

»» Sustainable finance in German municipalities: Can green municipal loans break the ice?

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Climate change is forcing Germany's municipalities to take more climate action. Financing the transition of municipal infrastructure to climate neutrality, for example, will be a monumental task that might overwhelm current budgets and therefore requires additional funding sources. Green (city) bonds are a well-known financing instrument which provides municipalities with debt capital specifically for environment-related purposes. But bonds are suitable for only few municipalities in Germany. A much more common instrument is the municipal loan but a green variant is not yet available. Although the green municipal loan promises some advantages, it will hardly be able to establish itself in the current environment. But the proper adjustments and the willingness of a handful of pioneers could make this instrument a sustainable supplement to the financing mix of German municipalities in future.

Municipal investment needs are substantial

Climate action is an enormous collective national task. In order to achieve the climate targets all the way up to climate neutrality in 2045, significant greenhouse gas reductions must be achieved in all economic sectors. This will require considerable additional investment, particularly at the municipal level.¹ These include, for example, the modernisation of energy systems of public buildings and the climate-friendly conversion of many network infrastructures. Germany's municipalities were responsible for around half of all public investment in 2020. In the construction sector, more than 60% of investment took place at municipal level. Municipalities thus play a key role in the transformation.²

But various factors prevent faster progress on climate action. On the one hand, there are insufficient clear, politically binding requirements for the municipal level, while alternative investments often promise a more attractive political dividend. On the other hand, there is still great uncertainty as to what kinds of investments and what amounts are actually needed and how these volumes can be reflected in municipal budgets. For many municipalities, climate investments therefore remain a financial challenge with uncertain fiscal returns.

Besides, considerable investment deficits have accumulated over the past decades, particularly in the area of infrastructure, some of which do not yet even take into account additional climate action requirements. According to the KfW Municipal Panel 2021, the perceived backlog of investment is EUR 149 billion.³ Many of these investment requirements

– such as school upgrades – continue to have a (perceived) higher political urgency. This dilemma is being exacerbated by the coronavirus crisis because possible budget deficits are likely to intensify the allocation conflict in the context of municipal investment.

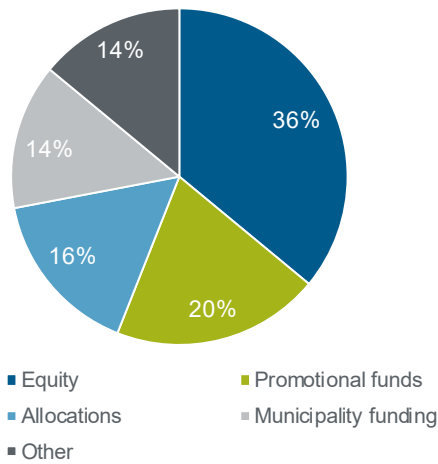
Questions concerning political priorities and sharing the burden of necessary investments must primarily be solved at political level. But assessments made by actors on the ground indicate that lack of funding is also a major barrier to municipal climate action.⁴ Given the relevance and potentials for climate action at municipal level, the question is therefore whether the provision of additional capital can intensify municipal climate action measures (Info box 1). This applies in particular with a view to climate action investments that cannot be postponed any further. A conceivable approach to this would be greater involvement on the part of new providers of capital and capital markets in financing climate action measures. The focus here lies on green finance instruments, although it must be clarified which of these instruments are actually suitable for municipalities and whether they can be used to strengthen municipal climate action.

Municipalities finance their investments 'conservatively'

So far, Germany's municipalities have been financing their investments primarily from their own funds, allocations and promotional funds (Figure 1).⁵ Their own funds, which are mostly based on tax revenue, have suffered particularly as a result of the coronavirus crisis.⁶ Even without this decline in revenue, however, they would hardly be capable of financing the high investment requirements for climate action measures from current budgets.

That leaves debt capital as a further funding source, one that accounted for 20% of the municipal funding mix for investment in the past years.⁷ The predominant debt capital instrument is the municipal loan, which accounted for around 14% in 2020.⁸ Capital market-based instruments currently account for a mere 3%. Of these, debt loan certificates in particular play a prominent role, while bonds remain uncommon. Importantly, the choice of funding instrument is usually based on the investment volume, so that large municipalities and municipal enterprises in particular use a range of different instruments. It is also easier for large local government areas to maintain the staffing levels required for a differentiated debt management. Smaller municipalities, by contrast, use classic municipal loans at best.

Figure 1: Financing instruments used for municipal investment in 2020, in per cent



Source: KfW Municipal Panel 2021.

This restraint is probably due to the fact that bonds and debt loan certificates are relatively difficult to place in the market because they need to be accompanied by very detailed information. In addition, the issuance requires some coordination effort because it involves not just investors and treasurers but, on a regular basis, further intermediaries such as banks, for example. The total ancillary costs of issuing a corporate bond can therefore lie between 0.5 and 5% of the issue volume, depending on the complexity of the financial product.⁹ A widely used rule of thumb therefore says that bonds should be considered only upwards of a volume of EUR 100 million and debt loan certificates from EUR 25 million. Most municipalities do not reach this level, neither in their investment activities nor in their total debt level and much less in their financing requirements.¹⁰

Sustainable finance is experiencing a veritable boom

In the international capital market, the debate around climate action and the role of the financial sector has already led to greater commitment to sustainability, with the environmental (green) aspect the most prominent of the various dimensions of sustainability (Info box 1).¹¹ This trend is not just being driven by greater awareness within the general public, who are demanding more sustainability from the finance industry as well. Thus, green commitment also provides an image boost. The conviction is also gaining ground among some actors in the financial markets themselves that investments in areas that harm the climate pose business risks because they involve greater climate risks or because previous business models are no longer viable (stranded assets).¹²

Green finance instruments still have a niche existence at municipal level

Around the world, more and more municipalities are using green financing instruments.¹³ However, German municipalities are not yet participating in the vigorous growth of green finance taking place at international level. The country has only very few explicit green financing arrangements.¹⁴ At most, large municipal enterprises in the energy and transport sector have sporadically used green finance instruments,

especially debt loan certificates.¹⁵ Among the local government areas are the well-known examples of Munich, which intends to issue a green and social bond of EUR 120 million, and Hanover, a city that has already issued a green and social bond with a volume of EUR 100 million.¹⁶

Info box 1: Sustainable and green finance

Under the headings Sustainable Finance and Green Finance, the finance industry has developed alternative finance instruments aimed at making private capital specifically available for the sustainable and green transformation.¹⁷ After a period of confusing proliferation of investment purposes labelled green, increasingly accepted definition standards established themselves in the market.¹⁸ Policymakers also embraced this process by introducing guidelines such as the ‘EU Taxonomy’ in order to prevent greenwashing and promote market development.¹⁹ The instruments that have probably gained the greatest visibility among green finance instruments are green bonds, the funds of which are specifically earmarked to be employed for ecological purposes.²⁰ In many countries around the world, green bonds are also a pathway to the capital market for municipalities to finance environmental protection measures.²¹

This sluggish rollout is surprising given that the highest administrative levels treat climate action as one of the most important themes of the future.²² At the same time, financing climate action is regarded as a key challenge.²³ Nevertheless, municipal treasuries do not yet attach very high priority to the topic of green finance. Interest is growing, to be sure, but more than half the municipalities surveyed in a study are still not interested in green certification.²⁴ One important reason that green finance is not very widespread in local government areas probably lies in the limited use of capital market instruments described above. But as green finance has so far primarily taken hold in the capital market, many German municipalities remain uninvolved.

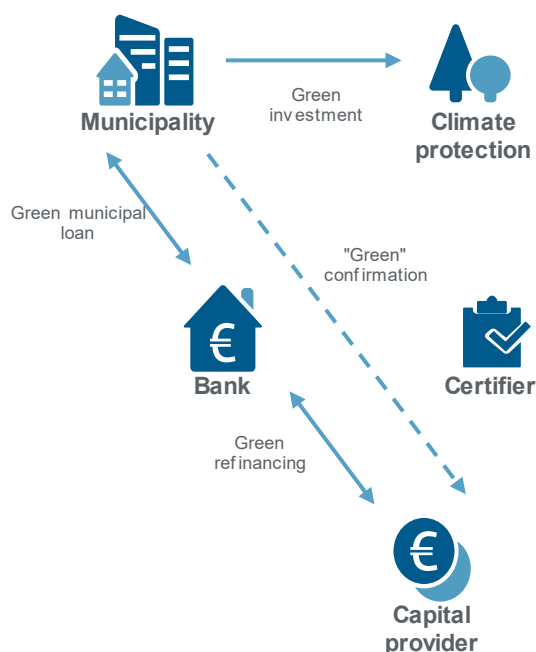
Potentials and limitations of a green municipal loan

It is therefore plausible to ask whether the problem of limited uptake could not be bypassed via the municipal loan, which could also be used for smaller financing needs. The idea of a ‘green municipal loan’ has already been floated by the first actors²⁵ but is not yet widespread in municipal finance.

Yet the idea looks promising (Figure 2). Provided the usual budgetary requirements for borrowing, such as long-term financial capacity, are met, there is nothing to prevent loans from being tied to green purposes. Capital providers interested in green investments could thus finance municipalities’ green investments through banks. In return, it would have to be certified – for example by independent certifiers – that these investments indeed meet green requirements, for example that they are ‘taxonomy compliant’. Municipalities are already doing many things that meet green investment criteria and, along the same requirements as for green bonds, could be referred to for green loans. That would make a significant portion of municipal investments eligible for

green finance without any serious risk of greenwashing. At the same time, a green municipal loan offers the possibility of tapping the capital markets to finance municipal climate action.

Figure 2: Schematic overview of green finance for municipal investment



Source: own rendition.

A green loan provides some potential advantages for municipalities compared with bonds or debt loan certificates. As the instrument does not incur any issue costs per se, loans can also be used in small amounts. That would make it possible to provide project-tied green finance, for example, which should make it easier to set definitions and delimitations of green uses and provide evidence of use. Furthermore, a loan keeps track of repayments so that the object of the investment can be 'paid off' at the end of the term without the need for the municipalities to create reserves – which always harbour the risk of misappropriation – and without the need for follow-up financing for outstanding debt.

However, as the green municipal loan typically must be tied to a specific green project it is still difficult to use this instrument because it is not readily compatible with the principle of universality.²⁶ As an alternative, the level of green borrowing must at least arithmetically correspond to the sum of budgeted green investments.²⁷ That reduces the municipality's possibilities for flexible debt management, even though small municipalities in particular often already finance specific investment projects with individual loans, where they make an effort to adjust the terms and conditions to the period of use of the asset. Partnerships between municipalities in the form of credit pools would also tend to become more difficult because the tight linkage between green loans and their projects must remain guaranteed even when municipalities pool their credit demand. In all cases, green finance thus requires reliable reporting to demonstrate and confirm green uses of funds.

Green finance instruments are not yet particularly attractive for municipalities

With their requirement to demonstrate green investments to capital providers, green finance instruments – whether bonds, debt loan certificates or loans – place special demands on municipalities. Reporting structures need to be created in advance in order to be able to assess whether the intended environmental purposes are indeed being achieved. Such sustainability and impact monitoring initially requires considerable organisational effort to enable required information to be passed on from the operational departments through the treasuries to the capital providers.

So far, however, this additional effort is not necessarily being offset by lower capital costs (referred to as the 'greenium'). For instance, the interest advantage of the 'green variant' of the Federal Republic's twin bond in the year 2020 was only one basis point better at issuance than that of the corresponding classic bond.²⁸ It is questionable whether such a small advantage is enough to offset the additional administrative costs of a green finance instrument incurred by municipal recipients.²⁹ This is more likely to be the case for large volumes and long maturities. That means complex green alternatives face greater obstacles than municipal loans that are easily obtainable at favourable terms. Budgetary law requires municipalities to strictly follow cost-effectiveness criteria in selecting their financing instruments, making it hard for them to justify the use of a green finance instrument. To be sure, such an instrument comes with benefits but so far these are mostly of a non-monetary nature and hence difficult to quantify (e.g. image gain), but it is also associated with quite clearly quantifiable costs.

Results monitoring is pivotal for green finance

The benefits of a green municipal loan (and green bond) for municipalities – apart from the non-material component – therefore stand or fall on the achievable terms and conditions. These would have to cover the increased expenditure involved in results monitoring and be able to compete with alternative financing instruments such as the classic municipal loan. After all, there is actually little to prevent municipalities from financing green investments with conventional loans.³⁰ In the current market conditions, reducing the cost of borrowing is a major lever for increasing attractiveness. In green finance instruments, this applies to the establishment of a reporting system in particular.³¹

To be sure, demonstrating the impact of government action and the consequences of administrative activities for the environment and the climate will become more important for municipalities in future in any case – even beyond financing aspects. Besides, municipalities have already gathered some experience with different types of impact monitoring, for example with reporting on SDG indicators or the obligations to provide evidence on the use of promotional funds (Info box 2).³² This experience could be helpful in lowering the transaction costs of green finance instruments. However, the cost aspect remains a key challenge in green finance.³³

Info box 2: Promotional loan and green loan

Besides green bonds, in Germany it is primarily promotional loans extended by different actors to enterprises, private households and municipalities that are financially driving investment in climate action. Promotional loans have some features that are also of relevance to green loans. For example, the funds must be used specifically for investment projects that are directed at protecting the climate or the environment. The recipient of the promotional funds therefore has to provide evidence that the funds have indeed been used for the agreed purpose. In order for the recipients of promotional funds to accept this documentation effort, promotional loans generally offer more attractive terms than conventional forms of finance. Among other things, these can consist in simplified access to promotional funds (e.g. in the form of less strict credit-worthiness requirements), lower interest rates or grants. For promotional loans, the key actor is the state; it selects the promotional targets and instruments while at the same time funding the preferential terms of the promotional loans.

As the financial resources of any state are finite, a key aspect of green finance is that of complementing the public pillar of climate action investment with a private sector component. To this end, the green loan can use (predominantly private) capital raised via the banks for refinancing and make it available for climate action investment. Similarly as for the promotional loan, evidence of proper use of funds must then be presented.³⁴ Favourable terms and conditions would also be necessary in order for borrowers to accept the higher documentation requirements, as is the case for the promotional loan. The terms of the green (privately financed) loan would be made more favourable either by the capital provider giving up some of their returns in favour of green investment projects or, moving forward, through a spread between high-(climate)-risk conventional investments and less risky green investments.

Thus, both types of loan are similar in their intended result, incentives and implemented obligations to provide evidence. Their main differences lie in the presentation and origin of their more favourable terms and conditions and in the involvement of a diverse range of capital providers. Both instruments can definitely complement each other as building blocks of sustainable municipal finance.

Banking regulation ultimately decides on green finance offerings

The future of the green municipal loan will be decided not just by the municipalities on the demand side but by the banks on the supply side, as they play an important role as intermediary to the capital market. It was not without reason that the Sustainable Finance Advisory Board of the German Federal Government in its final report demanded that financial institutions should base their loans and investments on sustainability criteria.³⁵ But green municipal loans are not yet included in the offerings of the familiar municipal financiers.

One reason is to be found in financial market regulation, as the generally low margin municipal loan is hardly profitable for financiers.³⁶ This is likely to apply especially green loans, which require more effort – including for banks. Furthermore, even assuming a green interest rate advantage, funding via the capital market is likely to be less attractive at the moment than via the central bank. For banks, this puts green municipal loans in direct cost competition with conventional financing products. A price premium that would make green loans more attractive for banks would at once make them more expensive for municipalities.

Therefore, regulating green finance instruments is also a way of making green loans more attractive not just for banks but for municipalities.³⁷ If, for example, green loans receive a lower weighting in risk assets because of their lower ESG risks than comparable non-green loans, the relative capital costs incurred by banks would decrease, and they could pass on (at least part of) this advantage to end borrowers in the form of lower interest rates. At the same time, a lower risk weighting would mean that more of these green loans could be extended. That would also reduce the competitive pressure from the (so far often more profitable) conventional financing schemes on green finance within the banking sector.

As a consequence, banks would be able to offer municipalities more loans for climate action investments.³⁸ Likewise, the previously outlined investment finance sourcing challenges could be defused for municipalities if, for example, green projects were financed from 'green baskets' for which other, higher borrowing thresholds would apply.³⁹ At the same time, incentive-compatible regulation of green finance instruments could also make banks willing to use the lower funding costs as compensation for other risks and on that basis offer municipalities very long maturities and fixed-interest periods, for example. In the current interest environment, the possibility of a longer fixed-interest period and maturity is likely to be a considerable incentive for many municipalities to initiate climate action investments instead of exposing themselves to an interest rate risk in conventional finance for the future.

Providers of capital are increasingly pricing in climate risks

Furthermore, the interest rate advantage of green loans for borrowers is set to rise in any case in the future. That does not necessarily require an 'artificial' reduction in the cost of green loans but instead higher risk awareness on the part of capital providers or banks. With climate risks and associated cost calculations becoming increasingly clearer, rational investors will have to price these risks more strongly into their expected returns in the future. Two groups of risks appear to be particularly relevant for pricing. The first is risks resulting from the consequences of climate change for the investment project, such as the proximity to the coastline amid rising sea levels. The second risk consists of (climate) risks that result additionally and explicitly from the investment project itself, for example because it releases substantial greenhouse gas

emissions or, under an appropriate carbon pricing regime, generates lower and uncertain cash flows in the future. Under an appropriate pricing scheme, the funding costs for investments that are harmful to the climate must be increased through corresponding risk premiums but not for green investments. Thus, green finance could gain a significant funding advantage over conventional financing instruments in the medium to long term.

The warnings issued by Moody's to coastal towns and cities to either prepare for the impact of climate change or expect rating downgrades in future shows that financial markets are already responding to the impact of climate change (in other words, the first group of risks discussed).⁴⁰ Besides, climate risks are already materialising in the real estate market⁴¹ and in the valuation of capital investments.⁴² Initial effects of climate risks are also becoming apparent in municipal finance. A recent study of cities in the United States shows that a rise in climate damage risks by 1% of GDP annually increases issuing costs by 23 basis points on average for long-term bonds issued by those cities.⁴³

These findings illustrate that financial market actors have already identified and are pricing in costs and risks of climate change. The second category of risks – the additional climate risks associated with the investment object – has not yet been systematically taken into account. But this is likely due to the significant uncertainties involved in setting an appropriate risk premium. Once the data situation improves here and reliable estimates become possible it is likely that corresponding project-specific risk premiums will emerge as well.

From the perspective of green finance, it is plausible to conclude that capital providers will price in climate aspects of investments more consistently in the future – especially if the informative value of results monitoring continues to improve with the establishment of green finance instruments.⁴⁴ Recipients of capital such as municipalities will therefore be well advised to prepare for this development. Investment in climate change mitigation and adaptation using green finance instruments can guard against this in two different ways – by reducing climate risks for the municipality and by being able to contribute to lowering capital providers' risk premiums in the long term.

On the supply side, banks with a pioneering role for green municipal finance are needed

In order to establish or optimise the requirements for a green loan on the capital supply side, the finance sector, too, requires further pioneers. This applies both with a view to involving the capital market for the banks' funding of green loans and to the logistics and quality of the evidence of results. Pioneers are most likely to be mainly those banks that are already heavily involved in municipal finance today. At present, the groups of banks incorporated under public law, composed of savings banks, state banks (*Landesbanken*) and promotional banks, are the most active in this market segment, providing around three quarters of all municipal loans (Figure 3).⁴⁵ For one thing, these actors

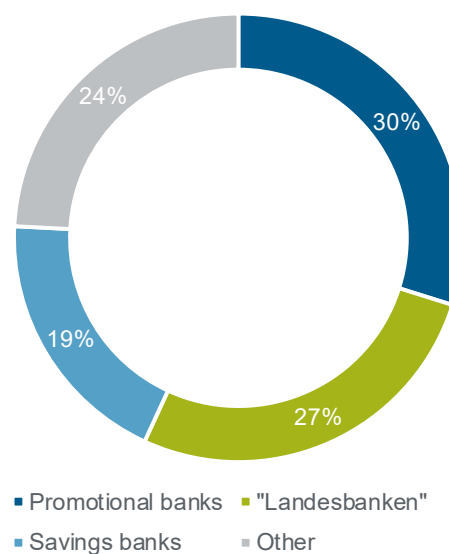
already have experience of green finance and, for another, they are called upon by policymakers to expand their sustainability-oriented activities.⁴⁶

The experiences of promotional banks in processing and monitoring promotional banks can be particularly helpful in establishing green municipal loans if the reporting required for green loans can build on the existing processes and be further developed accordingly.⁴⁷ The structures thus established would, in turn, make it easier for other municipal financiers to latch onto an established system and also assume a more active role in green finance. Ultimately, this can also create the preconditions for involving capital markets more closely in the financing of municipal climate action in Germany in the future.

Conclusion

Green finance aims to make private and institutional capital available for climate action investments. Because this does not yet function satisfactorily in municipal finance, additional incentives and promotion are necessary until green instruments reach market maturity. After all, green municipal loans are not particularly profitable either for banks or for municipalities, at least not yet.

Figure 3: Market shares in municipal loan finance in 2020



Source: own rendition based on Deutsche Bundesbank data.

From the perspective of municipalities, the main barriers consist of market entry obstacles in the form of (as yet) unattractive conditions combined with additional administrative expenditure. But this can be reduced when municipalities and banks have more expertise. Initial experience has been gained and can be built on. In addition, especially for green loans, there are numerous starting points besides the interest rate that could make the instrument interesting for municipalities. Further pilot projects in the finance industry, possibly supported by the state, partnerships between municipalities and supportive regulatory frameworks would therefore be helpful for the further development. That would also address barriers on the side of the banks, which so far do not reap

any rewards in the form of funding opportunities and capital requirements for green finance instruments.

What is pivotal for establishing green finance is to create a cost-effective and informative results monitoring system in municipalities. This applies all the more as a financially attractive green loan would likely increase demand relative to conventional loans and, with it, a greater risk of greenwashing. This reporting must provide the information required for green finance instruments with respect to both the proper use of funds and their impact. It is undisputed that this is a complex challenge but it is also the logical extension of known and tested approaches of administrative and budgetary management, and therefore by no means impossible.

Green finance instruments alone, however, will not crucially drive municipal climate action forward because financing follows investment and not vice versa. In order to realise more climate action in municipalities, other adjustments will also have to be made, for example to politically binding requirements for climate action activities at municipal level.

A green municipal loan, however, would also make sustainable investment capital accessible to municipalities in smaller volumes. And additional capital for climate action that also defuses the distribution conflicts with other areas of investment is likely to contribute not just to fostering public awareness and mainstreaming the topic in municipal administration and politics but also to noticeably reducing the thresholds of activity for the necessary broad climate action investments, at least from the financing side.

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¹ Cf. Prognos et al. (2021): Beitrag von Green Finance zum Erreichen von Klimaneutralität in Deutschland, KfW Research (*Contribution of green finance to achieving climate neutrality in Germany* – in German only), KfW Research, forthcoming. Of the statistically recorded environmental protection expenditure, 18% is made up of investment activities focused mainly on the areas of sanitation, waste and climate action, where municipalities and municipal enterprises also operate. Nevertheless, current activities are insufficient to achieve the climate targets. Germany's current sustainability strategy therefore addresses green finance and the role of municipalities in climate action with particular priority; cf. German Federal Government (2021): [Germany's Sustainable Development Strategy – Update 2021](#).

² Municipalities are already very active in climate action, although their activities could still be expanded in many different ways. In the building sector, for example, they could push ahead with the modernisation of energy systems in administrative or school buildings, promote the generation and distribution of renewable energy through municipal enterprises (public utilities) and strengthen recycling and the circular economy in the waste management sector. Furthermore, municipalities perform an important coordination and motivation function in order to involve citizens and companies in climate action on the ground. Not least, the fulfilment of requirements and political targets is decided at the municipal level, for example in the designation of areas or the operation of the most sustainable infrastructures possible. Cf. e.g. Difu (2021): [Klimaschutz, erneuerbare Energien und Klimaanpassung in Kommunen – Maßnahmen, Erfolge, Hemmnisse und Entwicklungen – Ergebnisse der Umfrage 2020](#) (*Climate action, renewable energy and climate adaptation in municipalities – measures, achievements, barriers and developments – findings of the 2020 survey* – our title translation, in German only).

³ Cf. Raffer, C. and Scheller, H. (2021): [KfW Municipal Panel 2021](#), KfW Research.

⁴ Cf. e.g. UBA (2019): Umfrage Wirkung der Deutschen Anpassungsstrategie (DAS) für die Kommunen (*Survey on the impact of Germany's Adaptation Strategy (GAS)* – our title translation, in German only), partial report or Difu (2020): [Spielräume für Investitionen finanzschwacher Kommunen in Klimaschutzmaßnahmen – Vergleichende Analyse der haushaltsrechtlichen Rahmenbedingungen in den Bundesländern](#) (*Scope for investment by financially weak municipalities in climate action measures – comparative analysis of budgetary regulations in the federal states* – our title translation, in German only).

⁵ Cf. Raffer, C. and Scheller, H. (2021), loc cit.

⁶ Cf. Brand, S. et al. (2021): [Coronavirus update on municipal finance: 2021 will be another nail biter](#), Focus on Economics No. 316, KfW Research.

⁷ Municipal borrowing is subject to various restrictions under budgetary legislation. Municipalities must take a measured approach to financing general public services on the basis of debt, not least because public investments usually do not generate commercial returns, so that interest and principal repayments must be funded from economic returns. But since municipalities have a limited right to choose the taxes they wish to introduce, their borrowing must follow the criteria of subsidiarity, cost-effectiveness and long-term performance capability in order to secure their future solvency. Cf. e.g. Schwarting, G. (2014): *Kommunales Kreditwesen: Haushaltsrechtliche Grundlagen – Schuldenmanagement – Schuldenbremsen und Entschuldungshilfen (Municipal borrowing: budgetary basis – debt management – debt brakes and debt relief support* – our title translation, in German only).

⁸ Cf. Brand, S. and Steinbrecher, J. (2021a): [Kommunalfinanzierung in der Corona-Krise – Einschnitte, aber eine Zeitenwende](#) (*Municipal finance in the coronavirus crisis – disruptions, but no inflection point* – our title translation, in German), Wirtschaftsdienst, issue 1/2021.

⁹ Data on the one-time ancillary costs of a securities issue fluctuate very heavily and range from 2–5% in Lehmann, M. (year not cited): *Fremdkapitalbeschaffung durch Unternehmensanleihen (Fundraising by issuing corporate bonds* – our title translation, in German), 3–5% in Hasler, P. (year not cited): *Die Kosten einer Mittelstandsanleihe (The cost of an SME bond* – our title translation, in German only) to 0.5–4% in Theiss, W. (2014): *Kapitalmarktfinanzierung (Capital market finance* – our title translation, in German only). For debt loan certificates the costs range from 0.5% to 2% in Terstege, U. and Ewert, J. (2011): *Betriebliche Finanzierung*.

¹⁰ A typical approach to achieving necessary minimum amounts lies in the cooperation between multiple municipalities, for instance in the form of community loans or credit pooling. However, such partnerships do not run on autopilot but require high coordination effort. Liability issues also prove to be barriers time and time again. For example, one loan community in Rhineland Palatinate grappled with the problem that no bank was willing to make an offer for the large volumes of combined loan requirements. Another example: After the liability between the municipalities was readjusted, the central issuing office of Switzerland was no longer able to offer terms that would have been of interest to the municipalities. Cf. State Parliament of Rhineland-Palatinate (2013): Minutes of the 18th meeting of the study commission 16/1 'Kommunale Finanzen' (Municipal Finances) on 19 June 2013.

¹¹ Cf. Prognos et al. (2021), loc cit.

- ¹² Cf. WIR/UNEP-FI (2012): [Carbon Asset Risks: WIR and UNEP-FI Portfolio Carbon Initiative Discussion Framework](#).
- ¹³ Cf. Brand, S. and Steinbrecher, J. (2019) loc cit.
- ¹⁴ The other sustainability aspects – social and economic sustainability – are often also of great importance to municipalities. That is why the known examples did not elect purely green finance instruments but 'blue' ones that include additional social uses.
- ¹⁵ The Association of German Public Banks made an attempt to establish 'green debt certificates' together with some public-law banks, cf. ZfK (2021): [Verband VÖB entwickelt neuen Qualitätsstandard für grüne Schuldscheindarlehen](#) (Association of German Public Banks develops new quality standard for green debt certificates – our title translation, in German only), article dated 14 April 2021.
- ¹⁶ Cf. Das Klimaschützen und Geld damit verdienen (Making money by protecting the climate – our title translation, in German only), contribution dated 18 January 2021, or Landeshauptstadt Hannover (2018): [Hannovers Green & Social Schuldschein: Nachhaltig und gut](#) (State capital Hanover (2018): *Hanover's green and social debt certificate: sustainable and good* – our title translation, in German only), article dated 30 October 2018.
- ¹⁷ Cf. Brockmann, K. (2017): [Green Finance – Green Banking](#), Focus on Economics No. 189, KfW Research.
- ¹⁸ For the most well-known examples cf. E.g. ICMA (2018): [Green Bond Principles – Voluntary Process Guidelines for Issuing Green Bonds](#) or CBI (2020): [The Climate Bonds Certification Scheme](#) or GBI. Green bonds are also being addressed specifically for municipalities under such guidelines, see C40 (2020): [How cities can attract investment for a green and just recovery](#).
- ¹⁹ Cf. e.g. German Institute for Economic Research (2020): [EU Taxonomy Increasing Transparency of Sustainable Investments](#), Weekly Report 51/2020.
- ²⁰ Cf. Brüggemann, A. (2016): [Market for green bonds is taking root](#), Economics in Brief No. 109, KfW Research.
- ²¹ Cf. Brand, S. and Steinbrecher, J. (2019): [Green bonds – a sustainable alternative for municipal infrastructure finance?](#), Focus on Economics No. 245, KfW Research, or CBI et. al. (2015): [How to issue a Green Muni Bond – The Green Muni Bonds Playbook](#).
- ²² Cf. Difu (2020): [OB-Barometer 2020 \('Mayors' Barometer 2020\): Difu-Umfrage Klimaschutz ist wichtigste Zukunftsaufgabe der Städte](#) (Difu survey on climate action as cities' most important future task – our title translation, in German only).
- ²³ Cf. Bertelsmann Stiftung (2021): [Monitor Nachhaltige Kommune - Bericht 2020, Schwerpunktthema Klima und Energie](#) (Monitor Sustainable Municipality – Report 2020, focal theme climate and energy – our title translation, in German only).
- ²⁴ Cf. [Kommunal-Barometer 2021](#) ('Municipal Barometer 2021').
- ²⁵ Cf. CommneX (2019): [Nachhaltige Kommunalfinanzierung: CommneX und imug bieten neuartiges Zertifikat "Grüner Kommunalkredit" an](#) (Sustainable municipal finance: CommneX and imug offer innovative certificate 'Green Municipal Loan' – our title translation, in German only), press release dated 9 January 2019.
- ²⁶ Cf. Frischmuth, B. (2021): „Sustainable Finance“ – Ein neuer Maßstab für kommunales Handeln ('Sustainable Finance' – a new yardstick for municipal action – our title translation, in German only), in: Zeitschrift für Kommunalfinanz 2/2020. Cf. e.g. Schwarting, G. (2014), loc cit, for more on the principle of universality.
- ²⁷ This approach would also simplify lending based on target achievement. 'KPI-linked loans' are loans extended on terms and conditions that depend on the borrower's sustainability performance. They focus on a company's overall degree of target achievement and not on the fulfilment of formal criteria of individual projects. However, such contracting models are not typically used in municipalities because volatile lending conditions during the loan term have been viewed increasingly critically in recent years as a result of negative experience with derivative financial products. The lending terms with therefore have to be agreed in advance on the basis of sustainability KPIs already achieved but this would only moderately simplify the financing of imminent green investments. For more on KPI linked loans cf. Imug (2020): [Sustainability-linked Loan/Schuldscheindarlehen – Der neue Stern am Sustainable-Finance-Himmel?](#) (Sustainability-linked loan/debt loan certificate – the new star in the sustainable finance sky – our title translation, in German only) Contribution of 26 May 2020.
- ²⁸ Cf. German Federal Ministry of Finance (2020): [Grüne Bundeswertpapiere – erfolgreiche erste Emission](#), Monatsbericht Oktober (Green German Government Securities – successful first issuance, monthly report October – our title translation, in German only). The yield was higher, at four basis points, cf. FAZ (2021): [Grüne Anleihen locken Investoren mit Kursgewinnen](#) (Green bonds lure investors with price gains – our title translation, in German only), article of 31 March 2021. The second issuance of green federal bonds also offered the Federal Republic attractive terms, cf. FAZ (2021): [Neue grüne Bundesanleihe stößt auf großes Interesse](#) (New green federal bond meets with great interest – our title translation, in German only), article of 12 May 2021.
- ²⁹ Studies in the USA show at least a secondary market premium for green municipal bonds of five basis points; cf. Partridge, C. and Medda, F. R. (2020): The evolution of pricing performance of green municipal bonds, Journal of Sustainable Finance & Investment, issue 10(1). Market participants were usually satisfied with the previous green issues in Germany, in which there was a broad range of terms and conditions realised, many of which, however, were based primarily on the issuers' financial standing. It is difficult to make a direct comparison given the different issuers and structured financial products, so it has become almost impossible to quantify how high the interest advantage of green finance instruments could turn out. For more on the range of spreads cf. LBBW (2017): [Alles was Sie über Green Bonds wissen müssen](#) (Everything you need to know about green bonds) or NordLB (2016): [Green Bonds – Nachhaltigkeit im Trend](#) (Green bonds – sustainability en vogue – our title translations, in German only).
- ³⁰ Politically defined demands and budgetary leeway are the primary factors that determine municipal investment plans. After that, it is the terms and conditions of the various financing options that determine the possible makeup of an instrument mix. Cf. Brand, S. and Steinbrecher, J. (2020): [Kommunale Investitionen: Preiseffekte am Bau "fressen" Zinsentlastung auf](#) (Municipal investments: price effects in construction 'eat up' interest reductions – our title translation, in German only), Focus on Economics No. 281, KfW Research.
- ³¹ One idea could be to allow various shades of 'green'. Depending on the level of aspiration, the demonstration of results would sometimes be greater, sometimes smaller. In that case, however, the 'premium' variant would actually have to be 'rewarded' with better conditions than a blanket, simplified approach.
- ³² For more on the 'SDG indicators for municipalities' see [www.sdg-portal.de](#) or cf. Bertelsmann Foundation (2021): [SDGs und kommunale Gemeinwohnbilanz](#) (SDGs and impact on the greater good – our title translation, in German only). As part of the conversion to double-entry bookkeeping, many municipalities have also defined their functions and services as products and given them targets and indicators. The equity management was also improved for the intended aggregate financial statements in order to include municipally-owned enterprises. However, the conversion to double-entry bookkeeping is often rated unsatisfactory with room for improvement, cf. Jänchen, I. (2020): [Bedeutung der Doppik für die kommunalen Investitionen und Konsequenzen für das KfW-Kommunalpanel](#) (Significance of double-entry bookkeeping for municipal investments and consequences for the KfW Municipal Panel – our title translation, in German only). Study commissioned by on behalf of KfW Group, or Brand, S. and Steinbrecher, J. (2020): [Kommunale Doppik: Dilemma zwischen Differenzierung und Vergleichbarkeit](#) (Municipal double-entry bookkeeping: dilemma between differentiation and comparability – our title translation, in German only), Economics in Brief No. 204, KfW Research.
- ³³ Municipal representatives are rather sceptical about green finance when it leads to less attractive terms and conditions for municipalities. Cf. Huber, G. and Schilling, F. (2021): [Strategie der EU zur nachhaltigen Finanzierung](#) (EU strategy for sustainable finance – our title translation, in German only), Stadt und Gemeinde Digital 01/21.
- ³⁴ To what extent these obligations to provide evidence will differ from those of the promotional loans will depend not least on the data and methodological quality of the results monitoring. Generally, however, both methods of financing should aspire to map and estimate the impact of the financed investment as accurately as possible.
- ³⁵ Cf. Sustainable Finance Advisory Board (2021): [Shifting the trillions. A sustainable financial system for the great transformation. 31 Recommendations by the Sustainable Finance Committee to the German Federal Government](#).
- ³⁶ Cf. e.g. Rehm, H. and Matern-Rehm, S. (2010): [Kommunalfinanzien](#) (Municipal finances – in German). After that, the more stringent capital adequacy requirements and minimum leverage ratio introduced under Basel III made business areas that yield higher returns more attractive for banks than low margin municipal finance. Cf. Brand, S. (2015): [Paradigmenwechsel in der Kommunalfinanzierung – der lange Schatten der Finanzkrise](#) (Change of paradigms in municipal finance – the long shadow of the financial crisis – our title translation, in German only), Wirtschaftsdienst, issue 1/2015.
- ³⁷ For more on the current debate on green regulation of e.g. German Council of Economic Experts (2020): [Current Developments in Green Finance](#), Working Paper 05/2020. What is striking is that the quite controversial debate is focusing primarily on aspects of identification of climate risks while still largely ignoring implementation in banking law, although initial announcements have been made by banking regulators, cf. Webber, M. and Bopp, R. (2020): [Green Finance: Wie Banken nachhaltig wachsen können](#) (Green Finance: How banks can grow sustainably – our title translation, in German only), contribution of 7 May 2020.
- ³⁸ Avoiding recourse to credit lines with banks is one of the common reasons for municipalities to seek alternative funding sources in the capital market. There would be less incentive of doing

this if banks expanded their credit volume. Cf. Wolff, S. (2014): Kommunalanleihen in Deutschland – ist der klassische Kommunalkredit ein Auslaufmodell? (*Municipal bonds in Germany – has the classic municipal loan run its course?* – Our title translation, in German only), Economics in Brief No. 62, KfW Research.

³⁹ Creating or adapting the budgetary regulations for this form of financing is a fundamental prerequisite for this.

⁴⁰ Cf. Bloomberg (2017): Moody's Warns Cities to Address Climate Risks or Face Downgrades, Article dated 29 November 2017.

⁴¹ Cf. Bernstein, A. et al. (2019): Disaster on the horizon: the price effect of sea level rise. *Journal of Financial Economics*, issue 134(29).

⁴² Cf. Bansal, R. et al. (2016): Price of Long-Run Temperature Shifts in Capital Markets. National Bureau of Economic Research Working Paper 22529.

⁴³ Cf. Painter, M. (2020): An inconvenient cost: The effects of climate change on municipal bonds, *Journal of Financial Economics*, issue 135(2).

⁴⁴ The difference consists in how impacts are attributed: Current risks have already materialised to a certain degree. The risks emerging from new, non-green investments materialise only after the investment in the future.

⁴⁵ Cf. Brand, S. and Steinbrecher, J. (2021a): loc. cit.

⁴⁶ Cf. Sustainable Finance Advisory Board (2021): loc. cit.

⁴⁷ At present, although promotional banks such as KfW or NRW.Bank also use the financing commitments for municipal investment projects in infrastructure or the modernisation of energy systems of public buildings as underlying for the green bonds they issue, as yet there is no systematic integration of municipal finance as a whole. Instead, they exclude non-green investment projects by defining specific purposes for the bonds.