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Creditworthiness and climate: Identifying a hidden financial co-benefit of municipal climate adaptation and mitigation policies

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ABSTRACT

Municipal policies can reduce greenhouse gas emissions and help to mitigate climate change. It is often unclear why cities would adopt such policies, however, given that the benefits from climate mitigation will be felt globally, rather than exclusively locally. Studies have identified a rationale for urban mitigation and energy policies rooted in local co-benefits, such as improvements in local environmental quality or job creation. Here we explore the possibility of financial co-benefits: whether municipal climate policies lead to an enhanced creditworthiness. This would translate into reduced borrowing costs for other infrastructure projects. Interviewing key informants from cities, investment firms and rating agencies, we find that rating agencies do consider climate policies in their ratings. This clearly applies to those climate policies that can result in demonstrable net economic gains to the municipality. However even those mitigation and energy policies that come at net costs to cities can have positive impacts on rating assessments, either because the policies are seen as reducing regulatory risks, or because they send positive signals to those investors having global sustainability agendas. Interestingly, those least aware of these factors appear to be city leaders themselves. This suggests a need to make them aware of how rating agencies and investors positively view climate mitigation policies.

1. Introduction

The city of Zurich's imposes a large licensing fee for taxis, but also an ordinance that waives 75% of that fee for taxis that are either electric or hybrid [1]. The ordinance was intended to reduce energy and fight climate change, and it has been successful, in that nearly all of the taxis operating in the city now qualify. The Zurich taxi policy is one of a large and growing number of municipal policies to address climate change, an area that is gathering increased attention in the literature [2,3]. Yet these policies can come at a net cost to the cities that implement them, even if they deliver global benefits. In Zurich's case, because such vehicles were until recently more expensive to purchase, to a degree not compensated by later fuel savings, the city policy came at a net cost to city residents and visitors. So why would any "self-interested" city do such a thing?

Municipal climate policies come in a wide variety of flavors, and some of them display greater apparent self-interest than others. One set of climate policies fall into the area of adaptation: they reduce the vulnerability of the city to climatic events that are growing more likely because of climate change, such as heat waves, flooding, or stronger storms. It is clear that these policies are forward thinking, and in most cases, deliver a net economic benefit to the city. Another set of climate policies, however, fall into the area of mitigation, typically aimed at reducing the use of fossil fuel within the city. Since cities account for 70% of global CO_2 emissions, the potential for emissions reduction in cities is very large, and is well documented in the literature [4–6]. But among mitigation policies, there is also a sharp differentiation between those that carry net benefits to the municipality itself, and those that do not. A growing literature demonstrates that many of the most effective and attractive climate and energy policies can carry substantial local benefits – both market and non-market – unrelated to climate change [7]. These can often be large enough to deliver net economic benefits to the city itself from adopting the policy. Many policies that encourage greater energy efficiency with a low up-front investment cost fall into this category. Finally, there are those mitigation and energy policies that, despite some co-benefits, still come at a net economic cost to the city, even as they generate positive overall benefits to humanity at large. The Zurich taxi policy is one example of this category. So too

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would be policies to promote the expansion and use of renewable energy in the city, to the extent that the local costs of this energy are higher than for fossil fuels, even taking into account co-benefits such as reduced air pollution.

But even for this final set of policies, there may be an important and so far, unaccounted co-benefit, associated with the fact that municipal policies can lead to variations in creditworthiness. Creditworthiness is a key element in shaping the decision of public and private investors to lend to cities, and is referred to as the ability of a debt issuing entity to meet its debt obligations, compared to a likelihood of default [8]. Creditworthiness is a significant component of cities' abilities to issue bonds [9] and is inversely proportional to the cost of capital; cities with lower credit ratings are usually forced to pay higher interest rates when they take on debt for infrastructure projects.

There is anecdotal evidence that climate policies, at least some of them, may help to improve cities' credit rating. Climate risks, through their devastating impacts on the economy, can impact paying capacities and ultimately lead to a downgrade in credit ratings [10,11]. Sound adaptation policies can build resilience to climate events and prevent the potential downgrade in creditworthiness. Similarly, mitigation policies with net benefits for the city, through the long run efficiency gains, can contribute to a better economic performance and ultimately enhance creditworthiness. But, what about mitigation policies with net costs to cities? Would these too have a positive impact on creditworthiness of cities adopting them?

Understanding this relationship matters. Better credit rating can lower overall infrastructure investment costs for cities and pave the way to access capital markets. The literature suggests that $4.3 trillion per year is required to keep up with the current infrastructure needs of all cities globally (i.e., activities required to maintain current GDP growth), and climate friendly investment would add another $1.1 trillion [12]. Cities typically finance this investment with municipal bonds. A simple thought experiment reveals how much this could matter. Imagine that cities, through their climate policies, could reduce the average interest rates they pay on $5.5 trillion of new debt by just 0.1%: that would lead to over $5 billion in annual savings on that single year's new investment. If they could reduce these interest rates on new debt taken on board for the next ten years, the annual saving would reach more than $50 billion per year. That is not insignificant compared with the total global annual investment into clean energy, which in 2018 is on track to reach $275 billion [13]. The presence of a link between climate policies and creditworthiness could provide a hidden financial benefit to cities far in excess of those policies' cost, and provide a clear rationale for cities to engage in the most forward-thinking mitigation policies.

In this paper, we examine whether such a relationship between climate policies and creditworthiness does exist. As part of this, we identify different rationales for why such a link might exist in the first place. The clearest rationale is improved financial and economic performance, and hence, economic gains. Less clear rationales are reduced regulatory risk, and global sustainability, both of which could benefit investors in the long run. Because there is no clear quantitative data that can differentiate between these rationales, we use a qualitative research approach, analysing in-depth interview insights from key stakeholders in the field: cities, investors and the rating agencies themselves. Based on the expert interviews, we find that even those local policies providing primarily global climate benefits, i.e. the weakest rationale, have a positive impact on credit ratings. We also find that city officials themselves are not aware of this.

2. Background

Infrastructure investment is an indispensable part of economic growth and urbanisation [14]. It contributes directly to the output of urban economies and improves the quality and mobility of goods and services, thereby enhancing the welfare of societies. With few exceptions, city governments are in charge of infrastructure planning within their boundaries. Cities, by which we mean city government officials who are key decision makers, generally adopt policies and programmes in order to either retrofit existing infrastructure or invest in a new project. Similarly, and given the rise of climate related concerns, cities are expected to incorporate climate-friendly elements into their policy agendas: either to make the existing infrastructure less carbon-intensive or invest in completely new low carbon infrastructures.

Despite the importance and relevance of investment in infrastructure, strong political and financial barriers prevail, often due to the voluminous capital required. The estimated infrastructural investment needed to maintain current growth is $ 4.3 trillion, while less than $1.2 trillion is currently flowing [12]. There are a range of reasons documented for the shortfall, including policies limiting the revenue base, budget allocations and liquidity [15]. The $1.1 trillion required to make these investments climate friendly only widens the gap between current investment and the actual needs.

One way to overcome internal revenue limitations is to raise finance from the capital market, which is strongly affected by creditworthiness. Creditworthiness is the capability and willingness of a debt issuing entity to meet its obligations and the likelihood of default [8,16]. Creditworthiness is assigned by rating agencies such as Standard and Poor's (S&P), Moody's and Fitch. These companies are responsible for more than 95% of global ratings [17]. Apart from these, there are also local high-quality rating agencies that deal with credit assessments, mainly at the local level.

The appraisal of creditworthiness of an entity is costly, complicated and onerous. Even with the existence of in-house rating assessors, investors find it challenging to assess every single asset individually. Rating agencies, as information brokers, tend to match the needs of investors to invest in the right opportunities [18], and at the same time set baselines for the comparison of different asset classes. Having a high investment grade credit rating for cities has two benefits: it eases the access to the pool of global and local investors which will accelerate the demand for debt securities, and causes the capital costs to plummet. In addition, it helps cities to gain knowledge of the factors influencing rating assignments and then apply them in practical terms so the rating can be upgraded [9].

Rating agencies do not disclose their evaluation techniques and provide only an abstract conceptual explanation of the factors that go towards a rating assignment. This has sparked interest in trying to understand the underlying factors behind rating assessments. Previous studies have identified numerous criteria that appear to influence municipal credit ratings, and financial performance is among the key ones. Carleton and Lerner [19] and Rubinfeld [20] found that the debt profile of cities, such as debt per capita, has a negative impact on ratings. Economic status is another influencing factor. Revenue of cities, per capita income, population and institutions are found to have a positive impact on credit ratings [20–22]. Cheung [23], by confirming previous findings, added that the employment ratio also has an impact, while Gaillard [24] stressed the importance of default history and how it may alter rating status. In addition, financial and fiscal autonomy was found to have a significant impact on the municipal ratings [25]. Besides quantitative determinants, there is also a stream of literature that has found qualitative factors influencing on credit rating assessments. Lipnick [26] found that subjective factors such as fiscal and managerial policies have considerable influence. Confirming previous findings, Denison et al. [27] found out that management performance strongly correlated with municipal ratings. Similarly, Liu [28] explored that the ability of municipalities in gaining relevant and valuable information, which are part of managerial duties, is reflected in ratings.

In this paper, we examine whether creditworthiness may also be positively influenced by cities' adoption of climate policies, and mitigation and energy policies in particular. In the absence of literature on this topic, we can think of three possible rationales why this might be