

Cooperative Lending and Municipal Finance in Sweden ^{*}

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Abstract

This paper studies a specialized institution in Swedish municipal credit markets, known as a municipal credit agency. It is fully owned by its member municipalities and gives them access to long-term credit by raising funds in international bond markets. I document that gaining access to the agency's credit facility decreases municipal borrowing costs in comparison to commercial bank loans. Built in the agency's lending terms, I find support of a coinsurance mechanism across municipalities. Nevertheless, the net gains of improved credit access must dominate since almost all Swedish municipalities voluntarily joined by now. Finally, addressing general worries about fiscal discipline in such a context, I could not detect evidence that a municipality's participation in a municipal credit agency adversely affects its annual budgets.

Keywords: municipal borrowing costs, municipal credit agency, local government funding agency

JEL Classification: H74, G12, G21

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1 Introduction

Markets for municipal debt reflect country-specific features and attract in many cases only local investors. Butler (2008) shows that distance still matters regarding the outcome of municipal bond underwritings, even in a country with developed financial markets like the US. In particular small municipalities often have difficulties in obtaining financing. For that reason, many countries developed institutions that ensure all municipalities have access to capital markets at feasible rates. Implementations range from tax-exempt treatments of municipal bonds in the US to specialized banks with public mandates.

This paper offers a comprehensive, empirical analysis of such a specialized municipal bank. Throughout the paper I call a financial institution that solely functions as an intermediary between municipalities and capital markets a *municipal credit agency*. It is also referred to as a *local government funding agency*. These agencies have a long tradition in northern Europe and are legally organized as either government agencies or cooperative societies. Early examples are Kommunekredit in Denmark and BNG in Holland, founded in 1899 and 1914 respectively. Despite generally having a bond-focused funding culture, some states in the US and provinces in Canada began to adopt similar institutions in the 70s, which were called municipal bond banks (MBBs).¹ In contrast to their European counterparts operating as traditional banks, MBBs serve the purpose of a traditional bond underwriter while providing additional credit enhancements.

Recent developments in financial markets have again sparked interest in municipal credit agencies. After some municipalities faced severe problems in the recent financial crisis, France initiated an own municipal credit agency by founding l'Agence France Locale in 2013. Also the UK, Germany, and Italy have developed or discussed similar projects that

¹The following list specifies states with MBBs and their founding year: Vermont (1970), Maine (1972), New York (1972), Puerto Rico (1974), Alaska (1975), North Dakota (1975), New Hampshire (1978).

have reached different stages to this date. More importantly, many municipalities in developing countries around the world struggle even more and do not have access to long-term financing as discussed in Peterson (2003).²

This paper examines the Swedish municipal credit agency Kommuninvest that was founded by 10 local governments in Örebro county in 1986 and started expanding in the middle of the 90s. By the end of 2011, 269 out of 290 municipalities in Sweden have become members of its cooperative society. Kommuninvest's charter is to issue long-term bonds in international capital markets and to offer continuous credit access to its member municipalities at competitive terms.

The renewed interest in municipal credit agencies is based on inherent features of such a structure that enhance access to capital markets, but also recent difficulties within the commercial banking sector to provide the required credit. Many municipal loans consist of small amounts, which leads to relatively high transaction costs. Increasing capital requirements through Basel III plus increasing refinancing costs after the financial crisis further reduce earned margins. Together, this makes municipal lending less attractive for commercial banks.

On the other hand, the organizational structure of Kommuninvest suggests reasons why it may be a serious alternative to commercial bank lending. The concept for this municipal credit agency was initiated by a group of municipalities showing that they believed in potential for improving their own access to credit markets. This history is still reflected in today's activities. As Kommuninvest specializes in municipal markets, it maintains close relations to local governments sharing up-to-date developments. The fact that municipalities are sole shareholders of Kommuninvest and that they have strong board representation infers that offering competitive lending rates has priority over maximizing the agency's

²Rhee and Stone (2004) discuss the initiation of such a concept in Asia comparing organizational structures of existing institutions around the world.

return on equity.

A second and maybe even more essential advantage lies in Kommuninvest's financial structure. Despite having a very high leverage ratio³, Kommuninvest is able to maintain the best credit rating with all major rating agencies allowing cheap refinancing in international bond markets. This is possible because all member municipalities offer a joint guarantee for Kommuninvest's outstanding liabilities.⁴ Additionally, the composition of Kommuninvest's shareholder base may lead to lower equity cost of capital as well. First, member municipalities are not only sole owners, but also sole borrowers of Kommuninvest's credit facility, which countervails their interest in equity returns. Second, in contrast to shareholders of commercial banks, Swedish municipalities are tax-exempt entities such that all dividends paid by Kommuninvest remain entirely untaxed. Both refinancing advantages are, arguably, passed through to borrowers creating desired competitive pricing levels in municipal credit markets.

Using a sample of Swedish municipal bank loans, I search for empirical evidence that supports previous claims. My database consists of Kommuninvest's loan book plus hand-collected data of commercial bank lending with 29 municipalities between the years 2005-2010. Cross-sectional regressions of credit spreads in excess of the Swedish treasury rate suggest that the municipal credit agency offers loans at a rate 12-15bp lower than commercial banks. This result holds even after controlling for loan-specific, municipality or yield curve characteristics. As a comparison, credit spreads of bonds issued by the largest municipalities in Sweden are 25-30bp lower than commercial bank loans. This finding is also not a pure financial crisis effect since I observe coefficients of almost similar magnitude

³The reported amount of book equity was 0.54% of issued securities in 2011. The board decided to slightly increase the capitalization in later years, nevertheless, Kommuninvest continues to have a significantly higher leverage ratio than commercial banks.

⁴Such a joint guarantee has features similar to group lending in microfinance. Yet, the microfinance guarantee enables many borrowers to access credit markets, while the municipal guarantee has the intention to boost Kommuninvest's credit rating.

in the sample prior to fall 2008. Separating Kommuninvest's effect on credit spreads for small, medium, and large loan issues, I find that the difference in comparison to commercial banks is particularly prevalent for small loans. This underlines Kommuninvest's role of fostering liquidity and competitiveness in all segments of municipal credit markets.

Kommuninvest's continuous expansion to acquire more member municipalities during my sample period enables me to use an alternative estimation strategy that helps quantify Kommuninvest's impact on municipal credit markets. Before becoming a member of the cooperative society, municipalities are denied access to Kommuninvest's lending facility. Kommuninvest's effect on municipal credit outcomes is captured through the differential effect before and after Kommuninvest membership using municipalities that have not changed their Kommuninvest status in the same year as a control group. This approach is of interest because it mitigates selection problems by identifying the effect within a municipality. In addition, it also takes Kommuninvest's indirect effect as a competitive bidder against commercial banks into account. Point estimates from this approach suggest that credit spreads over the Swedish treasury rate decrease by 7.5-13bp.

The previous set of results poses the question as to why not all Swedish municipalities participate in Kommuninvest. Political resistance against municipal credit agencies is based on some local governments' reluctance to provide a joint guarantee for Kommuninvest's liabilities. Such a guarantee may create a coinsurance design through which municipalities with strong borrowing capacities subsidize weaker ones.⁵ In an attempt to identify evidence of coinsurance in Kommuninvest's lending terms, I use cross-sectional regressions of credit spreads to test whether municipality characteristics have explanatory power.

I find evidence that commercial banks charge to some extent higher credit spreads from smaller and more indebted municipalities. Interestingly, this is not the case for Kommuninvest.

⁵In the case of a similar discussion for MBBs, Solano and Hoffman (1982) stress political opposition of other financial institutions and lobby groups instead to hinder further adoptions of MBBs.

vest loans. All significant coefficients suggest that Kommuninvest's credit spreads are less sensitive to municipality characteristics, which I interpret as evidence for coinsurance. I would like to point out here that it is not obvious to find any cross-sectional differences in the first place since municipalities are connected to other political institutions. First, there exists an intergovernmental grant system that supports structurally weak municipalities. Second, financial markets may count on an implicit bail-out guarantee from the national government of Sweden in case municipalities should default. Third, budget deficits are strictly regulated and controlled by Sweden's national government, which presumably limits the scope for potential risk-taking or moral hazard.

Following up on the latter point, one may worry that a combination of enjoying coinsurance in addition to having cheaper access to credit stipulates incentives for moral hazard. If that is the case, participation in Kommuninvest may affect the fiscal discipline of municipalities. Using once more the time-series variation in municipalities joining Kommuninvest, I estimate how important accounting items change. Among tested variables are expenses, taxes, and debt per capita, as well as relative short-term debt and expenses to revenues. None of these items change significantly after municipalities join Kommuninvest. This makes me conclude that the overall fiscal behavior of municipalities remains unaffected.⁶

This brings us to the question whether a municipal credit agency of this form could help to improve the efficiency of municipal credit markets in other countries. Therefore, it is important to consider a country's wider institutional context. In my opinion, the following conditions make a strong case: having a national government with moderate levels of debt because a municipal credit agency indirectly leverages on the country's borrowing capacity; having a legal framework in place that assigns an authority to intervene with

⁶From my analysis I cannot take a stand whether interest cost savings are too small to affect local politics, or whether the Swedish system of checks and balances keeps public spending in line. Yet, Vogt (1984) also searches for evidence of deteriorating fiscal discipline of municipalities due to MBBs and is not able to find support for the hypothesis.

local governments in good time if annual deficits get out of control; and finally having local governments that are on average considered prudent borrowers. Ultimately, it may be no coincidence that this form of credit agency originates from the Nordic countries where the fiscal discipline of governments has been traditionally strong.

The remaining part of the paper is divided as follows. Section 2 briefly summarizes relevant literatures. Section 3 provides background information on Swedish municipalities, in particular institutional details about the local credit agency Kommuninvest. Section 4 introduces my data and important variables. Section 5 presents cross-sectional results of credit spreads. Section 6 proposes an alternative estimation by exploring differences before/after Kommuninvest membership. Section 7 contains risk-sharing aspects and a broader discussion about Kommuninvest and concluding remarks can be found in Section 8.

2 Literature review

Municipal credit markets have always been a topic of public attention. At the core of the debate is the identification of efficient and stable distribution channels for municipal debt. Most academic work is based on US data where bonds are the predominant form of municipal finance. Evidence from municipal bank portfolios, which is much more prevalent in Europe and other parts of the world, or evidence from municipal bond issues outside the US is scarce. This paper analyzes this type of specialized credit agency in Sweden.

A recurring theme in the literature is fostering competition to lower municipal borrowing cost. It has been addressed in early empirical studies like Kessel (1971), or Hopwell and Kaufman (1977). Their results are based on a legal distinction between revenue bonds and general obligation bonds that excluded deposit-taking institutions from underwriting revenue bonds leading to higher yields. Joehnk and Kidwell (1979), Sorensen (1979) and Simonsen and Robbins (1996) separate the selection process of bond underwriters into

publicly announced contests and privately negotiated deals. They all report evidence that competitive bids lead to favorable interest rates of municipal debt.⁷

The effects of municipal bond banks (MBBs) on borrowing costs are evaluated in another strand of the literature. Most studies work with data from at that time newly formed MBBs in New England and compare the interest yields with publicly issued bonds.⁸ Their conclusions are not as definite. Katzman (1980) acknowledges interest cost savings through MBBs but questions their economic importance. Cole and Millar (1982) confirm lower interest costs during periods of market turmoil, but show at the same time a cross-subsidization from highly rated municipalities to unrated municipalities. Kidwell and Rogowski (1983a) and Kidwell and Rogowski (1983b) confirm the borrowing advantage with respect to negotiated deals, but do not find significant differences with competitive bids. To the best of my knowledge, this is the first study of a municipal credit agency like Kommuninvest.

Whether municipalities' risk factors are sufficiently captured by bond ratings is studied in Capeci (1991) and Capeci (1994). His estimates suggest that debt levels have an impact on bond yields over and above bond ratings. Finally, there also exists a political dimension to municipal credit markets and institutions that widely differ across countries. Butler et al. (2009) show that the level of corruption affects the primary issuance of municipal bonds. Interestingly, more corrupt municipalities are able to unload this risk by buying credit enhancement from financial institutions. Using a sample of French municipal bank loans, Perignon and Vallee (forthcoming) find evidence for politicians' short-termism. Politicians strategically used structured finance products that allowed them to hide debt off-balance sheet during their tenure. Some of these loans created large losses during the recent financial crisis. Ang et al. (2016) study the growing market of semi-public Chengtou bonds in China, which are backed by land-use rights of local governments. They find that local real estate

⁷Benson (1979) suggests that not only the number of bidders but also the competitiveness of their quotes, which he measures by the variance of price quotes, has an impact on borrowing costs.

⁸An exception is Gilbert and Pike (1998) who study MBBs in Canadian provinces.

GDP activity is the most important factor in explaining the cross-section of bond yields.

3 Swedish municipal credit markets and Kommuninvest

Municipalities play a rather prominent role in the Swedish political system. Among their responsibilities are important fields like social and elderly care, schooling and nursery, and water and sanitation services. They are also fairly large players in housing or energy markets through subsidiary companies, thus contributing in a significant way to the national product of the country. Sweden is divided into 290 municipalities of varying size and population. In terms of the latter, the smallest one is Bjurholm with 2431 inhabitants and the largest one Stockholm with 864324 inhabitants.⁹ This fact highlights the diversity across municipalities and gives a flavor of their varied political objectives and financing needs. In order to alleviate at least partially the gap of public good provisions on the local level, the central government manages an extensive transfer system that is financed by richer municipalities.¹⁰ Nevertheless, economic discrepancies remain.

The municipal finance sector in Sweden can be roughly divided into three funding sources: bonds, commercial bank credit, and borrowing through a cooperative bank named Kommuninvest. The direct access to capital markets has been limited for many Swedish municipalities due to the small size of potential debt issues. Only Stockholm, Göteborg, and Uppsala, being among the four largest municipalities in Sweden, issue bonds on a regular basis. The rest relies on bank financing. Apart from a few exceptions, municipal lending from commercial banks is dominated by domestic institutions. Over the last decade, however, more and more municipalities decided to borrow at least partially through Kommuninvest.

⁹Statistics from SCB as of December 2011.

¹⁰See Petterson-Lidbom (2010) for a detailed discussion of this transfer system.

Kommuninvest thereby fulfills the role of a municipal credit agency. This type of banking is based on the idea that a pool of municipalities realizes economies of scale and diversification gains in capital markets compared to a stand-alone entity. Kommuninvest is organized as a cooperative society of which each member municipality owns a certain number of shares according to its size. Board representation is, however, independent of size as every municipality obtains the right to exercise *one* vote.

Access to Kommuninvest's credit facility is restricted to member municipalities, but every Swedish municipality has the possibility to become a member. By the end of 2011, 267 of Sweden's 290 municipalities had signed their membership in Kommuninvest covering 65% of the Swedish population. The lending volume of Kommuninvest's credit facility has been growing even faster. Figure 1 shows the number and volume of new loans in million Swedish Krona (SEK) for each quarter from 2005 to 2010. By the end of 2010, average new lending in a quarter significantly exceeds SEK 10 billion.¹¹ The increasing lending volume reflects not only the increased number of member municipalities but also a gain in market share for municipal finance.

Municipalities often borrow money for large infrastructure investments. For that reason, their financing needs are of general long-term duration. After having established basic determinants of the project, like the desired size and maturity of a loan, they send out formal credit applications to banks. Municipalities usually maintain relationships with several banks and request bids from all of them. Such a first-price sealed-bid auction helps to maintain competitive forces in a market with only a few active banks, thus giving municipalities a stronger bargaining position. Kommuninvest revises a municipality's credit application and offers its lending terms. The pricing mechanism is generally based on an

¹¹There is an extreme spike in the third quarter of 2008, with new lending being more than twice its regular size. Apart from the outbreak of the financial crisis, there are largely two driving factors: First, some municipalities had used call options of their Kommuninvest loans before the crisis to borrow instead from commercial banks. At the end of 2008, they switched back to Kommuninvest. Second, Kommuninvest took over the portfolio of municipal loans from a private competitor.

underlying market rate like STIBOR plus an additional loan-specific spread.¹² Fiduciary duty requires municipal representatives to accept the best offer.

The organizational structure of Kommuninvest provides a couple of reasons for why it may be able to offer competitive lending terms in comparison to commercial banks. Kommuninvest is specialized in providing financing solely to Swedish municipalities. For that reason, it maintains very close relations to municipalities and it is well informed about local developments. Since municipalities are not only borrowers but at the same time the only shareholders of Kommuninvest, they have representatives on the board who guarantee lending terms at competitive levels.

From a corporate governance perspective one might worry that this conflict of interest could even lead to an underestimation of risks. On the other side, the investment risk of municipal lending in Sweden is in general rather limited. So far no Swedish municipality has ever defaulted on its debt payments. There was only one incidence when a municipality was on the verge of default in the aftermath of the Swedish banking crisis in the early 90s.¹³ The Swedish government decided to sign a national bail-out package that absorbed all losses to private investors. Financial markets can presumably expect a similar decision for such cases in the future.¹⁴

An efficient capital structure is the most important building block for the competitiveness of a bank. Particularly so, when its borrowers are considered to have low risk, making expertise in ex-ante loan screening less important. In comparison to commercial

¹²Unfortunately, I neither observe whether Kommuninvest had competitors in a certain auction, nor whether Kommuninvest lost auctions against commercial banks. It would be a natural extension to what extent competition affects the success rate and pricing of a municipal credit agency in municipal auctions.

¹³On November 19th, 1992, the municipality Haninge, just south of Stockholm, was unable to roll over an outstanding debt issue. It was a result of vast real estate activities, in which a municipal subsidiary company was involved. The National Government injected 1.1 billion SEK, of which most could be recovered later on.

¹⁴The events of the 90s led to a municipal reform that legally prohibits persistent deficits and demands early budget restructurings.

banks, the organizational setup enables Kommuninvest to benefit from inbuilt refinancing advantages. Kommuninvest raises funds through relatively large, infrequent bond issues in international capital markets. The repayment of bonds is backed by a two-tiered system of public guarantees. Upon becoming a member of Kommuninvest, municipalities sign a joint guarantee for all outstanding liabilities of Kommuninvest. In case payments to deliver this guarantee overburden municipalities, Sweden's national government would probably prefer to bail-out this quasi-public agency rather than wait for its municipalities to struggle and default. In combination with the low risk profile of municipal lending described before, it explains why financial markets perceive Kommuninvest's liabilities as almost risk-free. The two major credit rating agencies Standard & Poor's and Moody's rate it as AAA, which ultimately leads to very low borrowing costs.

However, there are also distinct differences with regard to the equity side of banking regulation. Kommuninvest is able to maintain lending with a very low capital ratio of about 0.5% of book value of assets. This may be justifiable by the low risk profile of municipal lending in Sweden, but nevertheless, it stands in sharp contrast to capital ratios required in Basel III, which commercial banking institutions have to face. This difference becomes even more important when looking at the equity cost of capital. First, equity holders of Kommuninvest are member municipalities who, at the same time, get compensated through competitive borrowing rates. Their required yield on equity may be lower than the one required by profit-seeking shareholders of commercial banks. Second, due to the fact that municipalities are tax-exempt entities in Sweden, they do not pay taxes on dividends received from Kommuninvest. This leads to a situation where distributions of Kommuninvest's income are entirely untaxed, which, again, decreases the cost of equity.

4 Data

Using a proprietary database that contains detailed information at the loan-level, I am able to assess implications of a municipal credit agency on the borrowing terms in Sweden's municipal credit markets. My loan-level data consists of three main sources. The first one is the complete loan book of Kommuninvest, a cooperative lending institution specialized in funding Swedish municipalities. The second one is hand-collected data voluntarily provided by 29 municipalities regarding their complete information about borrowing terms with commercial banks.^{15,16} The data collection of commercial bank loans restricts the sample to the period 2005 to 2010 since I only observe the entire portfolio of new loans for those years. Finally, I add information about publicly traded bonds that have been mainly issued by the large municipalities Stockholm, Göteborg, and Uppsala.

Figure 2 illustrates quarterly borrowing volumes from the 26 municipalities for which I observe both, Kommuninvest loans and commercial bank loans. I plot Kommuninvest loans against commercial bank loans. The graph of Kommuninvest lending has a similar, upward-sloping trend as reported in Figure 1, which included Kommuninvest loans for all Swedish municipalities. Commercial bank lending tends to decrease instead over time; less pronounced on an absolute level, but certainly relative to Kommuninvest's lending. While Kommuninvest has a market share of about 50% at the beginning of the sample, it is significantly larger towards the end. The crowding out of commercial bank lending is

¹⁵I initially planned to collect a randomized sample of 100 municipalities in cooperation with Kommuninvest and distributed questionnaires accordingly. Unfortunately, only 29 of our questionnaires were returned. Some municipalities stated that they had not the capacity to collect all required information, others argued that they would not be willing to share information of commercial bank loans with Kommuninvest to keep competitive forces alive.

¹⁶One may argue that such a self-selection of municipalities into my sample of commercial bank loans may cause an estimation bias. I consider the arguments provided by municipalities as rather idiosyncratic. If anything, I expect municipalities that are intending to borrow larger amounts in the near future, that have worse access to capital markets, or that are generally more risky to be less likely to participate in the questionnaire. For such municipalities, Kommuninvest's services and built-in risk-sharing features are particularly valuable. This implies that I would observe their borrowing terms with Kommuninvest, but not with commercial banks.

particularly strong during the financial crisis at the end of 2008 and beginning of 2009.

The main variable of interest in the later analysis is the credit spread of a loan. I define credit spreads as interest rates in excess of Swedish treasury rates with equal time to maturity.¹⁷ Interest rates of municipal loans in Sweden can be broadly categorized into three groups: fixed interest rates, floating interest rates linked to the Stockholm Interbank Offered Rate (STIBOR), and floating interest rates with bank-internal benchmark rates. Since the Swedish treasury market consists largely of securities with fixed interest rates, I use interest rate swaps to transform floating-rate loans into fixed-rate loans before I compute credit spreads with respect to the Swedish treasury rate. This procedure is particularly challenging for loans linked to bank-internal rates, which I do not observe.¹⁸ Since I have to take arbitrary assumptions when computing their credit spreads, these loans need to be considered with caution and I present all results also excluding them. The computation of all credit spreads is explained in more detail in Appendix A.

Table 1 lists summary statistics of important loan characteristics on the effective date of a loan agreement. Panel A reports characteristics for Kommuninvest loans, Panel B for commercial bank loans, and Panel C for bonds. Table 1 also reports the credit spreads for each type of interest rate separately. Not controlling for any loan-specific, municipality, or time-series patterns, I find that credit spreads of Kommuninvest loans are on average 5bp higher than credit spreads of commercial banks. Principal amounts tend to be smaller as well. These findings mirror Kommuninvest's mission to give particularly small municipalities better access to credit markets. Bonds, on the other hand, are instruments for the very large municipalities. They have slightly smaller credit spreads and by far the largest issuance size.

¹⁷For loans with maturities that are not traded in the Swedish treasury market, I use linear interpolation of interest rates to approximate treasury rates. Maturities shorter than 1 month or longer than 20 years are compared to the 1-month or 20-year rate, which are respectively the longest or shortest maturities traded.

¹⁸Internally-indexed loans often have relatively short maturities. Their benchmark rates usually change on a daily or weekly basis according to a schedule defined by each bank individually.

Demographic and accounting information about municipalities is collected from Statistics Sweden. Summary statistics of the population and most common balance sheet items are shown in Table 2. Following Table 1, I report the variables separately for Kommuninvest lending, commercial bank lending, and bond issues. Kommuninvest lending is catered in particular towards smaller municipalities. The mean population of municipalities borrowing from Kommuninvest is 27941 (median 15411), which compares to a mean of 55168 (median 36848) for commercial bank lending. Apart from a slightly higher expense/revenue ratio, other variables seem very similar. In contrast, characteristics of bond issuing municipalities differ in all reported dimensions as this instrument is only available to the largest municipalities.

5 Cross-sectional evidence of credit spreads

In this section, I provide a cross-sectional analysis of credit spreads in Swedish municipal markets. I place particular emphasis on how borrowing conditions provided by Kommuninvest compare to other financing sources for municipalities. Among those alternatives are commercial bank loans or bonds. For reasons that have been discussed in Section 3, the institutional structure of Kommuninvest may allow competitive lending terms, leading to contested price levels of municipal debt. Differences in credit spreads across financial institutions are captured by two dummy variables

$$Credit\ Spread_{it} = \beta_1 KI_{it} + \beta_2 Bond_{it} + \gamma_1 X + \gamma_2 q_t + \gamma_3 m_j + \epsilon_{it}$$

where KI_{it} equals one if loan i was granted by Kommuninvest, $Bond_{it}$ equals one if funds i were raised through a publicly issued bond, X represents a set of market or loan-specific control variables, and q_t and m_j denote quarter and municipality fixed effects. The coefficients of interest are β_1 and β_2 as they capture differential effects of credit spreads in

percentage points with respect to commercial banks.

Table 3 reports the corresponding regression output. I present the cross-sectional results for two samples: sample ALL includes all loan observations in my database and sample SUB includes only loans given to the 26 municipalities for which I observe Kommuninvest and commercial bank borrowing.¹⁹ Estimates for the KI dummy in both samples suggest that credit spreads of Kommuninvest loans are about 15bp smaller than the ones of commercial banks. Credit spreads of bonds, independently issued by large municipalities, are even 24bp smaller. Both coefficients are statistically significant at the 1% level. After controlling for market and loan-specific control variables in column 3 and 4, these coefficients remain statistically significant in the range of 12bp. In unreported results I find effects of similar magnitude in the sample before the financial crisis in fall 2008.²⁰

In the second panel of Table 3, I exclude all loans linked to internally-measured bank rates. For reasons discussed in Section 4, the structure of these products may be very heterogeneous across banks and I cannot evaluate whether my standardized adjustment of credit spreads creates a reliable and unbiased measure for the cost of debt. Yet, excluding loans linked to bank-internal rates slightly increases the estimated coefficients of interest. Credit spreads of Kommuninvest loans are 15-20bp smaller than the ones of commercial banks, whereas bond differences are 25-30bp smaller.

A complete sample split according to the three interest rate categories is shown in Table 4. Using the sample of fixed-rate loans, I find that credit spreads of Kommuninvest loans are about 15bp smaller compared to commercial bank loans with similar characteristics. The corresponding difference of bond spreads is 18bp. Looking at loans linked to 3-month STIBOR rates instead, the differential effects are slightly larger. The point esti-

¹⁹Three municipalities returned the questionnaire but are not members in Kommuninvest or members that have never borrowed through it. I exclude their observations from the sample SUB as well.

²⁰These results are available upon request.

mates are 20-22bp for Kommuninvest loans and 30bp for bonds. Turning towards the last group of internally-benchmarked loans, I find a smaller Kommuninvest effect of 8-12bp that is only statistically significant in sample *ALL*. Banks use these products in particular to provide short-term lending to municipalities. Either commercial banks are relatively more competitive in this segment of the market or the computed credit spreads are less reliable for internally-benchmarked loans.

I further refine the cross-sectional model by estimating Kommuninvest's effect on credit spreads separately for different loan segments. In order to do so, I split the sample according to the principal value of loans into 3 quantiles and interact these group dummies with the Kommuninvest dummy. Results are reported in Table 5. While Kommuninvest tends to offer also lower credit spreads of 8-15bp for medium and large loans, the effect is especially striking for small loans. Estimated coefficients for this group suggest that Kommuninvest's credit spreads are in a range of 30-40bp below credit spreads of commercial banks. This finding supports the claim that a municipal credit agency improves market access and borrowing conditions in particular for small municipalities, which is one of Kommuninvest's explicitly stated goals.

6 The impact of entering Kommuninvest

Sequential entries of municipalities into Kommuninvest offers an alternative approach that helps to estimate the economic implications resulting from a municipal credit agency. This approach has two advantages: First, it captures changes in a municipality's outcome variable that materialize when a municipality becomes a member of Kommuninvest. Second, Kommuninvest may not only have a direct impact channeled through the loans it actually provides, but also as a competitive bidder that forces commercial banks to provide more attractive terms. Such a staggered time-series effect captures both, direct and indirect

effects.

The outlined estimation strategy exploits the restriction that a municipality only gets access to borrow from Kommuninvest's lending facility after having become a member in Kommuninvest's cooperative society. It is important to note here that there is no selection process from the side of Kommuninvest in place. Any Swedish municipality is eligible to become a member after having signed a joint guarantee for all of Kommuninvest's outstanding liabilities.

A municipality's decision to participate in Kommuninvest, on the other hand, is certainly not random. I expect that municipalities are more inclined to join if they have large investment projects planned or if they are about to roll-over existing loans. Such municipalities have a greater need for financing in the near future giving them incentives to shop for the best borrowing terms across financial institutions, including Kommuninvest. If anything, such a selection mechanism attracts municipalities that are likely to be or become more risky borrowers. Since the hypothesis claims that access to Kommuninvest's lending facility has a decreasing impact on municipal borrowing costs, the selection bias leads the opposite direction and I am more likely to underestimate the effect.

The following equation describes the model that helps to compare municipalities' outcome variables before and after gaining access to Kommuninvest's lending facility:

$$y_{(i)jt} = \beta_3 KI-Member_{jt} + \gamma_1 q_t + \gamma_2 m_j + \epsilon_{(i)jt}$$

where $y_{(i)jt}$ refers to a dependent variable that varies at the loan-level i or municipality-level j , $KI-Member_{jt}$ indicates whether municipality j has been a Kommuninvest member for the entire year t , q_t denotes year fixed-effects, and m_j captures municipality fixed-effects. In a second specification, I include two additional dummy variables that aim to capture potential pre-trends: one indicates the year a municipality signed their Kommuninvest

membership and one indicates the year before.

Quintessential to this approach is time-series variation in municipalities joining Kommuninvest, which is illustrated in Figure 3. The graph plots how many municipalities signed up each year. While fewer municipalities were joining Kommuninvest in the late '90s and early 2000s, there are at least 10 new members for most of the years. Naturally, all estimations with loan characteristics as dependent variables are restricted to the period 2005-2010. Unfortunately, this diminishes the statistical power of the model. The coefficient of interest β_3 is in this case identified through the loans of 12 municipalities, for which I observe also loans from commercial banks and that became Kommuninvest member between 2006 and 2009.

6.1 Kommuninvest membership and municipal loans

Following the findings of Section 5, I expect that gaining access to Kommuninvest's credit facility decreases a municipality's borrowing cost. Results of panel regressions that estimate the impact of a Kommuninvest membership on a municipality's borrowing terms are presented in Table 6. In addition to credit spreads, I also use the principal amount of loans as a dependent variable. Having access to cheaper financing may potentially provide incentives to request larger amounts too.

Panel A of Table 6 reports results of the benchmark model that do not explicitly allow for possible pre-trends. Point estimates for the coefficient of interest suggest that credit spreads of new loans decrease on average by 13bp after a municipality participates in Kommuninvest. The coefficients are statistically significant at the 1% level, which still holds after controlling for loan characteristics in Column 2.²¹ If I also include loans that

²¹Since I also observe a reasonable but incomplete amount of loans from commercial banks in 2003 and 2004, I also estimate an extended panel over the years 2003-2010 in order to increase the number of events identifying the coefficient of interest. The point estimates remain very similar while statistical significance

are linked to bank-internal rates into the estimation, the point estimates decrease to 7.5bp but remain statistically significant at the 5% level (see Columns 4 and 5). Looking instead at principal amounts of new loans in Columns 3 and 6, it does not seem like Kommuninvest membership does have a lasting impact of statistical significance.

Panel B extends the benchmark model by allowing for pre-trends captured by separate coefficients for a municipality's year of Kommuninvest membership and the year before. This analysis gives more precision to the timing of when the described effect materializes. If pre-existing trends of the effect can be ruled out, it provides evidence against a confounding factor or a reverse causality explanation where municipalities become Kommuninvest members due to improving market conditions. At the same time, this analysis may reveal information for why a municipality decided to join Kommuninvest.

Testing for pre-trends in credit spreads, I find a significant positive coefficient in the year prior to joining Kommuninvest instead of a negative one. This means that municipalities face increasing borrowing costs in the year before they decide to join Kommuninvest. The estimated coefficient for the membership year itself is negative but not statistically significant.²² Importantly, the existing pre-trend has a structural break during the year a municipality becomes Kommuninvest member. Looking instead at the principal amount of loans, there is no significant effect in the year prior to Kommuninvest membership. However, during the membership year itself it is significantly larger. Overall, both findings point towards a similar direction, which municipalities are more likely to join Kommuninvest: municipalities that are particularly dissatisfied with their latest borrowing terms and municipalities with immediate and relatively large financing needs.

The impact of a Kommuninvest membership on credit spreads is finally captured by the
actually increases.

²²Municipalities may enter Kommuninvest continuously during a calendar year such that it is not clear whether I should assign this observation to the pre- or post-period.

coefficient $Year \geq KI-Year_{t+1}$ in Panel B. Point estimates suggest that the effect is even slightly larger than reported in Panel A. However, the statistical evidence gets weaker since the effect is identified by fewer observations. The effect remains statistically significant at the 5% level in the sample without loans linked to bank-internal rates, while it slips below the level of 10% in the sample with all loans.

6.2 Kommuninvest membership and municipal budgets

Over the long run, a municipality's participation in a municipal credit agency could have implications over and above the direct impact on borrowing terms in municipal credit markets. The possibility to find coinsurance in such an institution and to unload individual financial risks on a collective account leads to diversification gains but stipulates incentives for moral hazard at the same time. The availability of cheaper access to credit may even aggravate the problem if it undermines the fiscal discipline of municipalities participating in such a municipal credit agency. Therefore, it is of general interest to study how a municipality's decision to join Kommuninvest affects its annual accounts, despite the fact that deficits are relatively strictly regulated in Sweden.²³

Using accounting items for municipalities from Statistics Sweden, I estimate the same fixed-effects model capturing the impact of entries into Kommuninvest. In order to maximize the sample period and number of events, I use a balanced panel including all Swedish municipalities from 1999-2010. Regression results are reported in Table 7. Panel A covers again the benchmark model, while the results in Panel B allow for potential pre-trends.

Among tested dependent variables are expenses, taxes, and debt, all scaled by a munic-

²³Such tests only account for on-balance sheet items. During the financial crisis derivative positions and off-balance sheet items caused problems for some municipalities in Norway or France. However, unlike the sample of French municipal loans in Perignon and Vallee (forthcoming), I do not observe loans directly linked to exchange rates or interest slopes in my sample, which is what Perignon and Vallee (forthcoming) label structured lending.

ipality's population, as well as the ratios short-term debt over total debt and expenses over revenues. None of the specifications provide statistically significant results. In unreported results, I replace levels with changes in accounting items with similar conclusions. Thus, there is no empirical evidence at this point that participating in a municipal credit agency distorts a municipality's fiscal discipline in Sweden. As previously mentioned, the National Government in Sweden keeps a relatively strict regulation on municipal deficits.

7 Risk sharing and further discussion

Results so far presented suggest that Kommuninvest offers on average competitive borrowing terms in municipal credit markets. Yet, gaining access to Kommuninvest's credit facility requires in return that municipalities sign a joint guarantee for all Kommuninvest's outstanding liabilities, which implicitly creates a coinsurance mechanism among municipalities. This raises the question whether Kommuninvest would only redistribute resources across municipalities upon calling the guarantee in case of distress, or whether it provides risk sharing already within its day-to-day lending activities. The existence of such a coinsurance mechanism may be captured by relating credit spreads to municipality characteristics.

Therefore, I return to cross-sectional regressions of credit spreads. This time I explicitly control for relevant municipality characteristics instead of using municipality fixed-effects like in Tables 3 through 5. Of interest is not only which municipal risk factors are reflected in credit spreads, but also whether there are systematic differences between Kommuninvest loans and commercial bank loans. According to the coinsurance hypothesis, credit spreads of Kommuninvest loans should be less sensitive with respect to municipality characteristics. The model captures such differences by interaction terms of a Kommuninvest dummy with municipality characteristics. In each specification, I still control for loan and yield curve characteristics and quarter fixed-effects. Regressions are estimated separately for fixed-rate

loans, STIBOR-linked loans, and internally-benchmarked loans, and jointly for the entire sample. Table 8 reports the regression output.

In the following tests, I focus on three municipality characteristics, for which ex-ante arguably the strongest cross-sectional pricing predictions exist: population, debt per capita, and expenses per capita. In the sample of fixed-rate loans, I find that municipalities with larger populations pay lower credit spreads for commercial bank loans. This cross-sectional effect is basically neutralized for Kommuninvest loans, which is captured by a statistically significant interaction term in the opposite direction. In the sample of STIBOR-linked and internally-indexed loans, commercial bank loans of more indebted municipalities have higher credit spreads. Spreads of Kommuninvest loans, in comparison, are significantly less sensitive with respect to municipal debt. The third predictor, expenses per capita, is largely insignificant except if I control already for debt per capita as in columns 8 or 12.²⁴

I acknowledge that the presented evidence is not perfectly consistent across all different specifications in Table 8. Coefficients for population are insignificant for floating-rate loans, while debt per capita has no explanatory power for fixed-rate loans. However, all significant coefficients indicate that Kommuninvest loans are less sensitive to variation in municipality characteristics than commercial bank loans. Generally speaking, this is evidence that Kommuninvest provides coinsurance through its lending.

If that is indeed the case, what motivates “low risk” municipalities to participate voluntarily in Kommuninvest? The fact that by now more than 90% of Swedish municipalities have joined Kommuninvest indicates that it has some general appeal on top of a plain coinsurance mechanism. Benefits of improved credit access must outweigh the cost of risk sharing for all municipalities. This is in line with the findings of Table 5 where all Kom-

²⁴Significant estimates of expenses per capita point into an unexpected direction, i.e. higher expenses are related to lower credit spreads. Since the coefficients only turn significant after controlling for debt per capita, which in turn also gets much larger, it may indicate that both variables capture related dimensions leading to multicollinearity.

muninvest loans tend to have lower credit spreads than commercial bank loans even though the effect is particularly strong for loans of small issue size. Arguably, the refinancing advantages discussed in Section 3 are a crucial component behind Kommuninvest's success: Kommuninvest is able to maintain higher leverage ratios, has the highest possible credit rating, and its equityholders are completely tax-exempt.

There is no way to cleanly identify which features of Kommuninvest's structure are economically most relevant. Tax exemptions may be the least compelling argument in favor of a municipal credit agency because all interest cost savings of local governments would be immediate tax losses to the National Government.²⁵ Nevertheless, the other provided arguments create an indirect link to the National Government. By signing a joint guarantee for Kommuninvest's liabilities, municipalities are effectively tying their fate together, which increases the systematic component of municipal risk. Such risk is carried by the National Government. Thus, a municipal credit agency in its discussed form provides a clever structure that enables municipalities to leverage the credibility of the National Government when raising funds in international capital markets.

I would like to conclude my discussion with a brief comparison between Kommuninvest's structure and features of the Eurozone. This comparison allows me to emphasize aspects I consider critical in the design of such a municipal credit agency. In both cases, at least some countries or municipalities gain cheaper access to credit through coinsurance within the group, which is generally a good thing unless it undermines fiscal discipline. While I did not uncover evidence of increasing deficits or capital spending for Swedish municipalities, this issue is heatedly debated within Euro countries.

²⁵A simple calculation helps us to evaluate the magnitude. Lets consider a commercial bank facing a tax rate of 25% that lends with an average spread of 57bp over treasury as in Table 1. This bank had to pay taxes of $(1 - \tau) \times spread = 14bp$ of its lending amount if it would refinance in capital markets at the treasury rate and if it had administration costs close to zero. Both assumptions are even for Kommuninvest rather unlikely suggesting that the other reasons play a role, too.

Municipalities in Sweden agree to jointly guarantee for all outstanding liabilities before they join Kommuninvest. This stands in sharp contrast to Article 104 of the Maastricht Treaty, which explicitly states that no Euro country can assume another country's commitments. During the European sovereign debt crisis, this tough stand was softened and a stability mechanism introduced. If such a no-bailout clause can not be maintained, it leads to severe coordination problems: First, it mitigates ex-ante efforts and authority to monitor the fiscal discipline of other members within the group. Second, it requires to enter into negotiations for a bailout package at the worst point in time, which reluctantly leads to the implementation of a minimal solution.

The advantage of Kommuninvest's structure is that it has in Sweden's national government a clearly assigned supra-ordinate authority, which continuously plays an active role. Importantly, there is already a legal framework in place that allows Sweden's national government to strictly enforce fiscal discipline on local governments if necessary. The existence of a joint guarantee takes away the illusion that distressed municipalities (and their investors) were left to themselves. There is a first defense line in the diversification of municipal risk within Kommuninvest's structure plus a lender of last resort in Sweden's national government.

8 Conclusion

Size, economic development, and the degree of political centralization are all factors affecting a local government's terms and access to credit markets. Therefore, municipalities have developed institutions of various forms designed to optimize their access to credit. This paper provides a comprehensive analysis of a semi-public financial intermediary that exclusively specializes on municipal debt in Sweden, a municipal credit agency called Kommuninvest. In contrast to common practice in the US, Swedish municipal credit markets

are almost entirely bank-oriented, just like most other municipal credit markets around the world.

Kommuninvest's business model is to raise long-term funds through the issuance of bonds in international capital markets and to distribute them among participating municipalities. The primary objective, thereby, is to overcome transaction costs by stimulating competition in a market segment with low margins, and to gain refinancing advantages due to its financial structure, including a layer of public guarantees. The economic conclusions from my analysis are threefold: I find evidence suggestive of risk-sharing in Kommuninvest's lending terms, I document that access to its credit facility decreases credit spreads, and I cannot detect evidence that improved credit terms undermine the fiscal discipline of municipalities.

Having seen recent incidents of municipal distress in France and Norway, and noting insufficient credit access of municipalities in developing countries around the world, one wonders to what extent such an institution could be transferable to other countries. The analysis in this paper provides useful reference points. Introducing such a municipal credit agency without taking account for specific local circumstances may as well aggravate problems. Long-term success hinges in my opinion on the low-risk profile and fiscal discipline of local governments, additional benefits on top of a pure coinsurance mechanism that makes all municipalities inclined to participate, and a strong legal framework that puts the national government in control if problems occur.

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9 Appendix

A Details of credit spread computations

The analysis in this paper uses chiefly credit spreads of Kommuninvest and commercial bank loans to Swedish municipalities. I compute these spreads with respect to the Swedish treasury yield curve as the risk-free asset. Bank loans may be roughly divided into three categories, which require a separate treatment when backing out credit spreads: fixed interest rate loans, floating-rate loans linked to a public benchmark, or floating-rate loans linked to an internal bank rate. This section explains in detail how I define credit spreads for each category respectively.

Pricing of fixed-rate loans is straight forward. We subtract the yield on treasury bonds with equal time to maturity at the day of issuance from the interest rate of each loan. Unfortunately, even treasury yields of key maturities are stale for short periods in the sample. These missing maturities as well as fractions of a maturity not traded are filled through linear interpolations of the two closest observable maturities.

Since all outstanding Swedish treasury bonds are securities with fixed coupon rates, the computation of credit spreads for floating-rate loans requires an additional step. Almost all floating-rate loans with a public benchmark rate are based on the 3-month STIBOR plus/minus a loan-specific spread. STIBOR refers to the Stockholm Interbank Offered Rate, which is set by the major banks in Stockholm every day at 11am. I transform the floating nature of a loan into a fixed interest rate with the help of interest rate swaps. Interest rate swaps on the 3-month STIBOR are traded for various maturities of up to 20 years. Using similar interpolation strategies as applied to the treasury yields, I am able to express floating-rate loans in terms of fixed interest rates and thus, I am able to compare it to corresponding treasury yields. My definition of credit spreads for STIBOR-indexed

loans is summarized in the following equation.

$$CreditSpread_{i,t,ttm} = Swap_{STIBOR\ 3M,t,ttm} + Spread_i - TreasuryYield_{t,ttm}$$

Some STIBOR-linked loans have in addition an embedded call option that may be executed every three months when the interest rate is reset. For these products, I define the credit spread as the 3-month STIBOR rate plus spread minus the 3-month treasury yield.

Loans indexed to internal bank rates are more difficult to price. First, internal benchmark rates are unobserved, but at least Kommuninvest's internal rate is linked to short-term market rates as the maturity of these products is generally of short-term nature. This, however, may differ from bank to bank. Using the same benchmark rates may then be one source that creates undesired differences in credit spreads across banks. Second, Kommuninvest loans that are linked to their internal rate, for example, are generally callable. My general approach for these types of products is to consider them as short-term lending contracts. Since it is important to match a benchmark rate with a treasury yield of equal maturity, I rely on the shortest available treasury yield, the 1-month rate. The credit spread is then defined as the 1-month STIBOR plus spread in excess of the 1-month treasury yield. While I believe that this strategy provides a reasonable assessment of short-term lending products, it may nevertheless contain potential biases in credit spreads across banks. Therefore, I place more emphasis and confidence into results that are based on the sample of fixed and STIBOR-indexed loans.

B Sample with commercial bank loans

The following list shows the 26 municipalities that comprise the sample SUB. For these municipalities I observe at least one Kommuninvest loan and one loan from a commercial bank during the period 2005 until 2010. The table lists furthermore the number of loans

with which each municipality is represented in the sample. Number of observations are separated by Kommuninvest and commercial banks.

Kommun	not KI	KI	Total	Kommun	not KI	KI	Total
BJURHOLM	30	12	42	NYKVARN	4	3	7
BOTKYRKA	9	36	45	NÄSSJÖ	10	48	58
ESKILSTUNA	36	49	85	OXELÖSUND	20	23	43
GNESTA	13	3	16	RONNEBY	56	14	70
GÄLLIVARE	10	20	30	SALEM	10	1	11
GÄVLE	25	89	114	SKELLEFTEÅ	47	104	151
HERRLJUNGA	3	62	65	TIMRÅ	34	31	65
HUDIKSVALL	42	14	56	TRANEMO	8	8	16
KARLSTAD	25	52	77	TRELLEBORG	4	42	46
KRISTIANSTAD	22	47	69	UPPLANDS BRO	8	42	50
LERUM	6	12	18	VAXHOLM	11	7	18
LINDESBERG	22	58	80	VÄXJÖ	40	122	162
LJUNGBY	10	14	24	ÄLMHULT	14	17	31
				Total	519	930	1449

10 Figures and Tables

Figure 1: Kommuninvest's development

Figure 1 shows the development of Kommuninvest's portfolio of new loans over the sample period 2005 until 2010. The solid line represents the quarterly volume of new loans in Million SEK. The scatter plot represents the number of new loans that have been signed during the quarter.

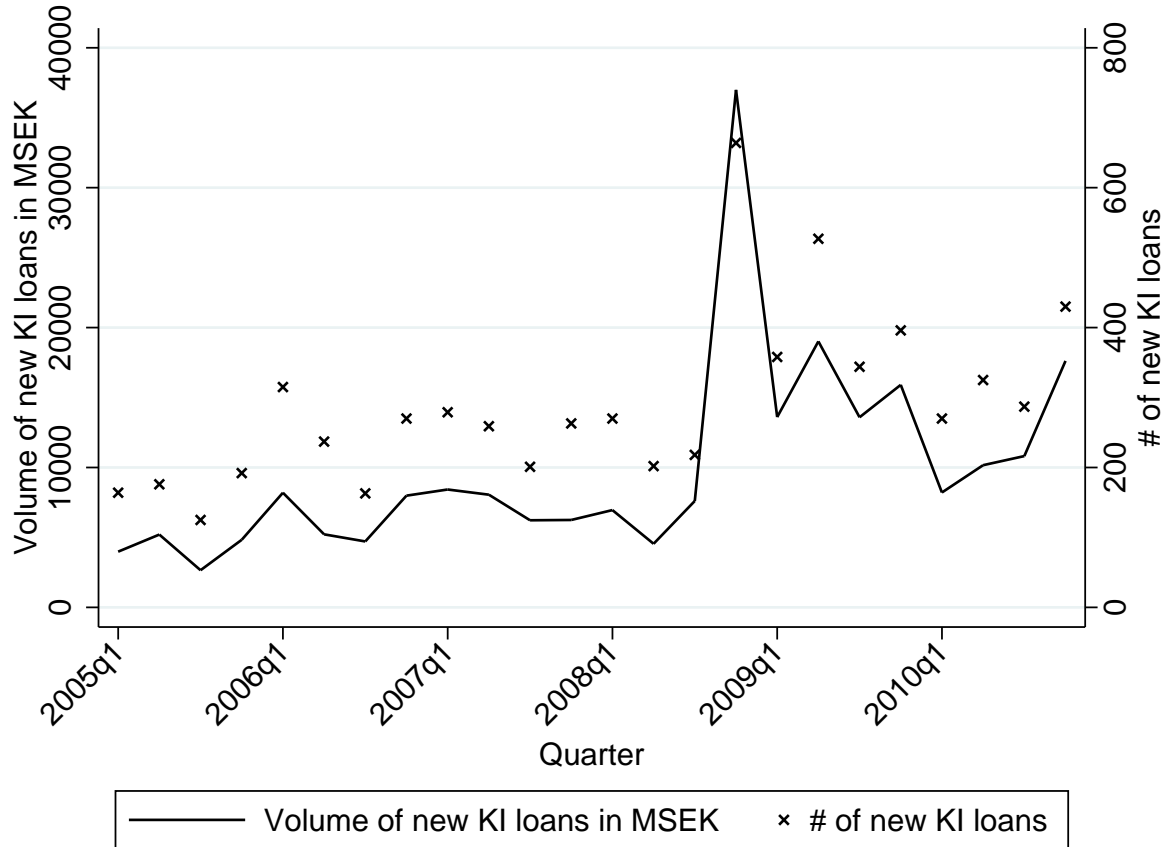


Figure 2: Comparative lending since 2005

Figure 2 compares the volume of new lending between Kommuninvest and commercial banks for each quarter of the period 2005 until 2010. In order to obtain a meaningful benchmark, we only consider loans to the 26 municipalities in sample SUB, for which we observe all Kommuninvest and commercial bank loans taken. Black plots refer to Kommuninvest lending whereas gray ones to commercial bank lending. The lines represent new lending volume in million Swedish Krona and are measured on the left axis. The scatter plots simply count the number of loans and can be read on the right axis.

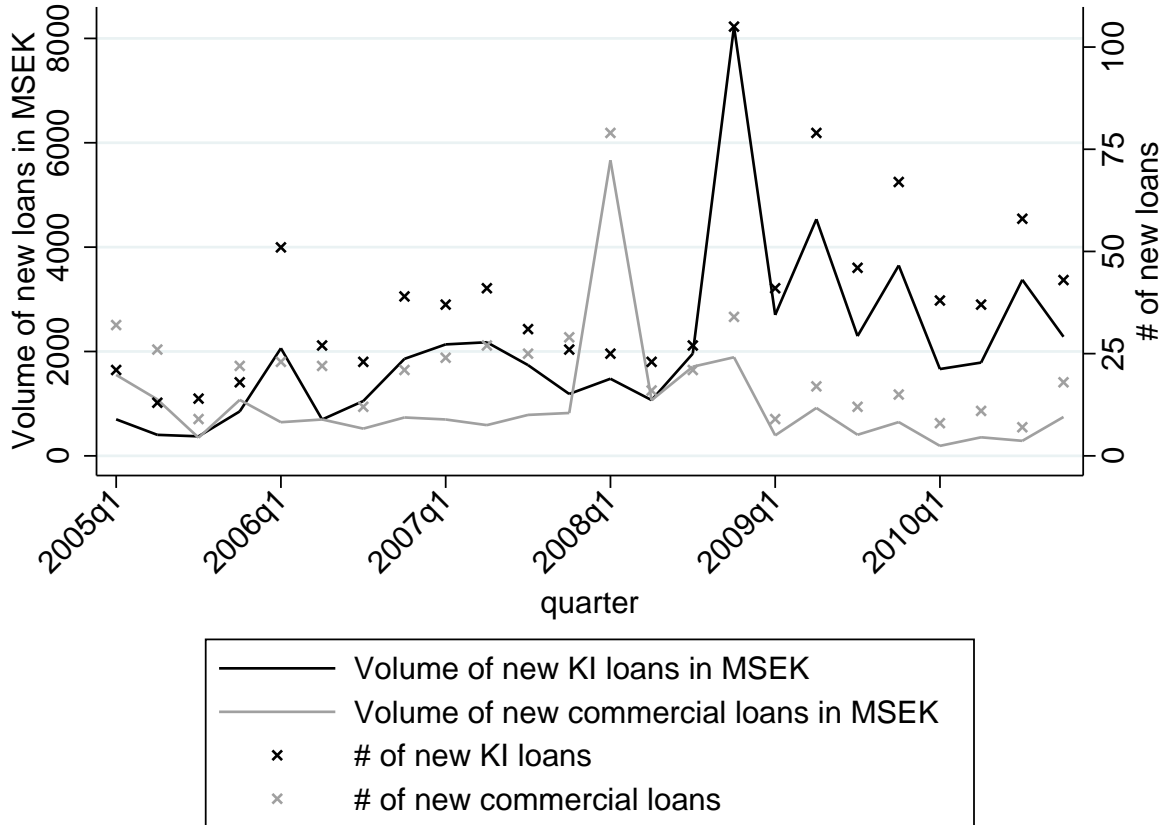


Figure 3: Time-series of municipalities joining Kommuninvest

This figure plots the number of Swedish municipalities that sign a membership agreement with Kommuninvest in each year. At the end of 2011, 267 of Sweden's 290 municipalities were members in Kommuninvest cooperative society.

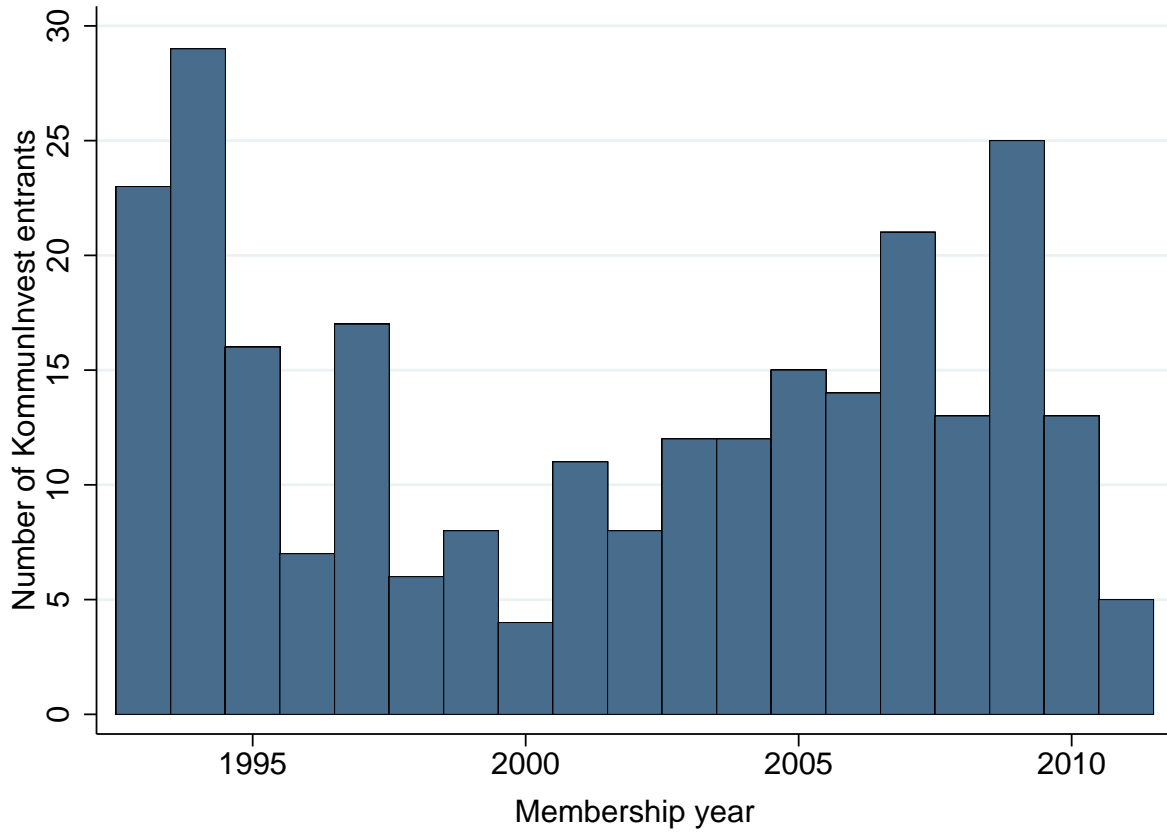


Table 1: Loan summary statistics

Table 1 reports summary statistics for important loan characteristics. It covers loans and bonds that were issued between 2005 and 2010. Panel A summarizes Kommuninvest loans, Panel B commercial bank loans and Panel C bonds. Credit spreads are computed with respect to Swedish treasury rates and denoted in percent. Details about credit spread computations can be found in Appendix A. I also report credit spreads for fixed-rate, STIBOR-linked, or internally-indexed loans separately. *Time to first call* and *time to maturity* are both denoted in years, and *Principal amounts* in million Swedish Krona. *Floating rate* and *Callable* are dummy variables defining further properties of a loan.

	Panel A - Kommuninvest Loans					
	mean	median	sd	min	max	N
Spread over treasury	.6248	.6059	.5265	-1.089	4.983	6592
Spread fixed-rate loans	.7241	.6305	.5698	-1.089	4.983	2362
Spread STIBOR loans	.6086	.67	.4164	-.1365	1.848	1529
Spread internally-indexed loans	.5471	.57	.529	-.25	3.39	2701
Time to first call	1.809	.1644	2.285	.01918	14.98	6592
Time to maturity	4.491	3.014	4.835	.01096	20.04	6592
Principal amount in MSEK	33.52	20	49.87	1.00e-06	950	6592
Floating rate	.6417	1	.4795	0	1	6592
Callable	.5469	1	.4978	0	1	6592
	Panel B - Commercial Banks Loans					
	mean	median	sd	min	max	N
Spread over treasury	.5718	.4628	.4943	-1.066	2.835	485
Spread fixed-rate loans	.6208	.4631	.5913	-1.066	2.835	218
Spread STIBOR loans	1.001	1.05	.5154	.1481	1.968	57
Spread internally-indexed loans	.4046	.3569	.2253	.0942	1.571	210
Time to first call	2.007	.4932	2.659	0	15	485
Time to maturity	2.414	1	3.069	.005479	33.04	485
Principal amount in MSEK	48.03	31.3	63.78	.177	714	485
Floating rate	.5505	1	.498	0	1	485
Callable	.3278	0	.4699	0	1	485
	Panel C - Bonds					
	mean	median	sd	min	max	N
Spread over treasury	.5711	.4606	.4279	-.1084	1.796	69
Spread fixed-rate loans	.4542	.2658	.4373	-.1084	1.796	33
Spread STIBOR loans	.6782	.614	.3952	.03379	1.323	36
Time to first call	3.41	3.027	1.919	1.005	10.11	69
Time to maturity	3.41	3.027	1.919	1.005	10.11	69
Principal amount in MSEK	322.1	300	208.3	50	1000	69
Floating rate	.5217	1	.5032	0	1	69
Callable	0	0	0	0	0	69

Table 2: Municipality summary statistics

Table 2 reports summary statistics of municipality characteristics for our loan database. Panel A summarizes municipalities borrowing from Kommuninvest, Panel B the ones borrowing from commercial banks and Panel C reports municipalities issuing bonds directly. *Population* is the number of registered citizens in a municipality. *Debt/pop. tSEK* refers to the total debt per capita and *Tax/pop. tSEK* to the tax income per capita in terms of thousand Swedish Kronor. *ST-debt/debt* describes the fraction of short-term debt over total debt (debt that is due within 1 year). Finally, *Expenses/revenue* refers to the expenses to revenue ratio.

Panel A - Kommuninvest						
	mean	median	sd	min	max	N
Population	27941	15411	27120	2500	134006	6592
Debt/pop. tSEK	50.67	48.08	16.08	10.16	109	6504
Tax/pop. tSEK	32.78	33.34	4.864	0	42.45	6592
ST-debt/debt	.2667	.2508	.08535	.04827	.9459	6504
Expenses/revenue	3.059	2.997	.7249	1.412	5.948	6504
Panel B - Commercial Banks						
	mean	median	sd	min	max	N
Population	55168	36848	64720	2541	493502	485
Debt/pop. tSEK	54.26	49.44	23.11	9.347	105.5	485
Tax/pop. tSEK	33.06	33.27	2.868	25.42	42.45	485
ST-debt/debt	.2818	.2502	.1105	.1322	.8429	485
Expenses/revenue	2.787	2.597	.8889	1.479	5.572	485
Panel C - Bonds						
	mean	median	sd	min	max	N
Population	519862	500197	193422	182076	810120	69
Debt/pop. tSEK	64.44	86.25	29.57	18.27	93.7	69
Tax/pop. tSEK	35.89	36.9	2.07	32.57	38.31	69
ST-debt/debt	.4578	.3199	.1758	.2499	.7244	69
Expenses/revenue	2.098	1.791	.4884	1.619	3.051	69

Table 3: Kommuninvest's impact on borrowing costs

Table 3 reports the regression output of a basic cross-sectional model. The dependent variable is the credit spread in excess of the treasury rate. Details of how I compute credit spreads can be found in Appendix A. The right-hand side variables of interest are two dummy variables indicating whether the source of financing is Kommuninvest or a directly issued bond. This leaves commercial bank loans as the benchmark group. In columns 3, 4, 7, and 8 I add a set of loan-specific variables and yield curve characteristics to the model. *Time to maturity* is measured in years and $\ln(\text{principal})$ is the natural log of the principal amount in SEK. The dummy variables *Floating rate*, *callable*, and *amortizing* characterize further details of a loan. The level of the yield curve is captured by *Treasury Bond 5 Year* and the corresponding slope by *Treasury 10Y - 3M*. I show all model specifications for the complete sample ALL and the sub-sample SUB, which only includes the 26 municipalities with at least one Kommuninvest loan and one commercial bank loan. The panel in columns 1 to 4 covers all, whereas the panel in columns 5-8 excludes floating-rate loans that are linked to internally-computed bank rates. All specifications include municipality and quarter fixed effects and the standard errors are clustered on the municipality level.

	All loans				Excluding internally-indexed loans			
	(1) ALL	(2) SUB	(3) ALL	(4) SUB	(5) ALL	(6) SUB	(7) ALL	(8) SUB
Kommuninvest	-0.148*** (0.041)	-0.166*** (0.052)	-0.122*** (0.034)	-0.119*** (0.038)	-0.203*** (0.061)	-0.208*** (0.073)	-0.157*** (0.049)	-0.155*** (0.051)
Bond	-0.235*** (0.044)		-0.266*** (0.052)		-0.275*** (0.014)		-0.291*** (0.042)	
Time to maturity			-0.001 (0.001)	-0.005** (0.002)			-0.005*** (0.002)	-0.007* (0.003)
ln(Principal)			-0.005 (0.006)	0.003 (0.019)			-0.011 (0.010)	-0.023 (0.023)
Floating rate			-0.128*** (0.023)	-0.192** (0.069)			-0.131*** (0.024)	-0.166** (0.068)
Callable			-0.132*** (0.018)	-0.118** (0.052)			-0.096*** (0.020)	-0.103* (0.059)
Amortizing			0.006 (0.017)	0.013 (0.025)			-0.025 (0.018)	0.023 (0.032)
Treasury Bond 5 Year			-0.231*** (0.031)	-0.301*** (0.096)			-0.315*** (0.033)	-0.374*** (0.083)
Treasury 10Y - 3M			-0.046* (0.024)	-0.021 (0.061)			-0.026 (0.031)	0.015 (0.079)
Observations	7,146	1,329	7,146	1,329	4,235	754	4,235	754
R-squared	0.65	0.56	0.70	0.63	0.62	0.55	0.66	0.59
Muni FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Quarter FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cluster	Muni	Muni	Muni	Muni	Muni	Muni	Muni	Muni

Table 4: Separate specifications for fixed-rate, STIBOR-indexed, and internally-benchmarked loans

Table 4 reports cross-sectional estimations using a sample split. The dependent variable is the credit spread in excess of the treasury rate. Columns 1-2 are fixed-rate loans, columns 3-4 are STIBOR-indexed loans, and columns 5-6 are internally-benchmarked loans. The right-hand side variables of interest are two dummy variables indicating whether the source of financing is Kommuninvest or a directly issued bond. *Time to maturity* is measured in years and $\ln(\text{principal})$ is the natural log of the principal amount in SEK. The level of the yield curve is captured by *Treasury Bond 5 Year* and the corresponding slope by *Treasury 10Y - 3M*. I report results for all loan types for the complete sample ALL and the sample SUB. All specifications include municipality and quarter fixed effects and the standard errors are clustered on the municipality level.

	Fixed-rate loans		STIBOR-indexed loans		Internally-indexed loans	
	(1) ALL	(2) SUB	(3) ALL	(4) SUB	(5) ALL	(6) SUB
KommunInvest	-0.144** (0.056)	-0.157** (0.070)	-0.194*** (0.073)	-0.225*** (0.062)	-0.122** (0.054)	-0.078 (0.068)
Bond	-0.184*** (0.058)		-0.294*** (0.013)			
Time to maturity	-0.017** (0.008)	-0.022 (0.018)	-0.002** (0.001)	-0.005 (0.003)	0.001 (0.001)	0.004 (0.005)
ln(Principal)	-0.015 (0.015)	-0.007 (0.026)	0.011* (0.007)	0.018 (0.012)	-0.007 (0.007)	0.032 (0.020)
Treasury Bond 5 Year	-0.444*** (0.043)	-0.528*** (0.114)	-0.070* (0.038)	-0.143* (0.076)	-0.153*** (0.053)	-0.235** (0.113)
Treasury 10Y - 3M	-0.044 (0.045)	-0.027 (0.097)	-0.020 (0.029)	0.092** (0.037)	0.013 (0.054)	0.062 (0.135)
Observations	2,613	500	1,622	254	2,911	575
R-squared	0.62	0.58	0.89	0.91	0.86	0.79
Muni FE	Yes	Yes	Yes	Yes	Yes	Yes
Quarter FE	Yes	Yes	Yes	Yes	Yes	Yes
Cluster	Muni	Muni	Muni	Muni	Muni	Muni

Table 5: Kommuninvest's impact on borrowing costs by issue size

This table refines the cross-sectional regression model of Table 3. The dependent variable is still the credit spread in excess of the treasury rate. The right-hand side dummy variables, that indicate whether the source of financing is Kommuninvest or a directly issued bond, are interacted with a proxy for the loan size. I split all loans according to principal values into *Small*, *Medium*, and *Large* loans. The model leaves medium-sized commercial bank loans as the benchmark group. In columns 3, 4, 7, and 8 I add a set of loan-specific variables and yield curve characteristics to the model. Remaining variables follow the definition of Table 3. I show all model specifications for the complete sample ALL and the sample SUB, which only includes the 26 municipalities with at least one Kommuninvest loan and one commercial bank loan. The panel in columns 1 to 4 covers all, whereas the panel in columns 5-8 excludes floating-rate loans that are linked to internally-computed bank rates. All specifications include municipality and quarter fixed effects and the standard errors are clustered on the municipality level.

	All loans				Excluding internally-indexed loans			
	(1) ALL	(2) SUB	(3) ALL	(4) SUB	(5) ALL	(6) SUB	(7) ALL	(8) SUB
KI * Small	-0.306*** (0.106)	-0.387*** (0.110)	-0.209*** (0.079)	-0.224*** (0.080)	-0.432*** (0.104)	-0.493*** (0.119)	-0.333*** (0.083)	-0.347*** (0.092)
KI * Medium	-0.090** (0.040)	-0.110** (0.048)	-0.073* (0.043)	-0.073 (0.048)	-0.141*** (0.050)	-0.187*** (0.061)	-0.120*** (0.044)	-0.165*** (0.055)
KI * Large	-0.116*** (0.032)	-0.113** (0.042)	-0.111*** (0.030)	-0.098** (0.045)	-0.120** (0.052)	-0.080 (0.066)	-0.089 (0.054)	-0.061 (0.070)
Bond	-0.236*** (0.043)		-0.266*** (0.050)		-0.275*** (0.015)		-0.289*** (0.041)	
Small issue	0.187* (0.097)	0.177* (0.097)	0.136* (0.075)	0.117 (0.075)	0.274*** (0.104)	0.259** (0.117)	0.218** (0.088)	0.199* (0.100)
Large issue	0.008 (0.046)	0.021 (0.049)	0.038 (0.038)	0.047 (0.041)	-0.023 (0.071)	-0.026 (0.073)	-0.023 (0.068)	-0.031 (0.075)
Time to maturity			-0.001* (0.001)	-0.005** (0.002)			-0.005*** (0.002)	-0.006* (0.003)
Floating rate			-0.126*** (0.023)	-0.181** (0.069)			-0.130*** (0.024)	-0.163** (0.067)
Callable			-0.132*** (0.018)	-0.122** (0.053)			-0.095*** (0.020)	-0.090 (0.056)
Amortizing			0.004 (0.017)	0.006 (0.024)			-0.025 (0.018)	0.017 (0.033)
Treasury Bond 5 Year			-0.230*** (0.031)	-0.293*** (0.099)			-0.314*** (0.033)	-0.354*** (0.092)
Treasury 10Y - 3M			-0.045* (0.024)	-0.020 (0.062)			-0.026 (0.031)	0.017 (0.084)
Observations	7,146	1,329	7,146	1,329	4,235	754	4,235	754
R-squared	0.65	0.57	0.70	0.63	0.62	0.57	0.66	0.60
Muni FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Quarter FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cluster	Muni	Muni	Muni	Muni	Muni	Muni	Muni	Muni

Table 6: Kommuninvest membership and loan characteristics

This table reports regression results exploiting time-series variation when municipalities become Kommuninvest members. Dependent variables are credit spreads of loans over Swedish treasury rates and principal amounts. The right-hand side variable *KI-Member* in Panel A is a dummy variable that switches to one if a municipality is a Kommuninvest member for the entire year. Panel B includes additional dummy variables tagging the year before and the year of joining Kommuninvest. All specifications include year and municipality fixed-effects. Loan controls consist of the time to maturity, the principal amount, and indicators whether a loan is callable or amortizing. Standard errors are clustered at the municipality level.

	Excluding internally-indexed loans			All loans		
	(1) Spread	(2) Spread	(3) Principal	(4) Spread	(5) Spread	(6) Principal
PANEL A: SIMPLE DIFFERENCE EFFECT						
KI-Member	-0.132*** (0.043)	-0.131*** (0.044)	-4.162 (8.275)	-0.076** (0.034)	-0.071** (0.031)	-5.857 (8.054)
Observations	4,235	4,235	4,235	7,146	7,146	7,146
R-squared	0.51	0.53	0.68	0.51	0.54	0.57
Muni FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Loan controls	No	Yes	No	No	Yes	No
Cluster	Muni	Muni	Muni	Muni	Muni	Muni
PANEL B: MODEL WITH PRE-TRENDS						
KI-Year _{t-1}	0.204*** (0.074)	0.175** (0.067)	1.330 (7.652)	0.183*** (0.025)	0.126*** (0.020)	1.251 (7.479)
KI-Membership year	-0.052 (0.097)	-0.087 (0.092)	13.079** (6.642)	-0.048 (0.077)	-0.052 (0.071)	13.712** (5.897)
Year \geq KI-Year _{t+1}	-0.144* (0.083)	-0.170** (0.080)	4.947 (6.346)	-0.096 (0.072)	-0.099 (0.064)	4.639 (5.785)
Observations	4,235	4,235	4,235	7,146	7,146	7,146
R-squared	0.51	0.53	0.68	0.51	0.54	0.57
Muni FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Loan controls	No	Yes	No	No	Yes	No
Cluster	Muni	Muni	Muni	Muni	Muni	Muni

Table 7: Kommuninvest membership and accounting measures

This table reports balanced panel regressions including all Swedish municipalities from 1998 until 2010. Dependent variables are accounting measures at the municipal level from Statistics Sweden (SCB). *Expenses*, *taxes*, *debt* are all scaled by a municipality's lagged population and defined in terms of thousand SEK. *Relative debt* denotes the fraction of short term debt divided by total debt. *Relative expenses* denotes the fraction of expenses divided by all revenues. The right-hand side variable *KI-Member* in Panel A is a dummy variable that switches to one if a municipality is a Kommuninvest member for the entire year. Panel B includes additional dummy variables tagging the year before and the year of joining Kommuninvest. All specifications include year and municipality fixed-effects. Standard errors are clustered at the municipality level.

	(1)	(2)	(3)	(4)	(5)
	Expenses	Taxes	Debt	Rel. Debt	Rel. exp
PANEL A: SIMPLE DIFFERENCE EFFECT (FULL SAMPLE)					
KI-Member	-0.113 (0.363)	-0.060 (0.110)	0.757 (0.929)	-0.003 (0.006)	-0.031 (0.030)
Observations	3,476	3,476	3,462	3,747	3,747
R-squared	0.93	0.97	0.88	0.78	0.87
Muni FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Cluster	Muni	Muni	Muni	Muni	Muni
PANEL B: MODEL WITH PRE-TRENDS					
KI-Year _{t-1}	-0.462 (0.291)	-0.013 (0.103)	-0.470 (0.732)	-0.000 (0.005)	0.014 (0.025)
KI-Membership year	-0.463 (0.317)	-0.066 (0.114)	-0.501 (0.847)	-0.004 (0.006)	0.019 (0.030)
Year \geq KI-Year _{t+1}	-0.360 (0.470)	-0.082 (0.145)	0.497 (1.158)	-0.004 (0.008)	-0.022 (0.037)
Observations	3,476	3,476	3,462	3,747	3,747
R-squared	0.93	0.97	0.88	0.78	0.87
Muni FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Cluster	Muni	Muni	Muni	Muni	Muni

Table 8: Credit spreads and municipality characteristics

Table 8 relates the credit spread at issuance to municipality characteristics. Columns 1 through 4 cover the sample of fixed-rate loans, columns 5 through 8 the sample of STIBOR-indexed loans, and columns 9 through 12 internally-benchmarked loans. Results for the entire sample are shown in column 13. Independent variables are the following municipality characteristics: the natural log of population, debt per capita, and expenses per capita. I estimate separate coefficients for municipality characteristics of Kommuninvest loans and commercial bank loans by interacting a Kommuninvest dummy with municipality characteristics. Unreported in Table 8 but included in each estimation are a Kommuninvest dummy, loan and yield curve characteristics, and time fixed effects (quarter). Standard errors are clustered at the municipality level.

	Fixed-rate loans				STIBOR-indexed loans				Internally-indexed loans				All loans
	(1) spread	(2) spread	(3) spread	(4) spread	(5) spread	(6) spread	(7) spread	(8) spread	(9) spread	(10) spread	(11) spread	(12) spread	(13) spread
KI × ln(Population)	0.069** (0.027)			0.071** (0.028)	0.006 (0.043)			-0.017 (0.043)	-0.034 (0.040)			0.006 (0.042)	0.062*** (0.019)
ln(Population)	-0.065** (0.033)			-0.083*** (0.027)	-0.034 (0.043)			-0.009 (0.042)	0.015 (0.041)			-0.019 (0.042)	-0.074*** (0.018)
KI × Debt/pop.		-0.000 (0.002)		-0.001 (0.002)		-0.003** (0.002)		-0.007*** (0.002)		-0.004** (0.002)		-0.009*** (0.003)	-0.003** (0.002)
Debt/pop. tSEK		0.002 (0.003)		0.003 (0.002)		0.003** (0.002)		0.007*** (0.002)		0.003** (0.002)		0.009*** (0.003)	0.004** (0.002)
KI × Expenses/pop.			-0.012 (0.008)	-0.012 (0.008)			0.004 (0.006)	0.021** (0.009)			0.001 (0.003)	0.015*** (0.005)	0.005 (0.003)
Expenses/pop. tSEK			0.012 (0.009)	0.008 (0.008)			-0.004 (0.006)	-0.021** (0.009)			-0.002 (0.003)	-0.015*** (0.005)	-0.006* (0.003)
Observations	2,580	2,563	2,580	2,563	1,586	1,562	1,586	1,562	2,911	2,864	2,911	2,864	7,058
R-squared	0.54	0.54	0.54	0.55	0.87	0.87	0.87	0.87	0.84	0.84	0.84	0.85	0.67
Kommuninvest dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Loan Characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Muni FE	No	No	No	No	No	No	No	No	No	No	No	No	No
Quarter FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cluster	Muni	Muni	Muni	Muni	Muni	Muni	Muni	Muni	Muni	Muni	Muni	Muni	Muni