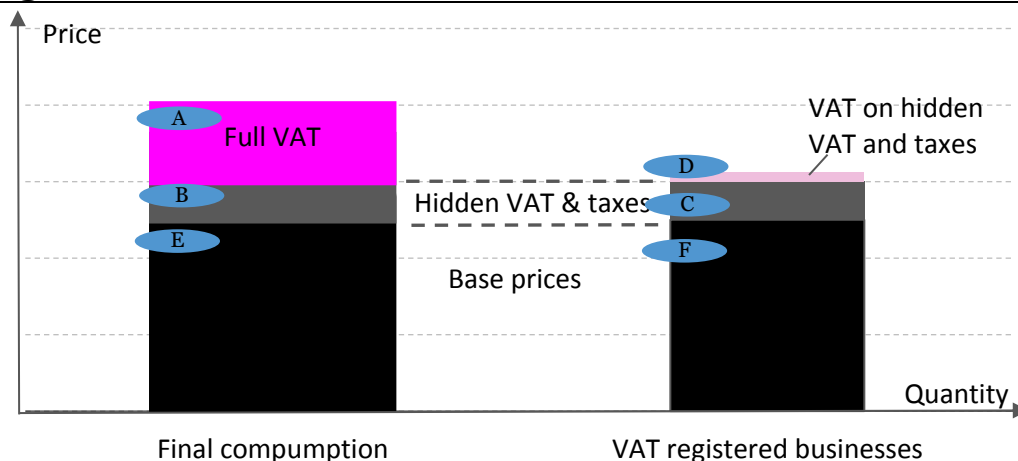
A transition to a full VAT system will only have effect for the part of the financial services that are currently VAT exempt. Further, it will not affect the fraction of Swedish financial services that are sold to countries outside EU, which is zero-rated. The transition involves parts:

1. There will be full VAT on all services sold from the financial sector. This will end up being paid for by private consumers and other non-VAT registered entities (hereafter final consumers), while it will be deductible for VAT-registered businesses.
2. The financial sector will be able to recover VAT on inputs used in the provision of all financial services. Hence, there will be no hidden VAT paid by either businesses of private consumers. This will also eliminate the existence of the so-called cascading effect where businesses apply VAT to hidden VAT.

Below we have tried to explain and illustrate how these two parts affect the total VAT revenue. To simplify we do not divide VAT registered businesses on SMEs and large corporates here as we have done in the final calculations.

**1. Full VAT on all financial services:** Regarding the first point, a full taxation regime will increase prices of financial services sold to final consumers. This is illustrated to the left in Figure A.2. Under the current regime, the price of VAT exempt financial services for final consumers includes two parts: *E*) the base price of the services (price without any VAT), *B*) banks' non-recoverable input VAT and taxes (hidden VAT). Under a full taxation regime, final consumers will have to pay full VAT (25 per cent of the total value added), also including VAT on the value added within the banking sector (*A*).

**Figure A.2 Illustration of VAT calculations**



Note: In the final calculations, we divide VAT registered businesses on SMEs and large corporates. The area of each box indicates the value added. The value added sold to final consumers is typically the largest, which is indicated by the a thicker bar (larger quantity). Assuming unchanged quantities, the tax expense of introducing a full VAT system will be: Area A – area C – area D.

Source: Copenhagen Economics

On the other hand, a full VAT system implies lower prices on financial services for VAT registered businesses. This is illustrated to the right in Figure A.2. Under the current VAT regime, VAT registered businesses cover two parts: F) the base price, C) banks' non-recoverable input VAT and taxes (hidden VAT). In the end, these extra expenses for VAT-registered buyers implies a cascading effect. Assuming that these extra expenses for VAT-registered buyers have full pass-through, their output prices will increase as well, and in the end final consumers will have to pay VAT on banks' non-recoverable input VAT and taxes (D) (see PwC (2011)).

Assuming unchanged quantities, the tax expense of introducing a full VAT system will be the difference between the extra VAT expenses for final consumer and the lowering of hidden VAT expenses and taxes for VAT registered business. I Figure A.2Figure A.2 this is shows as the area of box A subtracted the area of box C and D.<sup>14</sup> This area can be both positive and negative depending the amount of hidden VAT and taxes as well as the allocation of output going to the two types of buyers.

To quantify the areas in Figure A.2, we rely on different types of data and calculations:

*The current VAT exempt financial services (value added) sold to final consumers and businesses (area B+E & C+F):* The total consumption of financial services (value added) can be obtained from the input-output tables of the national accounts. This we have to allocate on customer segments. From the national accounts, the total consumption is allocated on private consumers and businesses. Further, from special data extraction from SCB it is possible to find the share of businesses that are non-VAT registered – i.e.

<sup>14</sup> Final consumers will still have to pay the area B, just as true VAT instead of hidden VAT.

should be seen as final consumers. We have used micro data to divide VAT resisted business on SMEs and large corporates. In the end, it is important for each customer segment to deduct the share of financial services that already includes VAT in the current system. This data is difficult to find, and here we have used micro data from the five biggest banks.

- *The financial sectors' payments of non-recoverable VAT and other taxes (area B & C).*<sup>15</sup> This data is given from input-output tables as well as particular information on the hidden VAT from investment from SCB. To divide the hidden VAT on different customers we have used micro data.
- *VAT of hidden VAT (area D):* This can be calculated as 25 per cent times the hidden VAT of VAT registered businesses.

### A.3 Our static VAT revenue calculations for the Swedish economy, 2013

Below, we have shown our static calculations, more or less directly following the method explained above cf. Table A.1.

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<sup>15</sup> Here, *related Tax expenditures* are thought of as taxes that VAT registered business under normal circumstances can deduct from their output VAT, i.e. taxes that the financial sector would not have to pay in a full VAT system. In the Danish case that is the FAT 1 tax on wages ("lønsafgift") as well as electricity and water charges

**Table A.1 V Use of financial services across customer segments and their VAT treatment**

Mio. SEK, share	Total	Total VAT registered businesses	Large VAT registered businesses	Small VAT registered businesses	Final consumption
Total use of financial services	230.234				
a) Use of financial services excl. public adm., financial firms and non-EU countries	201.794	77.742	42.817	34.925	124.051
Share		39%	21%	17%	61%
b) Sales including VAT	2.457	1.395	1.107	288	1.062
Share		57%	45%	12%	43%
c) VAT exempt sales	199.336	76.347	41.710	34.637	122.989
Share		38%	21%	17%	62%
d) Hidden VAT	9.708	3.825	2.302	1.523	5.883
Share		39%	24%	16%	61%
e) VAT of hidden VAT	956	956	575	381	0
Share		100%	60%	40%	0%
f) Base price payed	189.628	72.522	39.408	33.114	117.107
Share		38%	21%	17%	62%
g) Hypothetical full VAT	29.277	0	0	0	29.277
Share		0%	0%	0%	100%
<b>k) Tax expenditures from introducing a full VAT system (% of base)</b>	<b>18.612</b>	<b>-4.781</b>	<b>-2.877</b>	<b>-1.904</b>	<b>23.394</b>
	<b>9,82%</b>	<b>-6,59%</b>	<b>-7,30%</b>	<b>-5,75%</b>	<b>19,98%</b>

Source: Copenhagen Economics

