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Ontario Energy Board Cost of Capital – Review of recent macroeconomic developments

prepared for the Ontario Energy Board by London Economics International LLC

July 23rd, 2020

London Economics International LLC ("LEI") was retained by the Ontario Energy Board ("OEB") to monitor recent macroeconomic conditions to ensure the cost of capital parameters for 2020 rates (issued by the OEB on October 31st, 2019) reflect current outlooks. As part of this quarterly review, for illustrative purposes, LEI calculated the return on equity ("ROE"), deemed long-term debt rate ("DLTDR"), and deemed short-term debt rate ("DSTDR") using data as of June 30th, 2020. This resulted in a ROE of 8.44%, with deemed long-term and short-term debt rates of 3.05% and 1.22% respectively. These values are down from LEI's previous briefing note, where using data as of March 31st, 2020, the parameters were estimated at 8.53% (ROE), 3.23% (DLTDR), and 2.18% (DSTDR) respectively. Notably, the 96-basis point decline in the DSTDR can be attributed to a drop in the banker's acceptance ("BA") rates throughout the second quarter.

Overall, macroeconomic conditions have continued to deteriorate since the last quarterly update as a result of the global COVID-19 pandemic. It is notable that recently published forecasts suggest the economy should begin recovering in the second half of 2020. As is discussed in this briefing note, the second quarter of 2020 was characterized by declines in economic activity due to lockdown restrictions implemented by several governments across the world, followed by an uptick in activity due to reopening efforts towards the tail end of the quarter. In line with LEI's previous update, we continue to provide special analysis focused on the extraordinary circumstances arising due to COVID-19.

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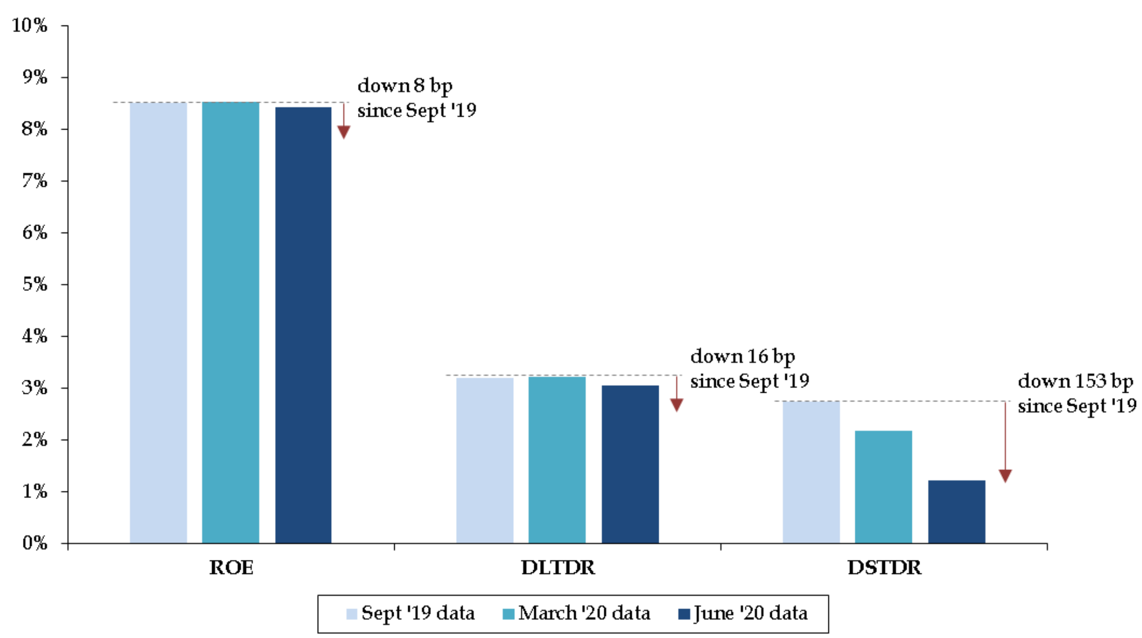
1 Executive summary

This quarterly report will update the Ontario Energy Board ("OEB") on recent macroeconomic trends on a global, North American, and provincial scale since its publication of the 2020 cost of capital parameters (released on October 31st, 2019). Specifically, this report outlines:

- the continued downward revision of projections for global growth, in the midst of weak private consumption and investment by firms, as well as widespread global uncertainty;
- the reopening efforts taking place across Canada, the continuation of government support programs, and the enhanced scale of asset purchases conducted by the Bank of Canada, which together seek to aid the nation's economic recovery; and
- the outlook for Ontario's economy and uncertainty surrounding the province's projected pace of recovery, given the provincial government's 'go-slow' approach to reopening.

In addition to the review of current macroeconomic developments, LEI has cross-checked the cost of capital parameters with data as of June 30th, 2020, where possible. The results of this exercise are summarized in Figure 1 and Figure 2 below, which compare the parameter values using June 2020 data to those calculated in previous quarterly updates (using September 2019 and March 2020 data respectively).

Figure 1. Summary of cost of capital parameters using data as of June 30th, 2020



Source: LEI analysis.

The cost of capital parameters calculated using data as of June 30th, 2020 have deteriorated since the last quarterly update, when the impacts of the global COVID-19 pandemic were first becoming apparent in short-term outlooks for the global economy. Using June 2020 data, the return on equity ("ROE") has declined to 8.44% (down from 8.52% published in the OEB's 2020 cost of capital update), the deemed long-term debt rate ("DLTDR") is down to 3.05% (from 3.21% in the OEB publication), and the deemed short-term debt rate ("DSTDR") has fallen to 1.22% (down from 2.75%).

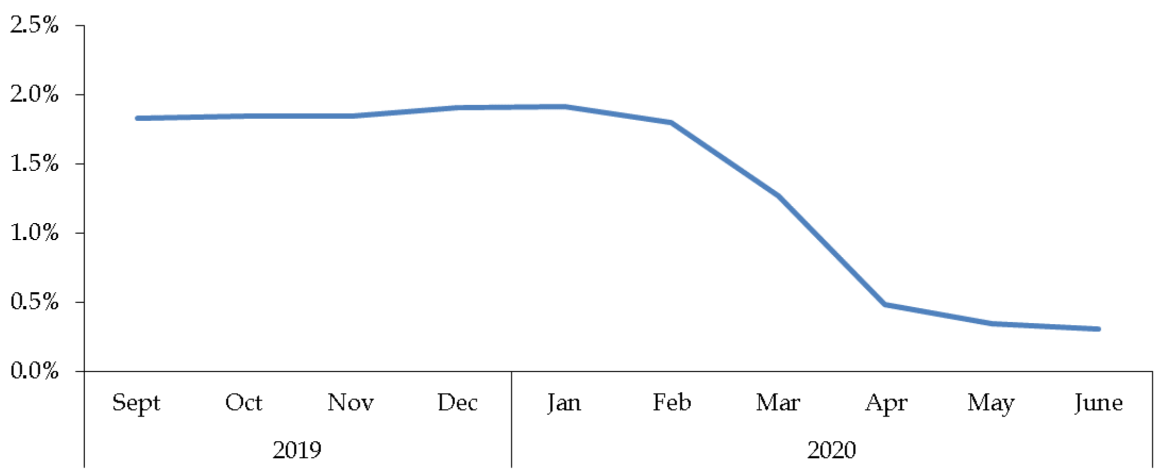
Figure 2. Comparison of cost of capital parameters to previous updates

Cost of capital parameter	Value based on September 2019 data	Value based on March 2020 data	Value based on June 2020 data	Difference (since March 2020)	Difference (since September 2019)
Return on equity	8.52%	8.53%	**8.44%**	-0.09%	-0.08%
Deemed long-term debt rate	3.21%	3.23%	**3.05%**	-0.18%	-0.16%
Deemed short-term debt rate	2.75%	2.18%	**1.22%**	-0.96%	-1.53%

Source: LEI analysis.

Given the relative movements in all three cost of capital parameters, the decline in the DSTDR in the second quarter of 2020 can be considered to be material. The significant change in the DSTDR reflects the continued downward trend in banker's acceptance ("BA") rates, which decreased to an average of 0.31% in the month of June, down from 1.27% in March 2020 and 1.83% in September 2019, as depicted in Figure 3. This decline is consistent with movements in the cost of capital parameters from the previous quarterly update, where the uncertainty surrounding, and impact of, the global COVID-19 pandemic has become most apparent in near-term metrics.

Figure 3. Average of 3-month BA rate, 2019 Q3 – 2020 Q2



Source: Investment Industry Regulatory Organization of Canada. *Canadian Bankers' Acceptance (BA) Rates – 3 Month Rates.*

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2 Recap and recent macroeconomic developments

In this section, LEI briefly summarizes its previous briefing note, and describes recent macroeconomic developments since the publication of the OEB's Letter from the Board outlining the 2020 cost of capital parameters, released on October 31st, 2019.

2.1 Q1 2020 recap

In our third briefing note to the OEB, submitted on April 24th, 2020, we observed the beginning of the deterioration of macroeconomic conditions and economic recession resulting from the global COVID-19 pandemic. In the first quarter of 2020, the macroeconomic conditions were characterized by two distinct periods: (i) the first was the decline of crude prices[1] and the continuation of persistent trade tensions seen in January and February; and (ii) the second was the beginning of the Great Lockdown (as termed by the International Monetary Fund ("IMF")) in March, where economies shuttered to curb the spread of the coronavirus.[2] In Canada, the combined factors of declining crude oil prices, economic disruptions from rail blockades, and the economic impact from measures taken to curb the spread of COVID-19 led to revised growth expectations of negative 3.9% for 2020.[3]

With these factors hanging over the global, Canadian and Ontario economies, we observed that the cost of capital parameters remained relatively steady, with the calculated ROE increasing slightly to 8.53% and DLTDR to 3.23%, relative to September 2019 rates. The DSTDR declined by 60 basis points relative to the September 2019 update to 2.18%, driven by falling BA rates. Conversely, the small changes in the ROE and DLTDR were driven by the widening of the spreads between the 10-year and 30-year bond yields and the A-rated utility bond yield spread. LEI determined that overall, while these changes were material, it would remain to be seen whether low rates seen in response to the pandemic were actionable, and whether lenders would be willing to extend credit in significant volumes under an uncertain climate.

2.2 Recent macroeconomic developments

As most of the world's economies continued to grapple with the public health crisis caused by the COVID-19 pandemic, the second quarter of 2020 witnessed historic declines in production and output across several sectors of the global economy as multiple industries ground to a halt. Since LEI's third briefing note, virtually all advanced and most developing economies across the world have likely entered into technical recession. Specifically, the months of April and May in particular were marked by aggressive shutdown measures in several jurisdictions attempting to curb the spread of COVID-19, while in the month of June, the success of these measures led to a relaxing of some restrictions. The impact of these economic forces is summarized in Figure 4 below.

[1] Thomson Reuters. *Europe Brent Spot Price.* Accessed on April 20, 2020.

[2] International Monetary Fund. *World Economic Outlook, April 2020: Chapter 1: The Great Lockdown.* April 2020.

[3] Consensus Forecasts. *Surveys of International Forecasts*. April 6, 2020. p. 16.

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Figure 4. Summary of macroeconomic outlooks for 2020

Region	Growth trend relative to previous briefing note	Interest rate trends relative to previous briefing note	Key factors
Global	Trough presumably reached	Steady	• Widespread economic decline due to containment measures, weak private consumption and reduced investment by firms • Recovery anticipated to begin in the second half of 2020 assuming there is limited acceleration in the spread of COVID-19, although the timeline for recovery is still uncertain
Canada	Trough presumably reached	Steady	• Gradual reopening across the country • Continuation of government support programs and enhanced asset purchases by the Bank of Canada have kept interest rates low and improved credit access
Ontario	Trough presumably reached	n/a	• Ontario's 'go-slow' approach to reopening relative to other provinces expected to drag on recovery • Economic decline due primarily to lockdown, permanent business closures, and supply chain constraints

Sources: International Monetary Fund, Consensus Forecasts, Bank of Canada, RBC, TD, CIBC.

2.2.1 Special analysis: assessing the ongoing economic impact of COVID-19

Throughout the second quarter of 2020, the spread of COVID-19 increased across several countries and has fundamentally changed the landscape of the global economy for 2020. Indeed, the months of the second quarter were particularly acute as infection rates soared and threatened to overwhelm healthcare systems in advanced economies. As of June 30th, 2020, there were just over 10.2 million confirmed cases, and tragically, nearly 504,000 confirmed deaths.[4] As observed in LEI's previous update, there are no known cures and vaccines at this time, meaning that the best tools to limit the spread of the coronavirus during an outbreak involves quarantine and physical distancing measures.[5] A number of economies have begun to witness the success of these measures with declining infection rates, and as of June 30th, 2020, most advanced economies have begun to lift restrictions on daily life. However, despite the lifting of restrictions, mobility and economic activity remain depressed relative to their pre-pandemic levels.[6]

The economic crisis resulting from the pandemic remains acute and the scale of the damage to the global economy has been severe. In June, the IMF updated its global growth forecast for 2020 and ***further revised downwards*** its previous April 2020 forecast to ***negative 4.9%*** from negative 3%.[7] For advanced economies, the declines are even more severe, with output in these economies forecast to decline by ***8%*** in 2020 – a sharper fall than the 6.1% predicted in the IMF's April 2020 forecast. The IMF observes that the projections have a greater degree of uncertainty than usual as

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[4] World Health Organization website. *Novel Coronavirus 2019.* <https://www.who.int/emergencies/diseases/novel-coronavirus-2019>

[5] Ibid.

[6] International Monetary Fund. *World Economic Outlook Update: A Crisis Like No Other, An Uncertain Recovery.* June 2020.

[7] Ibid.

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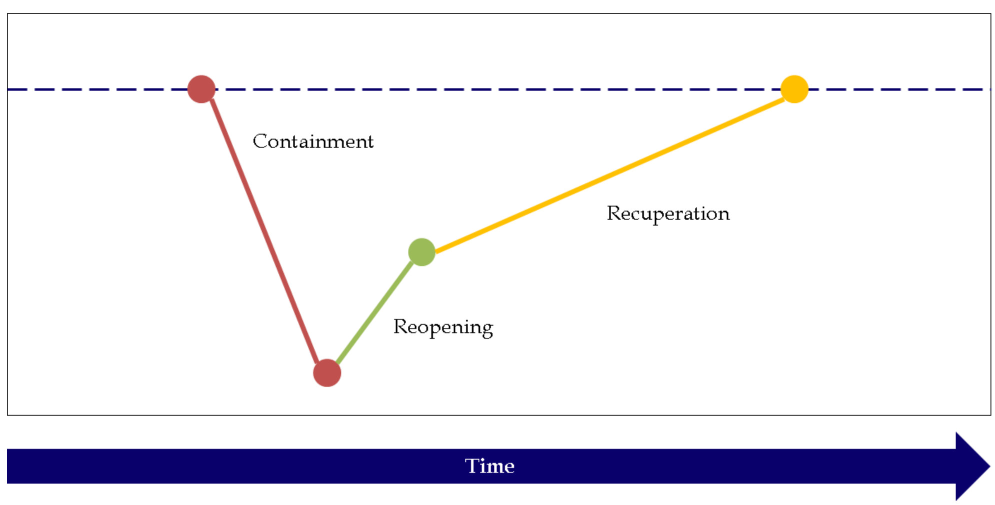
they hinge on key assumptions from the fallout of the pandemic.[8] This observation is consistent with other economic forecasters, such as the Organisation for Economic Co-operation and Development ("OECD"), which notes that the path to recovery "remains highly uncertain and vulnerable to a second wave of infections."[9]

In response to the economic and public health crisis, governments and central banks have taken several aggressive fiscal and monetary measures to limit the damaging impact on their economies. In subsequent sections, we will discuss a few of these extraordinary measures, and survey a number of metrics that illustrate the impact of the Great Lockdown.

2.2.2 Global and North American outlook update for 2020

Generally, the stages of recovery for the global economy are anticipated to follow the path illustrated in Figure 5. Essentially, the first stage, as witnessed during the tail end of Q1 and much of Q2, was characterized by the widespread implementation of containment and lockdown measures, which brought with them a steep decline in economic activity. The second stage entails reopening efforts, which characterized the latter portion of Q2, and is associated with an uptick in economic activity as businesses reopen and adapt to a new normal. The third stage involves a prolonged recuperation phase, which is anticipated to begin in the second half of 2020, where economies begin to recover from the negative impacts of the COVID-19 pandemic. Significant uncertainty surrounds the length of this final recuperation phase, where recovery is bound to be uneven across countries.[10]

Figure 5. Anticipated stages of recovery



Source: Bank of Canada. *Monetary Policy Report.* July 2020.

[8] Ibid.

[9] Organisation for Economic Co-operation and Development. *OECD Economic Outlook, Volume 2020 Issue 1.* June 2020.

[10] Bank of Canada. *Monetary Policy Report.* July 2020.

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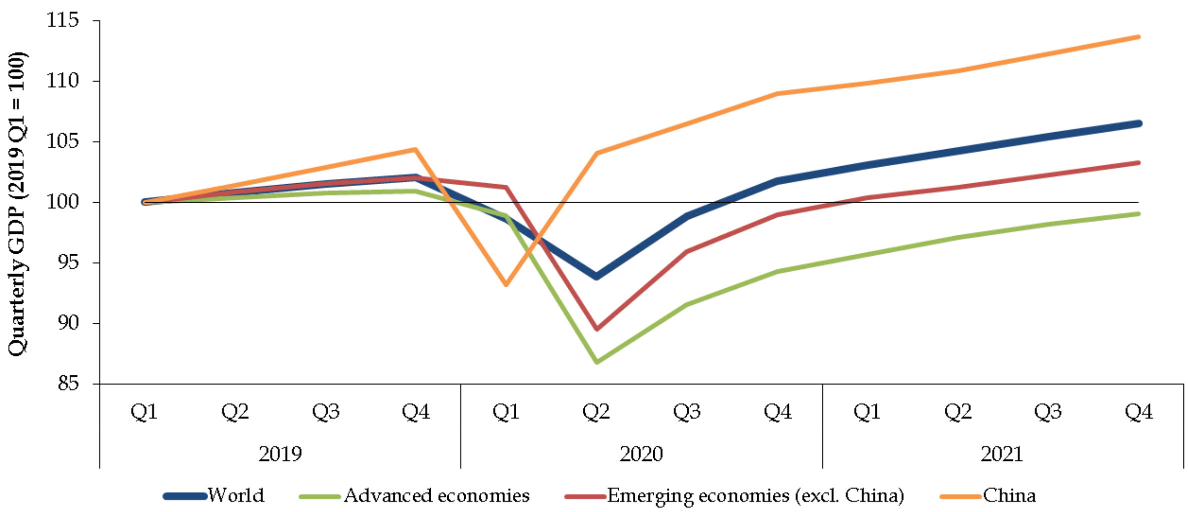
These phases are consistent with projections for global GDP growth through 2021. Figure 6 presents one such projection, from the IMF's most recent World Economic Outlook (published in June 2020), where global growth is anticipated to contract by 4.9% in 2020. Therein, the IMF contends that "*the COVID-19 pandemic has had a more negative impact on activity in the first half of 2020 than anticipated, and the recovery is projected to be more gradual than previously forecast*."[11] Notably, as a result of this prolonged recovery period, advanced economies are not expected to exceed their pre-pandemic levels of economic output until 2022 at the earliest (see green line in Figure 6).

Figure 6. Historical and anticipated quarterly world GDP, 2019 Q1 – 2021 Q4



Source: International Monetary Fund. *World Economic Outlook Update: A Crisis Like No Other, An Uncertain Recovery*. June 2020.

The sharp downturn in economic activity in the second quarter of 2020 can be attributed to multiple factors: weak consumption growth as a result of steep income losses and falling consumer confidence; reduced investment by firms due to declines in demand, supply chain interruptions, and elevated uncertainty surrounding future earnings; and continued tensions between the US and China as reported throughout our previous briefing notes.[12]

> *"Global trade will suffer a deep contraction this year of -11.9%, reflecting considerably weaker demand for goods and services, including tourism."*
>
> Source: International Monetary Fund. *World Economic Outlook Update*. June 2020.

[11] International Monetary Fund. *World Economic Outlook Update: A Crisis Like No Other, An Uncertain Recovery*. June 2020.

[12] Ibid.

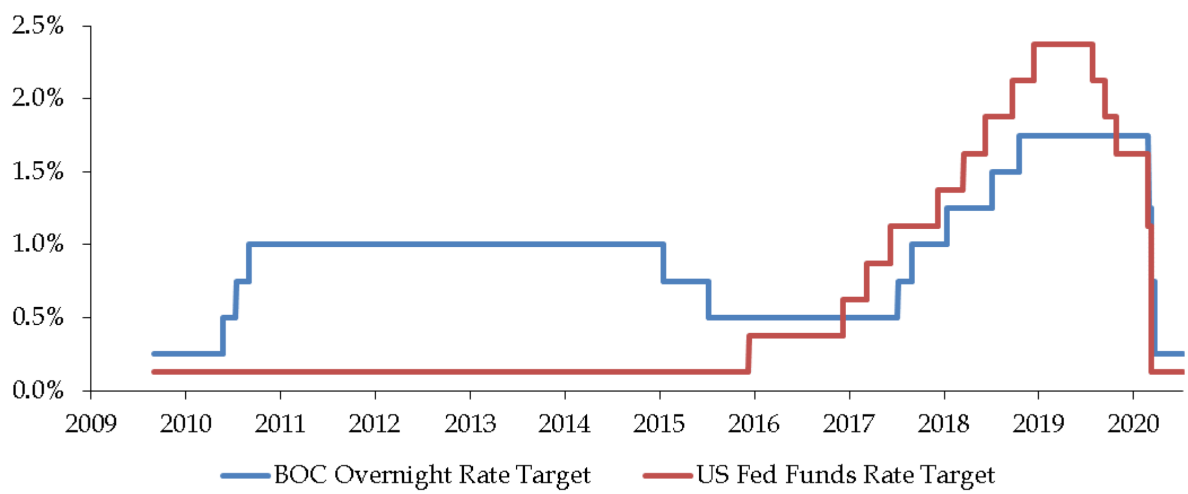
2.2.3 Canadian outlook update for 2020

The outlook for the Canadian economy follows a similar trajectory as that predicted by the IMF for advanced economies (again, see green line in Figure 6). According to Consensus Forecasts, which surveys over 250 respondents, financial and economic forecasters anticipate that Canadian GDP will contract by 6.6% in 2020, before rebounding partially by 5.1% in 2021.[13] Data released by Statistics Canada shows this contraction was largely driven by a significant and steep decline in the beginning of the second quarter of 2020, aligning with the timing of lockdown measures, where GDP data from April showed *"all 20 industrial sectors of the Canadian economy were down, producing the largest monthly decline since the series started in 1961."*[14]

> *"With economic activity in the second quarter estimated to have been 15% below its level at the end of 2019, this is the deepest decline in economic activity since the Great Depression."*
>
> Source: Bank of Canada. *Bank of Canada will maintain current level of policy rate until inflation objective is achieved, continues program of quantitative easing.* July 15, 2020.

Analysis from the Bank of Canada predicts that "roughly 40% of the collapse in the first half of the year [will be] made up in the third quarter."[15] In an effort to cushion the economic impact from the pandemic and aid this economic recovery, the Bank of Canada has maintained low interest rates through the second quarter, as illustrated in Figure 7.

Figure 7. Comparison of Canadian and US interest rates, 2009 Q4 - 2020 Q2



Note: The US Fed Funds Rate Target is taken as the midpoint of the target range.
Sources: Bank of Canada; US Federal Reserve Economic Data ("FRED").

[13] Consensus Forecasts. *Surveys of International Economic Forecasts – G-7 & Western Europe.* Survey Date June 8, 2020.

[14] Statistics Canada. *Gross domestic product by industry, April 2020.* June 30, 2020.

[15] Bank of Canada. *Bank of Canada will maintain current level of policy rate until inflation objective is achieved, continues program of quantitative easing.* July 15, 2020.

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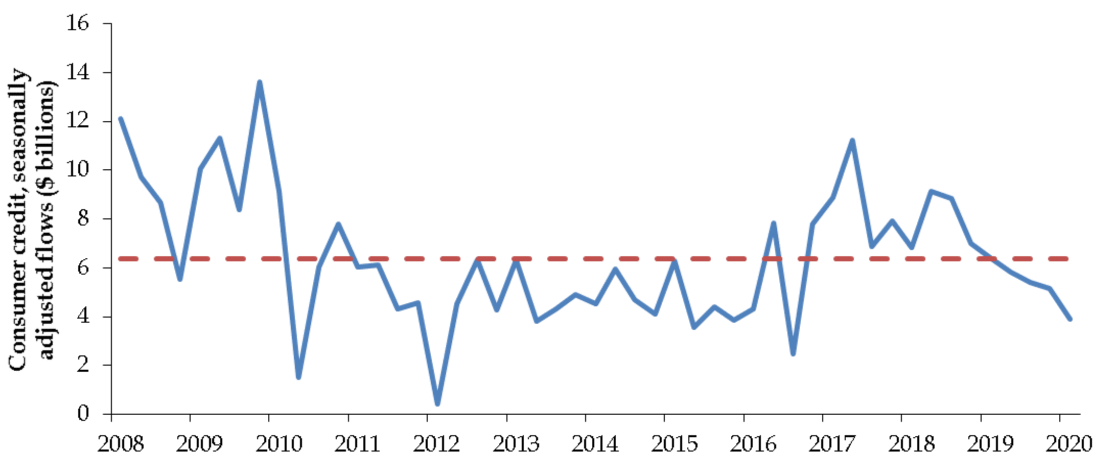
Following the three Bank of Canada rate announcements covered in our previous briefing note, which saw a 150-basis point reduction in the overnight rate over the month of March, the Bank has maintained its target for the overnight rate at 0.25% for the second quarter.[16] The Bank also implemented additional support measures during this period to enhance credit access and availability. These measures involve scaled up "asset purchases in core funding markets amounting to around $200 billion," including Government of Canada securities, provincial bonds, as well as investment-grade corporate bonds.[17]

To provide further context to the macroeconomic outlook in Canada, LEI has also tracked movements in consumer credit levels and business confidence, as reported by Statistics Canada and the Bank of Canada, respectively.

Notably, Statistics Canada's reporting of consumer credit levels is lagged, as the most recent release only provides data for the first quarter of 2020. Nonetheless, we report the results of this release here, as it provides context for market conditions since the onset of the COVID-19 pandemic. In the first quarter of 2020, consumer credit declined to $3.9 billion, down from $5.2 billion at the end of 2019 and 40% below the average consumer credit levels seen over the 2008-2019 period.[18] These movements are shown in Figure 8 below.

Figure 8. Consumer credit, 2008 Q1 – 2020 Q1



Note: The latest consumer credit data was most recently published in June 2020 for 2020 Q1. Data for the second quarter is not yet available.

Source: Statistics Canada. *CANSIM Table 38-10-0238-01.* Accessed July 15, 2020.

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[16] *See announcements dated April 15th, June 3rd, and July 15th:* Bank of Canada. *Bank of Canada maintains overnight rate target and unveils new market operations.* April 15, 2020; Bank of Canada. *Bank of Canada maintains target for the overnight rate, scales back some market operations as financial conditions improve.* June 3, 2020; Bank of Canada. *Bank of Canada will maintain current level of policy rate until inflation objective is achieved, continues program of quantitative easing.* July 15, 2020.

[17] Bank of Canada. *Bank of Canada maintains overnight rate target and unveils new market operations.* April 15, 2020.

[18] Statistics Canada. *National balance sheet and financial flow accounts, first quarter 2020.* June 12, 2020.

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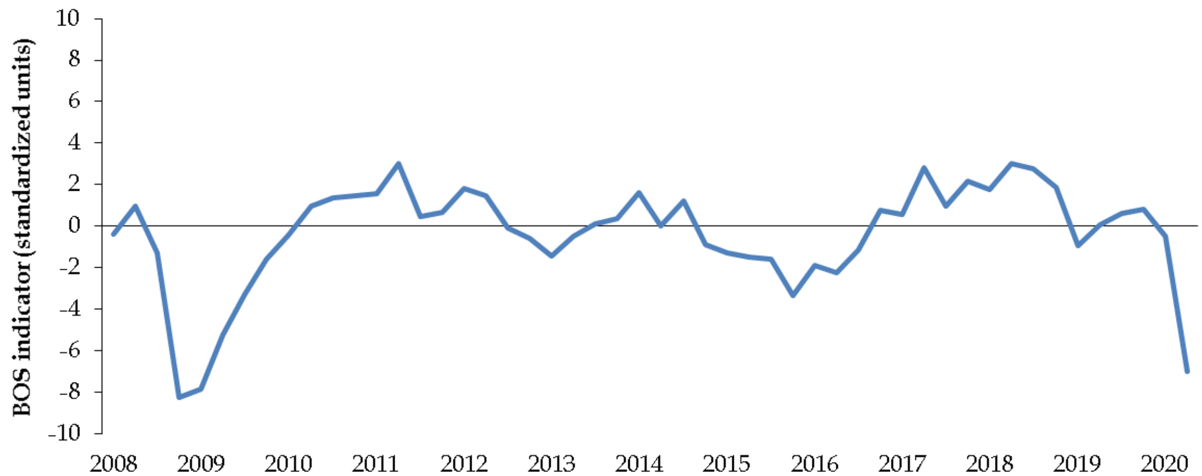
As for business confidence, LEI analyzed the results of the Bank of Canada's Business Outlook Survey ("BOS") for the Summer 2020 period, along with historical movements in the survey's main indicator, the BOS indicator, as depicted in Figure 9.[19] It is important to note that the survey was conducted from mid-May to early June, and as such only captures sentiments during the early phases of easing lockdown measures.

Figure 9. Business confidence, 2008 Q1 – 2020 Q2



Note: The BOS indicator is above zero when business confidence is above its historical average.

Source: Bank of Canada. *Business Outlook Survey – Summer 2020.* July 6, 2020.

The Summer 2020 Survey shows business confidence dropping to levels not seen since the 2008 financial crisis, where "weakness is most prevalent among firms in tourism-dependent, finance and real estate industries as well as those linked to commodities, particularly energy."[20] This steep downward trend has been driven by weak domestic and foreign demand, muted hiring plans, intentions to cut investment spending, and elevated uncertainty, and is only offset slightly by government programs, Bank of Canada facilities, and loan payment deferrals that have helped to ease credit conditions.[21]

[19] The BOS is a quarterly survey summarizing the interviews conducted by the Bank's regional offices with the senior management of about 100 firms selected in accordance with the composition of the gross domestic product of Canada's business sector. The Summer 2020 survey was conducted from May 12th to June 5th, 2020. The BOS indicator is a summary measure that captures common movements from the main BOS questions and is above zero when business confidence is above its historical average. (Source: Bank of Canada)

[20] Bank of Canada. *Business Outlook Survey – Summer 2020.* July 6, 2020.

[21] Ibid.

2.2.4 Ontario outlook update for 2020

> *"Economic activity was so severely repressed at the height of COVID-19 lockdowns that provinces which got an earlier start in reopening will garner a non-trivial advantage in 2020 output overall."*
>
> Source: CIBC Economics. *Provincial Outlook: Who Fell Harder, Who's Faster Off the Starting Line.* June 24, 2020.

Most recent growth forecasts for Ontario predict that GDP will contract by 6.5% in 2020, followed by a rebound of 5.1% in 2021.[22] Provinces are anticipated to begin recovering from the economic impacts of the COVID-19 pandemic in the third quarter of 2020, although Ontario's rebound is projected to lag other provinces given its 'go-slow' approach to reopening.[23]

Economic recovery will largely be challenged by voluntary physical distancing, weak global demand, and continued supply chain constraints.[24] These factors will impact auto and manufacturing sectors in particular, which are especially important to the Ontario economy. Export demand with the US continues to be under strain, as some states have had to pull back their reopening efforts amid rising cases of COVID-19, which provides the potential for further disruption for Ontario manufacturing plants.[25] The province's tourism industry has also been severely impacted by the pandemic and lockdown measures. Risks to the survival of many tourism businesses include reduced operating capacity and revenues, additional costs stemming from the need for personal protective equipment ("PPE") and new safety infrastructure, as well as uncertainty in the timing of the return of international visitors.[26]

The risk factors facing these industries are being counteracted at least in part by substantial government support from the province, which has committed to providing support amounting to approximately 3% of GDP.[27] As such, although forecasts have deteriorated further since our last briefing note, we anticipate recovery beginning in the second half of the year, consistent with numerous projections.

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[22] Taken as the average of forecasts published by CIBC, RBC, and TD. *See* CIBC Economics. *Provincial Outlook: Who Fell Harder, Who's Faster Off the Starting Line.* June 24, 2020; RBC Economics. *Reopening of provincial economies: different speed, scale and outcomes.* June 10, 2020; TD Economics. *Provincial Economic Forecast: Economies Turning the Corner But a Tough Road Lies Ahead.* June 17, 2020.

[23] TD Economics. *Provincial Economic Forecast: Economies Turning the Corner But a Tough Road Lies Ahead.* June 17, 2020.

[24] Ibid.

[25] CIBC Economics. *Provincial Outlook: Who Fell Harder, Who's Faster Off the Starting Line.* June 24, 2020.

[26] Tourism Industry Association of Ontario. *TIAO Provincial Survey #6 Report.* June 25, 2020.

[27] TD Economics. *Provincial Economic Forecast: Economies Turning the Corner But a Tough Road Lies Ahead.* June 17, 2020.

3 Cost of capital parameters – Q2 2020 update

The OEB conducts its annual cost of capital parameter update using data as of September 30th of that year, with rates becoming effective on January 1st of the following year. As part of this quarterly review, LEI has conducted an internal update of the cost of capital parameters using data as of June 30th, 2020, where possible.

As the global pandemic craters output and economic growth has declined, measures taken by governments and central banks has cemented the low interest rate environment, and in turn all three cost of capital parameters have declined relative to September 2019. This is consistent with the recent macroeconomic trends discussed in Section 2.2 above, but it remains to be seen whether further declines beyond the levels observed in Q2 will be observed in the future.

In addition, we note that there are utility-specific risk factors that are associated with the COVID-19 pandemic that will be pertinent. For instance, there is the potential increase in bad debt,[28] increased uncertainty over load,[29] and requirements for physical distancing of operations and maintenance crews[30] which may all influence investor perception of utilities. However, provided utilities are allowed to recover these costs in full from ratepayers, this may note impact their cost of capital in theory.

3.1 Return on equity

The ROE is the allowed return on shareholders' invested capital that is comparable to the return that investors would expect to earn from other investments with similar levels of business risk. Using data as of June 30th, 2020 from the Bank of Canada, Consensus Economics, and Bloomberg, LEI calculated the ROE as **8.44%**, down eight (8) basis points from the published 2020 cost of capital parameter update. See Appendix A for a detailed illustration of this calculation.

3.2 Deemed long-term debt rate

The DLTDR reflects the interest rate that would be charged to an A-rated commercial business customer for a long-term (30-year) commercial loan. Following LEI's internal update of the OEB's cost of capital parameter calculations, the deemed long-term debt rate was determined to be **3.05%**, down 16 basis points compared to the 2020 cost of capital parameters. See Appendix A for a detailed illustration of this calculation.

3.3 Deemed short-term debt rate

Finally, the DSTDR reflects the interest rate that would be charged to an A-rated commercial business customer for a short-term (3-month) loan by a commercial bank. Note that the DSTDR calculation incorporates the results of a confidential survey of prime Canadian banks, conducted

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[28] Bank of Canada. *Monetary Policy Report.* July 2020

[29] US Congressional Research Service. *COVID-19: Potential Impacts on the Electric Power Sector.* June 12, 2020.

[30] Ibid.

by OEB Staff, whereby estimates for the spread of short-term debt issuances over Bankers' Acceptance ("BA") rates are provided. As this confidential survey is conducted once annually, LEI utilized the data from the September 2019 survey for its internal update.

The calculated deemed short-term debt rate is **1.22%**, down 153 basis points from the previous update. See Appendix A for a detailed illustration of this calculation.

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4 Appendix A: Cost of capital parameter calculations

Figure 10. ROE and DLTDR calculation

Cost of Capital Parameter Calculations (For rate changes effective in 2020)

Step 1: Analysis of Business Day Information in the Month

Month: June 2020

	Day	Bond Yields %			Bond Yield Spreads %	
		Govt. of Canada		A-rated Utility	30-yr. Govt. over 10-yr Govt.	30-yr. Util. over 30-yr Govt.
		10-yr	30-yr	30-yr		
1	1-Jun-20	0.53	1.12	2.90	0.59	1.78
2	2-Jun-20	0.54	1.13	2.85	0.59	1.72
3	3-Jun-20	0.62	1.21	2.81	0.59	1.60
4	4-Jun-20	0.67	1.26	2.82	0.59	1.56
5	5-Jun-20	0.73	1.31	2.84	0.58	1.53
6	6-Jun-20					
7	7-Jun-20					
8	8-Jun-20	0.68	1.26	2.86	0.58	1.60
9	9-Jun-20	0.64	1.20	2.79	0.56	1.59
10	10-Jun-20	0.57	1.12	2.75	0.55	1.63
11	11-Jun-20	0.52	1.06	2.69	0.54	1.63
12	12-Jun-20	0.53	1.06	2.73	0.53	1.67
13	13-Jun-20					
14	14-Jun-20					
15	15-Jun-20	0.51	1.01	2.73	0.50	1.72
16	16-Jun-20	0.55	1.06	2.66	0.51	1.60
17	17-Jun-20	0.53	1.03	2.66	0.50	1.63
18	18-Jun-20	0.52	1.00	2.63	0.48	1.63
19	19-Jun-20	0.53	1.00	2.61	0.47	1.61
20	20-Jun-20					
21	21-Jun-20					
22	22-Jun-20	0.54	0.99	2.61	0.45	1.62
23	23-Jun-20	0.54	1.01	2.61	0.47	1.60
24	24-Jun-20	0.54	1.02	2.63	0.48	1.61
25	25-Jun-20	0.52	1.01	2.62	0.49	1.61
26	26-Jun-20	0.51	0.99	2.59	0.48	1.60
27	27-Jun-20					
28	28-Jun-20					
29	29-Jun-20	0.51	0.98	2.59	0.47	1.61
30	30-Jun-20	0.52	0.99	2.58	0.47	1.59
		0.56	**1.08**	**2.71**	**0.52**	**1.62**
	Sources:	Bank of Canada		Bloomberg		

Step 2: 10-Year Government of Canada Bond Yield Forecast

Source: Consensus Forecasts   Survey Date: June 8, 2020

	3-month	12-month	Average	
June 2020	0.800	1.000	**0.900**	%

Step 3: Long Canada Bond Forecast

10-yr Govt. of Canada Bond Forecast (from Step 2)	0.900	%
Actual Spread of 30-year over 10-year Government of Canada Bond Yield (from Step 1)	0.521	%
Long Canada Bond Forecast (LCBF)	**1.421**	%

Step 4: Return on Equity (ROE) Forecast

Initial ROE			9.75	%
Change in Long Canada Bond Yield Forecast from September 2009				
LCBF (June 2020) (from Step 3)	1.421	%		
Base LCBF	4.250	%		
Difference	-2.829	%		
0.5 x Difference			-1.414	%
Change in A-rated Utility Bond Yield Spread from September 2009				
A-rated Utility Bond Yield Spread (June 2020) (from Step 1)	1.624	%		
Base A-rates Utility Bond Spread	1.415	%		
Difference	0.209	%		
0.5 x Difference			0.105	%
Return on Equity based on June 2020 data			**8.44**	%

Step 5: Deemed Long Term Debt Rate Forecast

Long Canada Bond Forecast for June 2020 (from Step 3)	1.421	%
A-rated Utility Bond Yield Spread June 2020 (from Step 1)	1.624	%
Deemed Long-term Debt Rate based on June 2020 data	**3.05**	%

Source: OEB. "Cost of Capital Parameter Updates." <https://www.oeb.ca/industry/rules-codes-and-requirements/cost-capital-parameter-updates>

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Figure 11. DSTDR calculation

Cost of Capital Parameter Calculations (For rate changes effective in 2020)

Step 1: Average annual spread over Banker's Acceptance

A.	Average Spread over 90-day Bankers Acceptance		Date of input
Bank 1	80	bps	Sept., 2019
Bank 2	100	bps	Sept., 2019
Bank 3	82.5	bps	Sept., 2019
Bank 4	100	bps	Sept., 2019
Bank 5		bps	
Bank 6		bps	

B.	Discard high and low estimates If less than 4 estimates, take average without discarding high and low.	
Number of estimates	4	
High estimate	100	bps
Low estimate	80	bps

C.		
Average annual spread	91.25	bps

Step 2: Average 3-month Banker's Acceptance Rate

	Month:	June 2020
	Day	Bankers' Acceptance Rate (%) 3-month
1	1-Jun-20	0.32%
2	2-Jun-20	0.33%
3	3-Jun-20	0.31%
4	4-Jun-20	0.31%
5	5-Jun-20	0.32%
6	6-Jun-20	
7	7-Jun-20	
8	8-Jun-20	0.30%
9	9-Jun-20	0.31%
10	10-Jun-20	0.32%
11	11-Jun-20	0.30%
12	12-Jun-20	0.30%
13	13-Jun-20	
14	14-Jun-20	
15	15-Jun-20	0.31%
16	16-Jun-20	0.31%
17	17-Jun-20	0.31%
18	18-Jun-20	0.30%
19	19-Jun-20	0.30%
20	20-Jun-20	
21	21-Jun-20	
22	22-Jun-20	0.30%
23	23-Jun-20	0.30%
24	24-Jun-20	0.30%
25	25-Jun-20	0.29%
26	26-Jun-20	0.29%
27	27-Jun-20	
28	28-Jun-20	
29	29-Jun-20	0.30%
30	30-Jun-20	0.30%
		0.31%

Step 3: Deemed Short-Term Debt Rate Calculation

Average annual spread	0.91%
Average Banker's Acceptance Rate	0.31%
Deemed Short Term Debt Rate	**1.22%**

Source: OEB. "Cost of Capital Parameter Updates." <https://www.oeb.ca/industry/rules-codes-and-requirements/cost-capital-parameter-updates>

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