frontier economics

TRANSACTION COST PREMIUM FOR INFREQUENT DEBT ISSUERS

A report prepared for ENWL

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EXECUTIVE SUMMARY

ENWL has commissioned Frontier Economics to independently assess the potential transaction cost differential on debt financing borne by a small DNO such as ENWL compared with its larger counterparts, within the context of setting the cost of debt allowance for ED2.

Context

There are 14 GB electricity distribution licences currently owned by 6 DNO groups. Of these, ENWL is the only DNO group that operates a single licence. At the time of our analysis, ENWL is the smallest DNO group by value of total RAV of approximately £1.8 billion (as of March 2019).

This context is important for this analysis. Although debt can be issued at individual licensee level, in principle DNOs have the option to issue bonds at the group level if they so choose. As a result, larger groups could benefit from economies of scale in market-sized corporate bond issuance that a single licensee, such as ENWL, is not able to achieve.

In its RIIO-2 framework consultation[1] and methodology decision[2], Ofgem has not proposed to make an explicit allowance on company specific characteristics in relation to the cost of debt, including transaction costs. Specifically, in its RIIO-GD2/T2 Draft Determinations, Ofgem considered a proposal from SGN for a premium to cover additional costs that stem from being an infrequent issuer due to small size.[3] While Ofgem rejected SGN's representation which sought an additional allowance for having to issue at a rate higher than the market benchmark, Ofgem has indicated that it would be open to consider individual adjustments to the cost of debt allowance for companies should evidence be provided to demonstrate that this is justified.

Our approach

Origins of higher transaction costs for smaller companies

When issuing debt, companies incur a range of transaction costs in addition to the interest costs owed to debt holders. Transaction costs relate to:

- **illiquidity costs** – costs driven by the way bonds are bought and sold in the financial market due to bid-ask spreads (dependent on the size of the bonds), which can translate into the primary market of issuance;

1 Ofgem, RIIO-2 Framework Consultation, March 2018, https://www.ofgem.gov.uk/system/files/docs/2018/03/riio2_march_consultation_document_final_v1.pdf

2 Ofgem, RIIO-2 Framework Decision, July 2018, https://www.ofgem.gov.uk/system/files/docs/2018/07/riio-2_july_decision_document_final_300718.pdf

3 Ofgem, RIIO GD2/T2 Draft Determinations, Finance Annex, page 19.

- **issuance costs** – such as fees to financial intermediaries, legal advisors and credit rating agencies, which are partly fixed and partly variable in relation to the size of the bonds; and
- **costs of carrying excess cash** – the difference between the interest cost paid and the interest earned on the cash balance in short-term cash deposits[4].

Some of these costs are fixed. Hence by issuing a larger sum, these fixed costs may be spread over a larger total quantum and become proportionately smaller in relation to each pound of debt raised. Others, such as cost of carry, increase with the quantum issued, i.e. by issuing a larger sum the company will be left with extra cash in the short term, on which it will earn a minimal return on deposit while being obligated to pay interest cost.

Types of financing profile

Companies need to develop strategies to manage these costs efficiently. And in developing these strategies, it is clear that a larger company that needs to issue a larger amount of debt in any given period will have natural advantages.

- A large company with a large volume of debt issuance to perform is able to issue larger tranches of debt, thereby reducing illiquidity premium on the bonds (which tend to be high on the small-sized bonds);
- A large company can also proportionally reduce the issuance costs compared to a smaller company, due to the size of the issuances;
- As large companies typically have an adequate size of revolving credit facilities (these are often in proportion to the size of the RAV), refinancing often requires a lower issuance in advance of existing bonds expiring compared with smaller companies. Large companies are therefore better placed than smaller companies to manage costs of carry.

For a smaller company, there are essentially two types of financing profile that could be followed to manage their debt costs.

- The company can choose to issue "frequently" – issuing relatively small tranches of debt annually according to its annual financing needs; or
- The company can choose to issue "infrequently" – issuing relatively larger tranches of debt less frequently.

The "frequent" issuance profile will lead to relatively small sums being issued and will hence increase proportionately the first two costs. However, it will reduce the cost of carry. The "infrequent" issuance strategy does the opposite.

Although this paper does not seek to identify the "optimal" financing profile for a company, as it does not consider all the relevant factors including intangible costs involved in the financing decisions, the relevant regulatory question we seek to answer is how large is the intrinsic debt issuance transaction cost disadvantage faced by a small company relative to larger ones, under either of these two financing profile?

[4] The allowed return does not cover the interest cost on excess cash because the excess cash does not contribute to existing investment in assets that are registered in the RAV – the allowed return is set by the allowed rate of return multiplied by the RAV.

Our approach to modelling

We have developed a simple spreadsheet model that converts each of the three additional debt costs identified above into an equivalent amount of additional debt interest cost. We populate this model with information provided by ENWL, on the actual size of each of these three transaction costs. We then compare these costs for a notional small company (with the size of ENWL) with the costs for a notional large company, to quantify the size of the transaction cost differential.

It is worth noting that the focus of our analysis is on the differential between the notional smaller company and the larger company, rather than the absolute level of transaction costs, as we have not included certain elements of the transaction costs that are shared across companies regardless of their size (such as cost of carrying for daily cash requirements or working capital facilities).

Key findings

Figure 1 summarises the results of our transaction costs analysis.

Figure 1 Additional transaction costs on the cost of debt for small and large companies

Company size	Small		Large
Financing profile	*Frequent*	*Infrequent*	*Frequent*
Key assumptions			
RAV [£]	1800m		7000m
Debt issuance [£]	108m	324m	420m
Issuing frequency	1y	3y	1y
Illiquidity costs	✓ 15bps	✓ 6bps	✓ 6bps
Issuance costs	✓ 15-18bps	✓ 7-8bps	✓ 6-7bps
Costs of CC	✗ 1bps	✓ 21-23bps	✗ 1bps
Total transaction costs	**31-34bps**	**35-37bps**	**13-14bps**

Source: Frontier Analysis

Note: Each of the costs here are in annual interest rate terms to make them comparable to a company's allowed cost of debt and any potential small company premium.

We find that regardless of financial profile adopted, a smaller company like ENWL would incur higher transaction costs on debt financing than a large company. This additional cost is structural and cannot be fully mitigated.

More specifically, we find a smaller company of a size similar to that of ENWL would incur additional transaction costs of 18-20 bps on debt, with this cost minimised (according to our modelling) using the most cost effective financing profile. It is worth noting that this analysis does not include all relevant transaction costs, for example:

- It does not consider the costs of cash carry in relation to day to day liquidity management and/or revolving working capital facilities.

- it does not consider the management resource used up in the issuance of debt if this is done more frequently than necessary (as with other issuance costs, management costs will be fixed in nature and hence provide another source of scale economies in issuance).

Furthermore, we have chosen a financing profile that is the least costly to compare with larger companies' transaction costs. In reality, it is likely to be unfeasible for an infrequent issuer to suddenly switch to becoming a frequent issuer (e.g. the refinancing of an existing large bond cannot easily be done through a series of frequent but consecutive smaller issuances because there will be a shortage of cash to repay the maturing debt). We have not taken this path dependency issue into account.

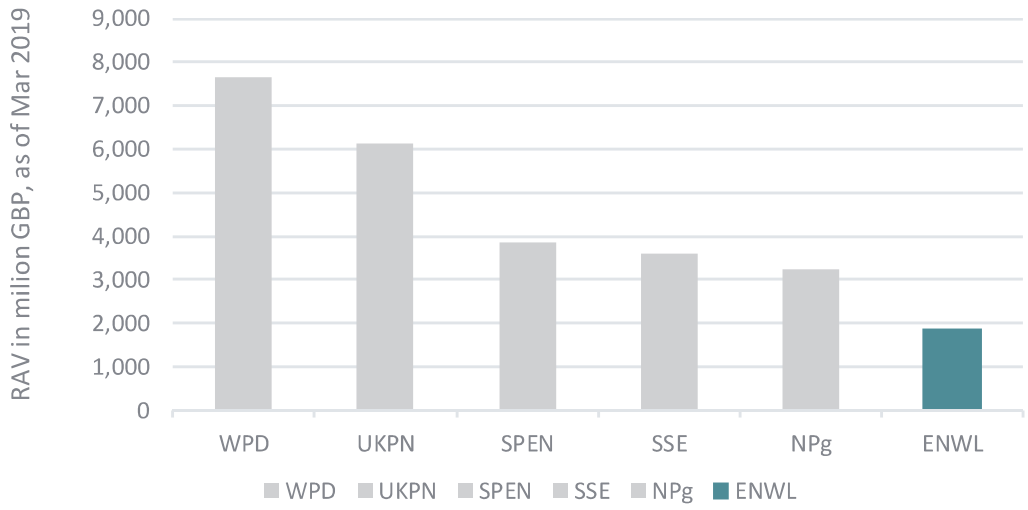
Overall, the factors above would suggest that the differential in transaction cost we have identified in this analysis may be a conservative estimate of the actual differential in reality. In conclusion, we consider that there is reasonable justification for the regulator to make an explicit additional allowance over the sector debt allowance in the range of 18-20 bps for smaller companies, to contribute to the premium they face on smaller and/or more infrequent debt issuances.

1 INTRODUCTION

ENWL has commissioned Frontier Economics to independently assess the potential transaction cost differential on debt financing borne by a small DNO such as ENWL compared to its larger counterparts, within the context of setting the cost of debt allowance for ED2.

There are 14 electricity distribution licences under Ofgem's ED1 price control, currently owned by 6 DNO companies. At the time of our analysis, ENWL is the only single-licenced DNO, and is the smallest DNO group by value of total RAV of approximately £1.8 billion (as of March 2019), as shown in Figure 2 below.[5] This context is important for this analysis, as although debt can be issued at individual licensee level, DNOs have the option to issue bonds at the group level if they so choose. Based on this, larger groups could benefit from economies of scale in market-sized corporate bond issuance that a single licensee, such as ENWL, is not able to achieve.

Figure 2 ENWL is the smallest Electricity DNO in the UK by RAV



Source: Ofgem ED1 financial model (November 2020)
Note: Prices converted to March 2019 prices using RPI data

In its RIIO-2 framework consultation[6] and methodology decision[7], Ofgem has not proposed to make an explicit allowance on company specific characteristics in relation to the cost of debt. However, Ofgem has indicated that it would be open to consider individual adjustments to the cost of debt allowance for companies such as Electricity North West Limited (ENWL) and Wales & West Utilities (WWU), if robust and convincing evidence can be presented.[8]

[5] RAV figures taken from Ofgem financial model 2020, based on figures for closing RAV as of 31 March 2019. These are the latest official RAV figures for the ED sector at the time of writing of this report.

[6] Ofgem, RIIO-2 Framework Consultation, March 2018, https://www.ofgem.gov.uk/system/files/docs/2018/03/riio2_march_consultation_document_final_v1.pdf

[7] Ofgem, RIIO-2 Framework Decision, July 2018, https://www.ofgem.gov.uk/system/files/docs/2018/07/riio-2_july_decision_document_final_300718.pdf

[8] Ofgem, RIIO 2 Framework Decision, July 2018 – paragraph 6.28

In its RIIO-GD2/T2 Draft Determinations, Ofgem considered a proposal from SGN regarding a premium resulting from being an infrequent issuer due to its small size.[9] SGN suggested that due to its infrequent issuance of bonds, it has a larger risk of the capital market being unfavourable when it needs to issue and therefore a risk premium needs to be allowed to compensate. Ofgem rejected SGN's representation, particularly in relation to the quantification of such a premium using the swaption instrument. Ofgem has also rejected the idea of an infrequent issuer potentially having to issue at a rate higher than the market benchmark.

For this report we have not examined the issues raised by SGN in its submission. Instead we focus on identifying and quantifying an arguably more pertinent reason for a cost premium for a smaller company which may need to issue more infrequently. This comes in the form of a demonstrably higher level of transaction cost associated with debt issuance faced by smaller companies.

In the RIIO GD2/T2 Draft Determinations, Ofgem proposes to switch to the iBoxx Utilities from the iBoxx A and BBB indices used in RIIO1, with estimated transaction cost allowance separately. Our study is in line with the methodology Ofgem has employed to estimate the transaction costs, and we find similar results to those from Ofgem, although unlike Ofgem's analysis which sought to estimate the total transaction cost for DNOs our analysis focuses on the cost differential between smaller and larger issuers.

Our analysis shows that there is a material difference for a smaller company that may need to either issue debt less frequently or issue smaller sums more frequently.

Ofgem has also suggested that smaller companies could circumvent the problem by simply issuing more frequently but at a sub-benchmark size (e.g. lower than £250 million for bonds). In our study we assess the cost associated with more frequent issuance for a smaller company, and quantify the conditions under which more frequent issuance would be preferred. However, even in these situations, there remains a differential in transaction cost compared to a frequent issuer but at larger issuance sizes.

This report:

- explains the differentials in transaction costs between smaller and larger companies, both for infrequent issuance and more frequent issuance;
- assesses the levels of these differentials;
- and proposes a range for the transaction cost differential on debt for a relatively smaller company such as ENWL.

The rest of this report is structured as follows:

- Section 2 explores the financing profile options for smaller and larger companies;
- Section 3 assesses illiquidity costs as a source of company specific transaction cost on debt;
- Section 4 estimates issuance costs as a component of the cost of debt;

[9] Ofgem, RIIO GD2/T2 Draft Determinations, Finance Annex, page 19.

- Section 5 estimates costs of carrying excess cash as a component of the cost of debt; and
- Section 6 combines all the relevant factors above and estimates a range for the cost differential that applies to the transaction cost on debt for a company of the size of ENWL.

2 OUR OVERALL APPROACH

2.1 Sources of transaction costs

It is well established in finance theory, as well as within regulatory precedent, that small company size can lead to a material premium on the cost of debt due to the existence of scale economies in transaction costs on debt financing. Our study aims to establish if the excess transaction cost on debt for small companies can be considered sufficiently material to warrant an additional regulatory allowance.

When issuing debt, firms incur transaction costs in addition to interest costs. Transaction costs can relate to:

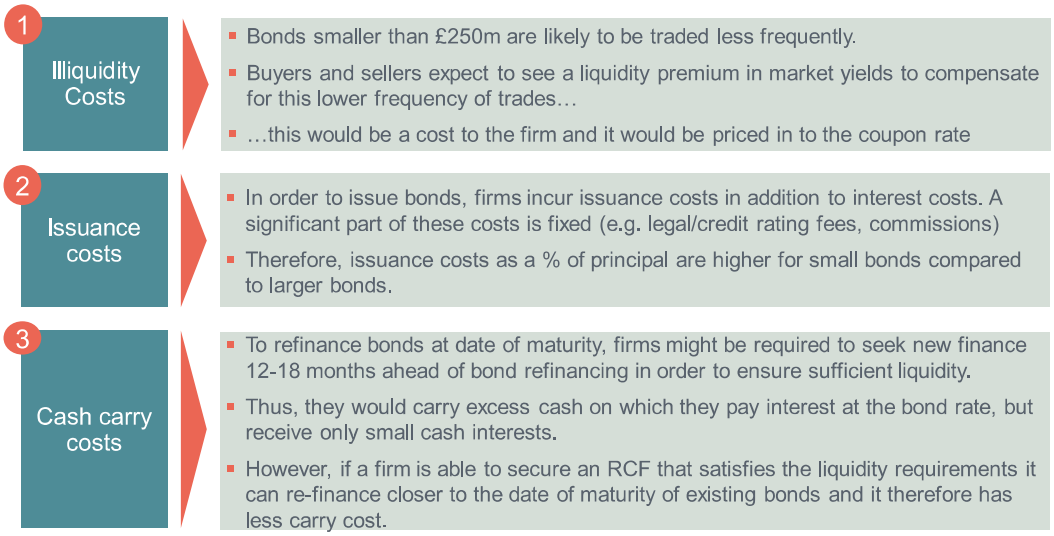
- **illiquidity costs –** costs driven by the way bonds are bought and sold in the financial market due to bid-ask spreads (dependent on the size of the bonds), which can translate into the primary market of issuance;
- **issuance costs –** such as fees to financial intermediaries, legal advisors and credit rating agencies, which are partly fixed and partly variable in relation to the size of the bonds; and
- **costs of carrying excess cash –** the difference between the interest cost paid and the interest earned on the cash balance in short-term cash deposits[10].

Some of these costs are fixed. Hence by issuing a larger sum, these fixed costs may be spread over a larger total quantum and become proportionately smaller in relation to each pound of debt raised. Others vary in size of the bonds. Illiquidity premium for example decreases with the size of the bond, whereas cost of carry increases with the quantum issued.

Figure 3 provides an overview of these transaction costs.

[10] The allowed return does not cover the interest cost on excess cash because the excess cash does not contribute to existing investment in assets that are registered in the RAV – the allowed return is set by the allowed rate of return multiplied by the RAV.

Figure 3 Three different issues considered relating to smaller company debt costs



Source: Frontier Economics

We note that illiquidity cost may exhibit itself as a premium on the yield of the bond in question. However, for the purpose of this analysis, we categorise it as a transaction cost as it is unlikely to have been included in the benchmarked efficient debt costs informed by large benchmark bonds.

2.2 Determining comparators

A smaller company can be on either a "frequent" or "infrequent" financing profile. In other words, it can serve its financing needs annually or it can issue larger sums of debt less frequently;

- If a smaller company issues bonds annually (e.g. around £100m), it decreases the amount of excess cash the company needs to hold, but creates higher illiquidity and issuance costs (we explain in more detail below why this is the case).
- Conversely, a smaller company can opt to issue a larger bond (more than £250m) by issuing debt less frequently. In this case additional transaction costs would arise mainly from excess cash holdings.

In comparison, the annual financing needs of a large company are large enough such that issuance costs and illiquidity costs are relatively small due to the size of the bonds required (generally exceeding £250m). Also, a large company could minimise transaction costs by adopting a "frequent" financing profile and issuing debt annually. Therefore, larger companies have natural cost advantages when deciding which financing profile to follow when compared to a smaller company.[11]

Our analysis follows two steps to estimate the transaction cost differential between the smaller and the larger company:

[11] We note that this does not preclude a large company from nevertheless choosing a more infrequent financing profile if it is considers it advantageous to do so, due to other considerations such as capital market conditions.

- First, we compare the transaction costs of a notional small company between its "frequent" and "infrequent" financing profiles;
- Second, we compare the *lower* transaction cost scenario of the small company with the transaction cost of a notional large company issuing debt "frequently".

The resulting differential then provides a conservative estimate of the potential size of a transaction cost differential between smaller and larger companies. It is conservative because:

- it does not consider the management resource used up in the issuance of debt if this is done more frequently than necessary; and
- it does not consider the fact that once a certain profile is chosen, it is costly for a small company to switch to the other profile (either from infrequent to frequent or vice versa).

We note that this paper does not seek to identify the "optimal" financing profile for a company as it does not consider all the relevant factors including intangible costs involved in the financing decisions.

2.3 Assumptions on notional debt issuance volumes

Our analysis considers stylised financing profiles for the notional companies and derives notional bond sizes for each scenario. These are based on the following assumptions:

- The comparison considers a notional small and large company with a regulated asset value of £1,800m and £7,000m, respectively. The smaller company is similar to ENWL's size at the time of this analysis, and the large company is similar to the size at which the transaction costs in our model can be considered minimised allowing for a frequent financing profile. Some regulated energy network companies are currently at or above this size;
- Both notional companies are assumed to have a RAV gearing level of 60%;
- Bonds are issued at a 10 year tenor. This assumption is based on the majority of bonds usually being issued either at 7-12 year tenors or at 20+ year tenors. We do not consider 20+ year tenors, as regulated network companies are incentivised to issue bonds that match regulators' cost of debt indexation mechanisms which tend to focus on maturities less than 20 years.
- Bonds are issued at a coupon rate of 2.51% - 4.18% according to iBoxx indices from the past five years[12];
- A company with an "infrequent" financing profile issues bonds every three years whereas a company with a "frequent" profile issues bonds every year;
- Bonds are issued for the purpose of refinancing maturing existing bonds rather than financing new investments; and
- The cost of carry incurred for the need to finance new assets is assumed to be similar across all companies and not included in our calculations.

[12] The upper and lower bounds are taken from the P90 and P10 of the iBoxx yield within the past five years, in order to depict a reasonably unbiased picture of the debt market in the medium term. We recognise that the latest yield is lower than our P10 scenario, due to the ongoing fall in the interest rates.

Figure 4 summarises the characteristics of the notional companies in our comparison and their respective financing profiles that we analyse.

Figure 4 Assumed bond size by financing profile and company size

Company size	Small		Large
Financing profile	***Frequent***	***Infrequent***	***Frequent***
RAV [£]	1800m		7000m
Gearing	60%		
Coupon rate	2.51% - 4.18%		
Bond Maturity	10y	10y	10y
Issuing frequency	1y	3y	1y
Debt issuance [£] *(RAV * gearing / maturity * frequency)*	**108m**	**324m**	**420m**

Source: Frontier Economics

In our stylised model, the large company with a RAV of £7,000m and a gearing level of 60%, would need to raise finance each year with a bond of £420m. A small company with a RAV of £1,800m would either need to raise a bond of £108m each year or raise a bond of £324m every three years.

In the following sections, we will look at the various transaction costs associated with these different scenarios.

3 ILLIQUIDITY COST

This section assesses illiquidity cost across bonds of different sizes. In particular, we use the relative bid-ask spread measure of liquidity to see if bonds with smaller issuance sizes are less liquidly traded than bonds with larger issuance sizes.

If smaller bonds are less liquid than larger bonds, then companies that issue smaller bonds will face additional costs. Investors in companies that issue smaller bonds need to be compensated for lower liquidity, which is likely to be priced into the coupon rate paid by firms. We note that even though this cost may manifest itself as a higher cost of debt, we consider it as a form of additional transaction cost in our analysis because it is unlikely to be have been accounted for in the estimation of "efficient levels of cost of debt" through benchmarking analysis.

3.1 Our approach

In financial markets, illiquidity refers to the fact that when an investor looks to buy or sell an asset, he/she may not be able to find a willing counter-party as easily due to the lack of interest from other market participants to trade this asset. It may then be necessary for the investor to sell at a lower price (higher yield in the case of bonds). A rational investor will need to be compensated for bearing this illiquidity risk. Illiquidity costs are therefore transaction costs that the issuer of an illiquid bond would incur.

One of the well-recognised indicators of liquidity is the so-called relative bid-ask spread. This is the difference between the bid-price (buy price) and the ask-price (sell price) of a bond, relative to the mid-price of the bond. Liquid assets typically command a narrower bid-ask spread than illiquid assets, due to the fact that dealers are more confident in their ability to unwind positions on a liquid asset and can therefore afford to charge a smaller margin for facilitating the trade.

In reality, larger bonds will be more liquid than smaller bonds and will have a lower relative bid-ask spread. One reason for this could be that bonds need to be relatively large to be included in a number of fixed income and bond market indices. For example, only bonds above £250m would be considered in the iBoxx indices[13]. The inclusion in such an index attracts a wider pool of investors making those bonds more likely to attract liquidity.[14] Therefore, large bonds will have a lower bid/ask spread, investors would incur lower transaction costs when selling, and they would demand a lower liquidity premium from the issuer.

In our analysis we report illiquidity related transaction costs separately for small and large bond sizes. In other words, the analysis shows an illiquidity cost for any bond with a positive bid-ask spread (i.e. all bonds). The term illiquidity premium is often used to describe the additional cost of a relatively illiquid bond to the more liquid ones. In our analysis, we compare the illiquidity cost of the small and large bonds, and the resulting difference can be considered illiquidity premium of the

[13] IHS Markit, Markit iBoxx GBP Benchmark Index Guide, September 2019

[14] In this analysis, large bonds are considered to be those with an issuance size above £250m. While this is not the same threshold as that used in the Markit iBoxx GBP Benchmark Index, the amount outstanding of a bond and its issuance size are sufficiently correlated for these thresholds to be comparable.

smaller company compared to the larger one, which the company is likely to have to pay to the investors when issuing bonds in the primary market.

3.2 Results

Relative Bid-Ask Spread

We calculate the average relative daily bid-ask spread of each bond over the previous five years, using data on bid, ask and mid-price of comparator bonds[15] from Bloomberg.[16] The bonds we selected for analysis share the following characteristics;

- maturity date between 2027 and 2033, with an average maturity year of 2030;
- data entries going back at least five years;
- denominated in GBP;
- larger than £70m
- UK bonds issued by a range of regulated utilities companies, and where there are multiple bonds from the same issuer, we have chosen at least one representative bond along with the criteria above.

First, the data shows a negative relationship between bond issuance size and the relative bid-ask spread, in particular for bonds with principals larger than £70m and smaller than £250m. In this category, a larger bond size can be clearly associated with smaller bid/ask spreads. For bonds with principals over £250m the evidence suggests a relatively stable bid/ask spread.

Next, we establish a threshold for large and small bonds to directly compare their liquidity based on the thresholds indicated in the data. We define large bonds as bonds with principals of larger than or equal to £250m. This aligns with the thresholds used by the iBoxx benchmark and it is the point where the relationship between bond size and bid/ask spread levels off in the data. As in our small notional company scenario the issuance is around £100m, we allocate bonds with a principal size between £70m and £130m to the small bond category, in order to compare to the large bonds

Figure 5 shows the results of our analysis. Small bonds are shown to have a higher bid-ask spread than large bonds, showing the existence of a liquidity premium.

Figure 5 5 Year Average Bid-Ask Spread By Bond Size Groups

Size of bond	5 year average Bid-Ask Spread	Number of comparator bonds	Average Size of Bonds (£m)
Small	1.46%	6	97
Large	0.60%	14	377

[15] We consider: *National Grid Electricity Transmission 2030, DWR Cymru Financing UK PLC 2031, Severn Trent Utilities Finance PLC 2028, Sutton and East Surrey Water PLC 2031, Yorkshire Water Finance 2033, Yorkshire Water Finance 2033, Western Power Distribution 2027, Anglian Water Services 2027, Yorkshire Water Finance 2029, Northern Gas Networks 2027, Yorkshire Water Finance 2032, Wales & West UTL FIN PLC 2030, London Power Networks 2027, South Eastern Power Networks 2031, Southern Electric Power Distribution 2031, Northumbrian Water Finance 2033, Southern Gas Networks PLC 2029, SSE PLC 2028, Centrica PLC 2029,* and *Western Power Distribution West Midlands 2032.*

[16] Bid-ask spread is calculated as the difference between the bid- and the ask-price, divided by the mid-price.

Source: *Bloomberg data, Frontier Analysis*

Note: *Bid-ask spread is calculated as the difference between the bid- and the ask-price, divided by the mid-price.*

In our sample, the smaller bonds on average have a relative bid-ask spread premium of 86bps compared to the large bonds.

Converting bid-ask spread into illiquidity cost

As explained above, illiquidity imposes a cost to the investor. Roughly speaking, this cost is equal to the bid-ask spread, if the bond is held to maturity. On an annual equivalent basis, this one-off cost can be spread across the years for which the bond is held.

From our analysis, large bonds would incur on average a bid-ask spread of 0.60% and small bonds 1.46%. In the context of our assumed tenor of 10 years, this one-off cost can be divided by 10 to estimate the average annual equivalent illiquidity cost. This is summarised in Figure 6 below.

Figure 6 Conversion of Bid-Ask Spread to illiquidity cost

	Small Bonds	Large Bonds
5 year average bid-ask spread	1.46%	0.60%
Years to Maturity (Sample Average)	10y	10y
Annualised Illiquidity Costs	14.6bps	6.0bps

Source: *Bloomberg data, Frontier Analysis*

Note: *The bid-ask spread can be seen as a one-off cost to investors during trade which they need to be compensated for. One way to annualise this cost is to divide it by a typical holding period. We have used our assumed total tenor of the bonds (10 years) as the holding period.*

The annual illiquidity cost is calculated to be 14.6 bps for small bonds and 6.0 bps for large bonds. The 9 bps difference between the two can be interpreted as an estimate of the illiquidity premium associated with a small company issuing small bonds with a "frequent" profile compared with it issuing large bonds with an "infrequent" profile or compared with a large company.

4 ISSUANCE COSTS

This section estimates the issuance costs on debt financing for a notional small and a notional large company. We make use of latest issuance cost information provided by ENWL, which we understand comes from its most recent bond issuance.

In order to issue bonds, firms incur issuance costs in addition to interest costs. Issuance costs relate, for example, to financial intermediaries' fees, road show costs, credit rating fees as well as legal and advisory fees. Whilst certain fee elements vary with bond sizes, a significant part of these issuance costs is fixed. Therefore, issuance costs as a percentage of the principal are higher for smaller bonds.

4.1 Our Approach

Cost assumptions

To compare issuance costs across bonds sizes, we adopt as a reference the cost that ENWL incurred when issuing its most recent bond in 2020. We note that although legal and advisory fees are fully fixed, some fees such as book runner fees and credit rating agency fees tend to have a component that is variable in the size of the issuance. In order to reflect the uncertainty in the fixed variable components of the book runner fees and credit agency fees, we have constructed plausible ranges based on information provided by ENWL.[17]

Figure 7 below summarises the total estimated issuance cost for the different financing profiles in our analysis.

Figure 7 Issuance cost for comparators

Company size	Small		Large
Financing profile	***Frequent***	***Infrequent***	***Frequent***
Debt issuance [£]	108m	324m	420m
Issuance costs			
Fixed [£]	0.8m	0.8m	0.8m
Semi-variable* [£]	0.6-0.7m	1.2-1.3m	1.5-1.6m
Total [£]	**1.4-1.5m**	**2.0-2.1m**	**2.3-2.4m**

Source: ENWL data, Frontier analysis

Note: Semi-variable costs include costs that have a variable component, but are also subject to minimum fees. These include items such as book runner fees and credit rating agency fees.

It can be seen that the fixed cost is the same across different sizes of the bonds and the variable cost is in proportion to the size of the bond.

[17] The fees incurred by ENWL, which are reported here, are only accurate at the exact size of its actual 2020 issuance (i.e. £300 million). Based on our understanding from ENWL, we have constructed a plausible range to reflect the fixed and variable proportions of the fees for the book runners and the credit rating agencies. The actual quotes from various banks and credit rating agencies may differ depending on the company asking for the service.

Conversion into annual interest terms

Next, our analysis converts these fees into annual interest rate terms. To do this, we incorporate this one-off issuance fee as a part of the cash outflow of a bond. The principal of the assumed bonds varies according to the financing profile and company size, but for comparability purposes, we assign the same coupon rates and time to maturity to all bonds in this analysis. These are 2.51% - 4.18% and 10 years, respectively.[18]

Using a discounted cash flow approach, we then calculate two internal rates of return (IRR) for the bond, one including these issuance costs, and the other excluding them. Figure 8 below provides more detail on this annualised issuance cost calculation. For this illustration, we consider the scenario with the lowest fixed costs and a bond rate equal to the lowest 10th percentile (2.51%) is assumed.

Figure 8 Issuance cost for notional small company issuing debt annually (in £m unless stated otherwise)

	IRR	Y0	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10
Small - Frequent												
Proceeds		108.0										
Coupon			-2.7	-2.7	-2.7	-2.7	-2.7	-2.7	-2.7	-2.7	-2.7	-2.7
Principal												-108.0
Cashflow		108.0	-2.7	-2.7	-2.7	-2.7	-2.7	-2.7	-2.7	-2.7	-2.7	-110.7
IRR	2.51%											
Transaction costs		-1.4										
Cashflow incl. issuance costs		106.6	-2.7	-2.7	-2.7	-2.7	-2.7	-2.7	-2.7	-2.7	-2.7	-110.7
IRR incl. transaction costs	2.66%											
Annualised issuance costs	**0.15%**											

Source: ENWL data, Frontier analysis

Note: Selected scenario is based on the lowest 10th percentile of bond returns and the lowest fixed costs assumption (£1.1m) and variable costs of £0.3m.

Starting by looking at the main cash flows associated with the bond, excluding the issuance cost, the stream of the cash flows generates an IRR of 2.51%, exactly equal to the assumed coupon rate. Adding the one-off issuance cost increases this IRR to 2.68%. The difference between this and the IRR absent one-off costs implies an annualised issuance cost of 0.15 bps for this bond.

In a similar manner, we repeat the same analysis for the other two financing profiles, a small firm that issues infrequently and a large firm issuing debt annually.

4.2 Results

Figure 9 below summarises the outcomes of the issuance costs analysis:

Figure 9 Issuance costs overview

Company size	**Small**		**Large**
Financing profile	***Frequent***	***Infrequent***	***Frequent***
Debt issuance [£]	108m	324m	420m
Issuance costs [£]	1.4-1.5m	2.1m	2.3-2.4m
Issuance costs (as IRR premium)	**15-18bps**	**7-8bps**	**6-7bps**

Source: Frontier Analysis, cost data provided by ENWL

[18] The coupon rate assumed and the time to maturity are as assumed in the rest of the analysis.

In annualised terms, our results show that a notional small company incurs a higher issuance costs in the range of 9-11 bps when it issues debt annually compared to a larger company.

5 COST OF CASH CARRY

This section presents our analysis on cash carrying costs for the three financing profiles considered. Cash carry costs arise through companies hold cash on the balance sheet that typically only earns short-term deposit interest rates, but the company will be paying the long-term borrowing rate (coupon rate on the bond).

Companies need to hold cash on the balance sheet for various purposes, including day-to-day cash and liquidity management and to ensure sufficient funds are available to meet financial liabilities as they fall due. An example of a financial liability is the repayment (re-financing) of maturing existing debt.

To protect against potential disruption and dislocation in capital funding markets, companies will typically seek secure committed funding or facilities well in advance of payment dates. This is often embedded in the company's Treasury policy and typically covers periods of 12-18 months in advance.

The size of the refinancing relative to the company can have an impact on the options available, we look into this in more detail in our analysis. In this regard, the frequency of a company issuing debt (and re-financing) also can have an impact on the relative carrying cost.

We have chosen to focus on cash held for the purpose of refinancing only because this cost tends to vary according to the size of the company. In contrast, we assume that the cash held for the purpose of day-to-day liquidity management carries a similar level of cost across different sizes of companies. Therefore, our estimate of the cost of carry does not cover all elements of cash carrying costs such as those included in Ofgem's own analysis on transaction costs for RIIO2.

5.1 Our Approach

Cost assumptions

We are focusing on how the cash carrying cost in relation to refinancing may differ between companies.. We understand from ENWL that when re-financing maturing existing bonds, companies have a number of options, with various degrees of availability and costs:[19]

- Pre-financing: this is the relatively straightforward option of issuing a new bond in advance of the maturity of the existing bond, which requires holding the cash on the balance sheet for a period of time; or
- Committed bank facility: this is a back-up facility that could be used in the event of capital market dislocation (e.g. credit crunch) where new debt cannot be issued. Companies with committed facilities can plan to issue debt much closer to the repayment date of maturing debt, largely avoiding pre-financing costs.

In the case of pre-financing, the company pays interest on both the bond that is maturing and on the new bond simultaneously. A small mitigating factor are interest receipts that a company generates on its cash holdings. For the small and large

[19] We understand from ENWL that another option called forward stating financing is sometimes also available in selected markets. But as these can be unreliable, we have discarded it from our analysis.

notional company, the analysis assumes an interest rate on cash holdings of 0.5%-2.5% (based on the P90 and P10 of the LIBID rate in the past five years).[20]

In the case of committed bank facility, the timing to issue new bonds can be postponed to coincide with the maturity date of the existing bond. A committed bank facility offers flexible financing that can be directly drawn from banks and the facility therefore credibly guarantees liquidity until the new bond has been issued. However, the size of a committed bank facility is typically limited, often in proportion to the size of the RAV.

Where refinancing is facilitated by committed bank facility, we consider related commitment fees in our transaction cost calculation. Commitment fees compensate banks for the commitment to lend and are payable independent of whether the facility is drawn or not. We note that in securing the liquidity requirements, we do not assume that the facility is actually drawn down, which would lead to additional costs such as interest costs and utilisation fees.

As there is limited public information on the pricing of committed facilities, our assumption on the commitment fee rate relies on conservative cost estimates provided by ENWL in respect of its Revolving Credit Facility (RCF). Based on this, we calculate the commitment fee rate as 25% of the interest margin (i.e. the increment over the LIBOR rate – assumed to be 35bps).[21] The commitment fee rate therefore is estimated to be approximately 9bps and will be applied to the size of the committed facility, which is assumed to be equal to the refinancing need in our analysis.

Cost of carry calculations

Figure 10 below shows the different scenarios in relation to the cost of carry.

Figure 10 Costs of cash carry by company size and financing profile

Company size	**Small**		**Large**
Financing profile	***Frequent***	***Infrequent***	***Frequent***
RAV [£]	1800m		7000m
Debt issuance [£]	108m	324m	420m
Bond / RAV	6%	18%	6%
Costs of cash carry [£]	**0.1m**	**5.4-6.5m**	**0.4m**

Source: Frontier analysis

As shown in the table above, a company of ENWL's size which issues debt annually would need each bond issuance to cover 6% of its RAV. This could be reasonably covered by committed facilities at a competitive price.

On the other hand, our notional small company with an infrequent financing profile would need a committed facility covering 18% of its RAV. We understand from ENWL, that an committed bank facility covering 18% of RAV would unlikely be available without incurring prohibitively high additional costs which would undermine the purpose of the committed back-up facility.

[20] The London Interbank Bid Rate (LIBID) is the rate at which banks rate at which a bank is willing to borrow from other banks. This is usually 12.5bps below the LIBOR, the banks' offer rate.

[21] This is conservative as we understand from ENWL that for companies with lower credit rating, the commitment fee can be as high as 50% of the interest margin.

We therefore assume that for the infrequent financing profile the notional small company needs to pre-finance by issuing a new bond at least 12 months ahead of the maturity date of the existing bond. Using our ranges for the debt interest rates and cash interest rates, the difference between the interest cost and interest income on the excess cash of £324m implies a cash carry cost in the range of £5.4m-6.5m.

In the two scenarios where the refinancing is facilitated by the committed facility (the small and large companies with frequent financing profiles), the commitment fees, which are calculated to be approximately 9 bps above, are accounted for in the cost of carry shown in Figure 10.

Conversion into annual interest terms

Similar to the issuance costs analysis, the next step is to convert these costs into annual interest rate terms. Again, our analysis considers the respective principal amount for each company, with a coupon rate of 2.51%-4.18% and time to maturity of 10 years for all firms. Using a similar principle, the annualised cash carry costs are calculated as the difference between an internal rate of return of the bond excluding the cash carry costs and including the cash carry costs in the cash flow of the bond (see Figure 11). For this illustration, we consider the scenario assuming the lowest 10th percentile returns for bonds and the lowest 10th percentile of LIBID rates.

Figure 11 Costs of cash carry for a notional small company issuing debt every three years (in £ million unless stated otherwise)

	IRR	Y0	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10
Proceeds		324										
Coupon			-8	-8	-8	-8	-8	-8	-8	-8	-8	-8
Principal												-324
Cashflow		324	-8	-8	-8	-8	-8	-8	-8	-8	-8	-332
IRR	2.51%											
Cash carrying costs		-7										
Cashflow incl. CC costs		317	-8	-8	-8	-8	-8	-8	-8	-8	-8	-332
IRR incl. transaction costs	2.74%											
Annualised issuance costs	**0.23%**											

Source: ENWL data, Frontier analysis

5.2 Results

As can be seen in Figure 12, the costs of cash carry for the small firms with an infrequent financing profile are estimated to be 21-23 bps, whilst the firms issuing debt annually incur very little costs of cash carry (only 1 bps due to facility commitment fees).

Figure 12 Overview of cash carry costs

Company size	Small		Large
Financing profile	*Frequent*	*Infrequent*	*Frequent*
Costs of cash carry	**1bps**	**21-23bps**	**1bps**

Source: Frontier Analysis

This is because firms who issue small amounts of debt in relation to their RAV could rely on committed facility to finance the maturing bond and such companies

would therefore be able to avoid having to issue a new bond 12 months in advance of an existing bond maturing.

6 TRANSACTION COST DIFFERENTIAL

6.1 Transaction cost by scenario

As shown in the previous three sections, the source and size of the transaction costs vary for each of the notional companies and financing profiles;

- For a notional large company these costs are more straight forward to calculate. It could issue bonds worth more than £250m every year and would incur some illiquidity costs, some issuance costs and no cash carrying costs for refinancing;
- A notional small company would be on either of two financing profiles. It would either issue debt annually and save on cash carry costs, or it would issue debt infrequently (such as every three years) and would therefore avoid high illiquidity costs and high issuance costs.

Figure 13 below summarises the results of our transaction cost analysis. Our results suggest that the large company incurs the lowest transaction costs whilst the small company, in either financing profile scenario, incurs higher transaction costs.

Figure 13 Overview of transaction costs by scenario

Company size	Small		Large
Financing profile	*Frequent*	*Infrequent*	*Frequent*
Key assumptions			
RAV [£]	1800m		7000m
Debt issuance [£]	108m	324m	420m
Issuing frequency	1y	3y	1y
Illiquidity costs	✓ 15bps	✓ 6bps	✓ 6bps
Issuance costs	✓ 15-18bps	✓ 7-8bps	✓ 6-7bps
Costs of Cash carry	✗ 1bps	✓ 21-23bps	✗ 1bps
Total transaction costs	**31-34bps**	**35-37bps**	**13-14bps**

Source: Frontier Analysis

In particular, our results show that a frequent financing profile for a small company can incur a similar level of transaction cost than an infrequent one, depending on the exact conditions. If one considered a company even smaller than ENWL's current size, it would be plausible to observe that frequent issuance being materially more costly than infrequent issuance.

In addition, we note that the quantitative analysis above does not take account of any opportunity cost of managerial and business resources spent on major financing events. A smaller company is likely to face a proportionately larger strain on its management resources than a larger company with a larger treasury function. This unmeasured opportunity cost can be significant and would further tilt

the total transaction cost comparison in favour of the infrequent financing profile for a smaller company.

As a conservative measure, we have chosen the financing profile that is the least costly to compare with the larger companies transaction costs. In reality, it is likely to be unfeasible for an infrequent issuer to suddenly switch to frequently issuing (e.g. the re-financing of an existing large bond cannot easily be done through a series of frequent but consecutive smaller issuances because there will be a shortage of cash to repay the maturing debt). In reality, there will be an element of path dependency in the financing profile of smaller companies. But we have not focused on that point in this study.

In conclusion, as our analysis has shown, the transaction costs differential between small and large companies can be significant. As shown in Figure 13 above, our results support an estimate of the differential in the range of 18-20 bps, (in terms of cost of debt), attributed to higher transaction costs.

6.2 Regulatory Precedent

This section highlights previous cases where allowances have been made in cost of debt calculations for illiquidity costs, issuance costs and for the cost of carrying excess cash. In addition, specific examples of company-specific small company premiums are also summarised.

Illiquidity Costs

During the GD17 price control review (2017 to 2023 regulatory period for gas distribution network operators) in Northern Ireland, The Utility Regulator provided Phoenix and firmus with a 40 bps uplift on the allowed cost of new debt attributable to illiquidity.[22] We note that the estimation of the illiquidity was made on the basis of higher yield to maturity of the relevant bonds than the benchmark rather than higher bid-ask spread.

Issuance costs

There is ample regulatory precedent on the inclusion of issuance costs within the cost of debt allowance.

In Ofwat's PR19 final decision on the allowed return on capital for 2020-25, it included an allowance of 6 bps in cost of debt calculations for issuance costs. In PR14, Ofwat allowed 10 bps in the cost of debt allowance for issuance fees. In both cases, the allowance was applied to all of Ofwat's regulated companies.[23]

In addition to the two cases above, the Utility Regulator in Northern Ireland has given company specific uplifts based on issuance costs in the past. In GD17 the Utility Regulator gave transaction cost allowances to Phoenix (40 bps on embedded debt, 30 basis points on new debt) and firmus (60 bps on all debt) in

[22] The Utility Regulator, Price Control for Northern Ireland's Gas Distribution Networks GD17 - Final Determination, September 2016

[23] Ofwat, PR19 Final Determinations – Allowed return on capital technical appendix, December 2019

addition to the allowances for illiquidity costs mentioned above. The Utility Regulator's report suggests that the transaction cost allowance was mainly due to costs associated with issuing debt.[24] In addition, in the 2017 price control for the transmission and distribution company, Northern Ireland Electricity Networks (NIEN), NIEN were allowed 20 bps on the cost of all debt to cover issuance costs and fees.[25]

Costs of Carrying Excess Cash

Costs of having excess cash have been previously highlighted as a potential source of uplift on the cost of debt allowance by Ofwat and the CMA.

In its PR19 final decision, Ofwat made an allowance of 4 basis points attributed to additional costs of cash carrying.

The CMA have also acknowledged that there are additional costs due to carrying excess cash. In the 2015 Bristol Water appeal of Ofwat's PR14 price determination, the CMA used a 20 bps estimate for cash carry costs when looking at the actual cost of debt of Bristol Water. The inclusion of this suggests that the CMA considered that additional costs for smaller firms due to carrying excess cash were important for cost of debt allowance.[26]

Small company premium

In the Ofwat PR19 final decision, Ofwat used notional companies to calculate a company-specific uplift.[27] In addition to the allowance given to all firms due to issuance costs and costs of carrying excess cash, Ofwat calculated that the appropriate overall uplift for a notional small company relative to its overall cost of debt allowance was 33 basis points on the overall cost of debt. This uplift was given to two small companies. This highlights a case when company-specific uplifts have been awarded.

Ofwat additionally allowed explicit small company premiums in PR09 and PR14. In the 2015 Bristol Water appeal of Ofwat's PR14 decisions, the CMA allowed a small company premium of 40 bps.[28]

Summary of precedent

As seen from the non-exhaustive list of examples above, there is regulatory precedent for the allowance of uplifts on the cost of debt for illiquidity costs, issuance costs and the cost of carrying excess cash. There is precedent for company-specific uplift attributed to small companies.

[24] The Utility Regulator, Price Control for Northern Ireland's Gas Distribution Networks GD17 - Final Determination, September 2016

[25] The Utility Regulator, Northern Ireland Electricity Networks Ltd - Transmission & Distribution 6th Price Control (RP6) – Final Determination, June 2017

[26] CMA, Bristol Water plc: A reference under section 12(3)(a) of the Water Industry Act 1991 - Appendices 5.1 – 11.1 and glossary, October 2015

[27] Ofwat, PR19 Final Determinations – Allowed return on capital technical appendix, December 2019

[28] CMA, Bristol Water plc: A reference under section 12(3)(a) of the Water Industry Act 1991 – Report, October 2015

6.3 Conclusion

In conclusion, we find that regardless of financing profile, a smaller company like ENWL would incur higher transaction costs on debt financing than a large company. This additional cost is structural and cannot be fully mitigated.

The difference between the transaction costs of a large company issuing debt frequently and the most cost effective way of financing strategy that a notional small company can choose is proven to be material and significant. More specifically, we find a smaller company with size similar to that of ENWL would incur additional transaction costs of 18-20 bps on the cost of debt, in addition to interest cost.

We consider that there is reasonable justification for the regulator to make an explicit additional allowance over the sector debt allowance in the range of 18-20 bps for smaller companies, to contribute to the premium they face on smaller and/or more infrequent debt issuances.

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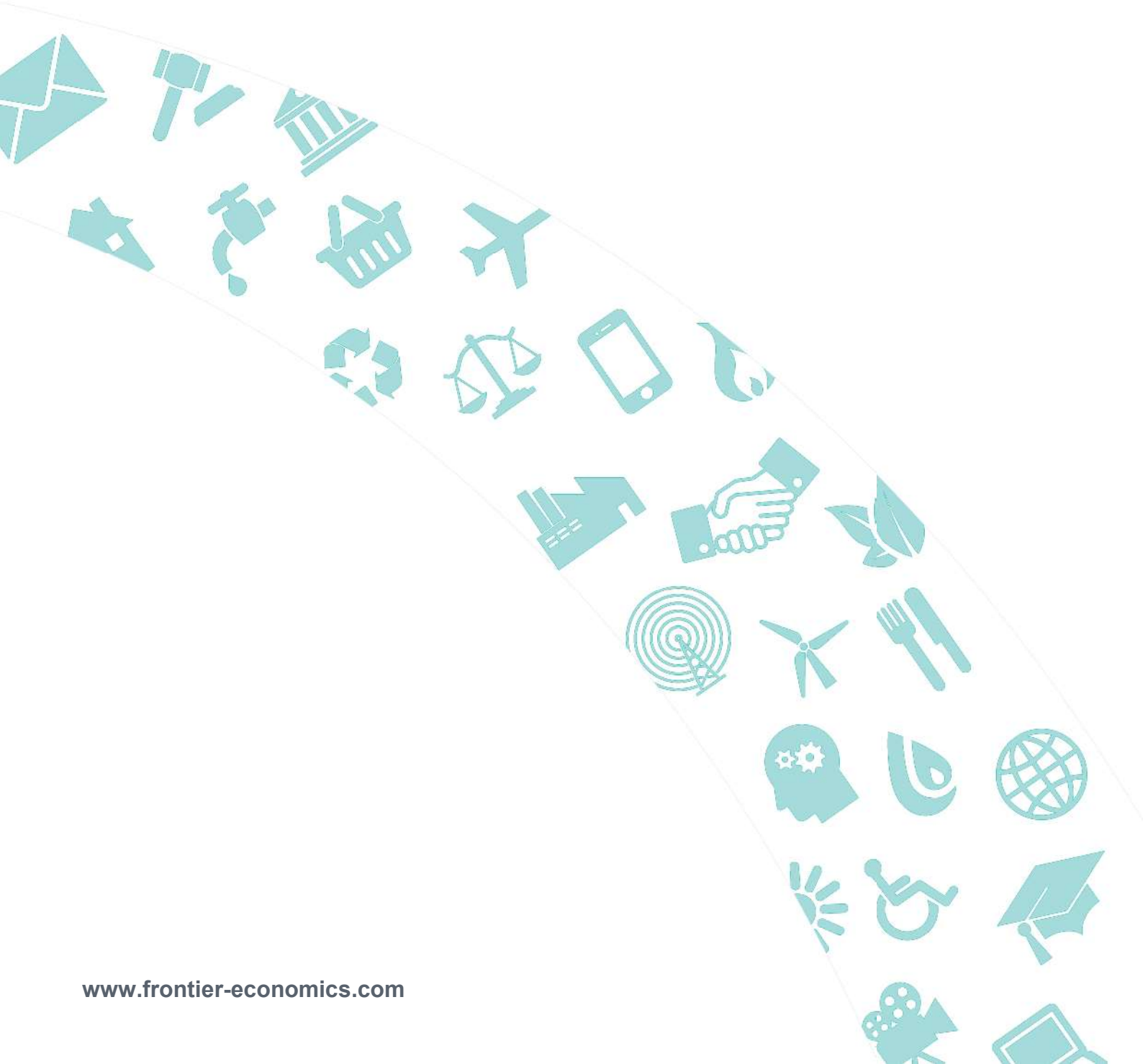

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