

Canadian Banks 2019

Open banking is coming

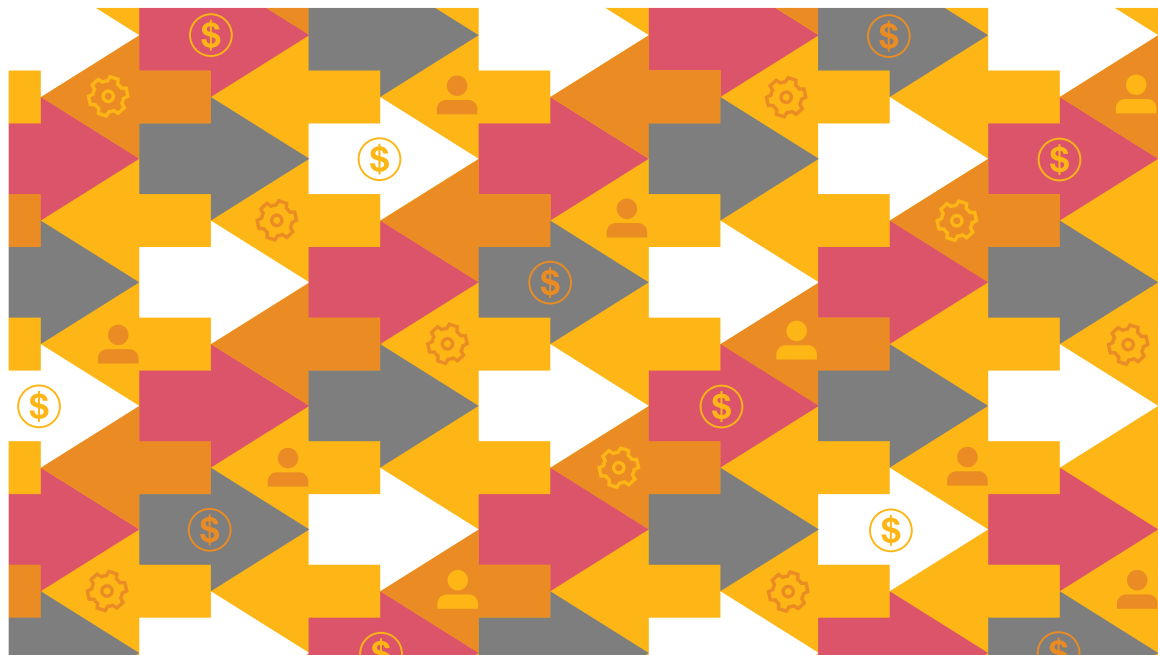


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Welcome to Canadian Banks 2019

Canada's banks have made huge strides in their digital transformations in recent years. They've invested heavily in new technologies that help them serve their customers better while making sure they have the risk management, cybersecurity and governance practices in place so they can successfully execute on their innovation plans.

Amid all of that progress, several forces are combining to take the innovation push to the next level. Competition is increasing as technology players of all sizes seek to make their mark on the financial services industry. Consumers, who have come to appreciate the added convenience of digital services in many aspects of their lives, are now expecting similar experiences from their banks. And with concern about privacy breaches on the rise, customers are looking for more control over their own data.

Enter open banking. It lets customers have increased control over their data while supporting the innovation everyone wants to see more of. With many regulators around the world keen to encourage more innovation and competition, open banking is a clear shift in the landscape that we can expect to see in Canada soon. Other countries are already ahead of Canada on that shift, so it will be important for the Canadian government and the financial services industry to learn from the experiences elsewhere as they look at how open banking would work here.

Our 2019 *Canadian Banks* publication explores open banking in detail, including what it is, what it means for the various players in the financial services ecosystem and what the opportunities and path forward for Canada's banks could look like. With data at the heart of open banking, we also look at the cybersecurity and privacy issues that will be central to its success in Canada.

In addition to our exploration of open banking, you'll find our annual snapshots of banking industry financial data and performance for 2018. We hope you enjoy the report and look forward to discussing the important issues affecting Canada's financial services industry in 2019 and beyond.



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Overview

Open banking is coming to Canada and will have a profound impact on consumers and the financial ecosystem. In its 2018 budget, the federal government announced that it was establishing a committee to explore the merits of open banking for Canada. As the concept gains traction around the world and consumer demands for increased convenience, price for value, data privacy and transparent consent drive a shift to new ways of doing business, it's only a matter of time before open banking fundamentally reshapes the industry.

The introduction of open banking in Canada will change how this country's banks work with one another and with other players in the financial services ecosystem. It will also be a major transformation for customers as the banks, financial technology companies (FinTechs) and other service providers will be able to introduce innovative products and services based on open access to data.

Open banking presents a significant opportunity for Canada's largest banks and mid-sized players. Those with a clear vision of what role they want to play so they can continue to meet customers' changing expectations will position themselves for success.

Open banking also offers more opportunities for FinTechs to collaborate with banks and other financial services providers. The environment has shifted as FinTechs increasingly move from being industry disruptors to serving as partners in the financial services ecosystem. Banks should see new partnerships as a way to introduce innovative products, attract customers, control costs and reduce risk.

In *Canadian Banks 2019*, we dive into open banking to explore what its introduction in Canada could mean for our banks, their customers, FinTechs and regulators.

Our research on the experiences of other jurisdictions shows open banking offers a number of opportunities for Canada but also some challenges. For example, in the United Kingdom, [PwC findings](#) show customers tend to prefer incumbent banks over other players to manage their financial products, which is a good sign for the biggest institutions in a more open financial landscape.

But with UK customers also showing tentative interest in open banking and a modest launch of the new system so far, Canada would need to make sure it learns from the experiences of other jurisdictions, particularly when it comes to the balance between encouraging adoption and addressing the risks.

It's clear the evolution of the financial services ecosystem we've seen over the past few years isn't slowing down. In fact, 85% of CEOs participating in PwC's 22nd annual *CEO Survey* ranked technological advances as the top trend transforming their businesses. And as consumers' habits evolve in response to digital innovation in other areas of their lives, they'll expect similar experiences from their banks and other financial institutions. As the pace of change picks up, open banking raises the possibility of opening new doors for Canadian banks to reimagine the future of financial services.

What is open banking?

Essentially, open banking refers to the opening of internal bank customer data and processes to other parties through digital channels. It can include the secure sharing of customer-authorized financial data with third parties or the distribution of partner-based products, such as those created by technology companies like Apple Inc., to bank customers. Open banking offers many possibilities to improve financial services and the customer experience, ranging from more straightforward uses like account aggregation and facilitating client identification to a host of creative products and services to solve customer pain points.

Many of the ideas behind open banking have been around for some time, but it has only been in the past few years that policy-makers have started introducing regulations to move the issue forward. A number of jurisdictions, including the United Kingdom, the European Union and Australia, are now leading the way on the opportunities offered by open banking (see page 14). In September 2018, the federal government took an early step by appointing [an advisory committee tasked with producing a report assessing the merits of open banking in Canada](#).

In January 2019, the advisory committee released a [consultation paper](#) that reviewed the merits, potential benefits and ways to manage the possible risks of open banking. The paper is now seeking views on some of those issues as the advisory committee moves toward looking at implementation questions ahead of its report to the Minister of Finance.

Open banking can take many forms, such as “read,” “write” and “move” privileges:

Open data

Also known as the “read” privilege, open data involves the use of application programming interfaces (APIs) to allow verified third parties to access customer data. Customers decide what to share and with whom.

Open process

Also known as the “write” privilege, open process includes using open APIs to access bank systems to initiate payments on a customer’s behalf.

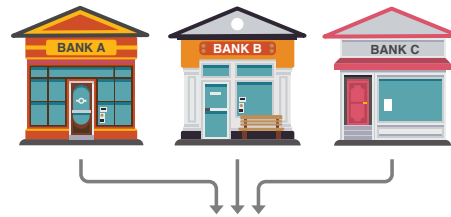
Open products

Also known as the “move” privilege, open products refers to enhanced portability to make it easier, for example, for customers to switch providers and move accounts. No jurisdiction has mandated portability so far.

Other considerations include whether participation by banks is mandatory or voluntary and which products open banking applies to, such as chequing versus savings accounts, credit cards, mortgages and personal or business loans.



What could open banking look like for customers?



1 Open data

In this scenario, a customer has authorized a third-party provider to read the transactions in her chequing accounts as well as investments held at other banks and asset management providers. Based on that information, the third party can aggregate the information, through its online platform, and is able to give the customer financial advice.



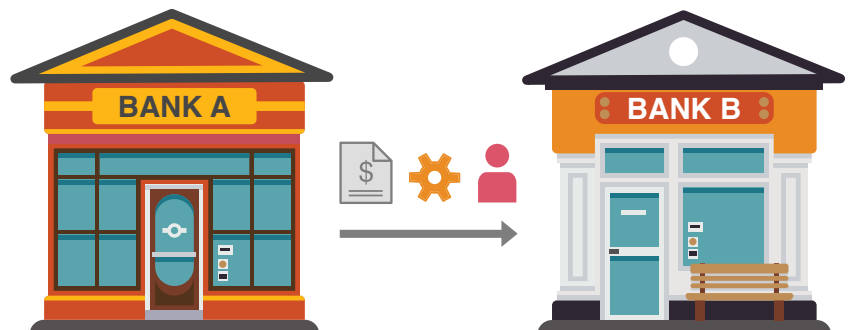
2 Open process

In this scenario, the customer has authorized a third-party payments management platform to initiate payments on her behalf. The platform takes funds from the customer's bank account to pay her various bills on the date they're due.



3 Open products

In this scenario, the customer has gone to Bank B to switch her account from Bank A. Through open banking, the customer can initiate the switch without being physically present at Bank A. Her account at Bank A will be closed and the funds in it, along with all electronic funds transfer information, will be transferred to Bank B.





A major transformation

An important goal of open banking is to encourage a more competitive and innovative financial ecosystem. While FinTechs have been around for years and played at the fringes of the banking system, access to the banks' data, processes and infrastructure would help them build products and services on top of what already exists.

Technology giants are also likely players in a world of open banking. With their large customer bases, the big technology companies would be natural participants in open banking, particularly given their existing access to vast amounts of data. They've spent years harnessing those insights to deliver the convenience customers have come to expect and that they would now be looking for in their banking products. Some of the technology companies have already entered certain areas of financial services, such as payments, and open banking would give them opportunities to do even more.

We believe the banks could be among the biggest winners of open banking if they, too, seize the opportunities it creates. Not only can they benefit directly from the innovations of the smaller players through partnerships and acquisitions, but they can also harness the power of sharing data with other banks to see a fuller picture of their customers' lives, which helps them create a better customer

experience through new products and services. It's important to note that for customers to buy into open banking, they'll need to feel confident that there's a proper balance between what both they and the banks are getting out of it. And that means getting privacy issues right by building them into the design of an open banking framework.

While several countries are at various stages of introducing open banking, the United Kingdom is the furthest along with its mandatory system. The UK rollout has faced some challenges, notably around customer uptake of open banking and the costs associated with its model, but the system has seen progress since its launch in early 2018. Signs of progress include a gradual rise in the number of providers participating in the system, according to the UK [Open Banking Implementation Entity](#). Providers have begun introducing new innovations, including some incumbent banks that see open banking as an opportunity to reach new customers.

The system is still taking shape, but it already offers the potential to inject significant dynamism into the UK banking landscape. According to [PwC UK estimates](#), open banking represents a revenue opportunity of at least £7.2 billion by 2022.

What it all means

Open banking will be a major shift for the Canadian financial services landscape. What does it mean for the various players in the financial services industry and for bank customers?

Banks

The good news for Canada's largest banks is they're already trusted custodians of customer data with strong brands that they can take advantage of to position themselves for success in an open banking framework. The opportunity will be to develop a clear vision of what role they want to play so they can continue to meet customers' changing expectations.

For smaller and mid-sized banks, open banking represents a significant opportunity for them to attract new customers as they take advantage of the data made available by their larger counterparts to reach new markets. On the other hand, including them in a data-sharing regime could impose significant costs on them, which is why open banking in other jurisdictions has tended to focus on larger banks at the initial stages.

Successful banks will have a number of characteristics, such as a customer-centred focus aimed at creating personalized solutions to win the hearts and minds of their customers. An important part of that will be mastering their analytics capabilities so they can use the insights available to offer the right suite of products and services to customers at the right time.

Banks will also need to differentiate themselves through smart use of data. The challenge will be to get their data sets in order so they can make information available on request. A foundational step for open banking is undergoing a data-mapping exercise to see where customer data is housed across systems so they can respond to customer requests for access and changes to, as well as deletion of, their own data in light of privacy requirements.

For the banks, the idea of sharing data may be uncomfortable, but it's important to remember that open banking offers them many opportunities and benefits. Besides tapping into new innovations, the efficiencies created by open banking can help the banks reduce costs. Open banking also has the potential to reduce other risks faced by big banks, such as fraud and money laundering, as the increased access to and sharing of data among institutions will make it easier to spot anomalies.

CEO spotlight



More than a year into the job, Darryl White has been busy making his mark on the Canadian financial landscape as CEO of BMO Financial Group. In our 2019 CEO spotlight, White discusses the challenges, risks and opportunities facing Canadian banks in 2019 and the years ahead.

One of the things he's most proud of is BMO's focus on the customer and the consistency of this customer-first thinking across the bank's culture around the world. In the midst of this, cyber risk is top of mind for White. He discusses why BMO, with fraud being increasingly driven by cyber, has opened an enterprise-wide financial crimes unit to create a best-in-class, integrated real-time response to cyber, fraud, and physical security risk.

On the topic of open banking, White sees it as an exciting development for Canada. But for open banking to succeed, he emphasizes the need to fully address issues of security and customer control. And customers must have full transparency around what they get out of open banking, according to White.

“ If we can figure out how to solve for security, transparency and control, we can have an open banking system in this country that could work very well, in my view.

Darryl White
CEO, BMO Financial Group



Customers

For customers, open banking is a significant opportunity to bring more of that innovation to their banking services through new and better processes, products and services.

Among the possibilities created by open banking is the ability to see a fuller picture of customers' creditworthiness through their bank account activities. For example, retail customers with credit problems may be able to access credit they would otherwise be unable to get based on their credit bureau file alone. Alternatively, open banking could help speed up the credit process for them.

For businesses, open banking could similarly improve the credit process by, for example, letting a bank see their cash inflows and outflows at other institutions. That would give the bank a richer profile of a business's finances, including cyclicity and seasonality, which it could then take into account in its credit decision.

While customers would see many benefits, there's no guarantee they would actually take advantage of the opportunities created by open banking. For customers to consent to giving access to their financial data, they would need to trust that the services made possible by open banking are secure and that it adequately protects their data.

But there's no guarantee of that trust. According to our latest [Global State of Information Security Survey](#), nearly half (49%) of Canadian respondents said security incidents had impacted customer records. So in an era of data breaches and privacy concerns, a strong information security infrastructure and proper privacy protections are critical for open banking to reach its full potential. This includes giving customers more transparency and control over their data by offering them choices, complemented by strong and enforceable consent mechanisms, over how their information is used and shared. When those types of controls and protections are in place, customers are often willing to share more (and more

accurate) data and may be more forgiving in the event of a breach.

It will also be important for banks and other service providers to create truly valuable products that will encourage customers to give their consent. Even simple services can address customer pain points. In the United Kingdom, for example, one provider uses access to customer bank transaction data to help creditors confirm income and calculate disposable income. The service can also determine a customer's payday schedule to help set repayment dates.



FinTechs

Open banking is a significant opportunity for FinTechs. Access to customer data will let them create innovative offerings, such as aggregation platforms that facilitate financial planning and advice and services that help customers compare product features, like fees and interest rates, across financial institutions. FinTechs will be able to expand their reach if they create services that target a specific customer irritant or need.

But to truly extend their reach, FinTechs should think about the expanded opportunities open banking offers for working with the banks themselves. In some cases, banks will turn to strategic acquisitions of FinTechs to add to their own services. And in other cases, banks will give access to their platforms to FinTechs vetted as trustworthy and valuable partners in order to complement their services and offer a better customer experience.

But before they get to that point, an important step for the banks will be to determine which partnership models work best for them, when they must control parts of the customer journey and when they should delegate commoditized elements of it to other parties.

Regulators

For regulators, an important issue to work out will be to decide which players can participate in open banking, including who can use bank APIs to access and make use of customer data. Other issues to think about include rules around customer consent and the various privacy matters at play.

As part of the privacy issues, regulators will need to address what a good data stewardship model looks like and responsible collective protection of data, including appropriate uses. It will also be important to look at what privacy-related processes need to be defined, including what happens when a customer requests data access, correction or deletion, and what standards will be necessary to give stakeholders comfort about an open banking participant's privacy practices and controls.

When it comes to the regulatory framework more broadly, we believe open banking in Canada will begin in a limited and gradual fashion, with uses restricted to certain cases and open-data requirements applied to the country's biggest banks to start. Uses would likely expand over time, particularly as Canada's banking industry and regulators learn from the experiences in other countries.

But regulating open banking will be a complicated task given Canada's complex system of financial services regulation. While banks fall under federal rules, for example, credit unions are subject to provincial regulation. A number of regulators, such as the Office of the Superintendent of Financial Institutions (OSFI), the Canada Mortgage and Housing Corp. (CMHC), the Office of the Privacy Commissioner of Canada and Payments Canada, will have significant roles to play.

The Canadian Bankers Association has already weighed in on some of the regulatory issues that would be at play in an open banking framework. The CBA has called for a more robust Canadian digital identity system, which would be helpful for preventing fraud in an open banking environment. In a [2018 white paper](#), it cited solving the digital identification issue as a precursor to open banking in Canada.



“ We like a federated model for digital ID. What, in essence, that means is that it allows both the provincial government, the federal government and industry to all participate.

Neil Parmenter

President and CEO,
Canadian Bankers' Association

Mastering security and privacy

Open banking does come with its risks. Imagine a customer who banks with a financial institution that has an open banking relationship with a third party offering other services. As a result, the third party has access to some customer details. If the third party experiences a breach, the customer's details could become available to criminal organizations.

That possibility illustrates some of the biggest concerns with open banking: privacy breaches, data security, cybercrime and fraud. The financial services industry is already a significant target of fraud and hacking attempts, as shown by a [2018 report](#) from Statistics Canada that found banks ranked highest, at 47%, for cybersecurity incidents in 2017. Open banking has the potential to magnify the impact of breach and cybersecurity incidents when they happen, which could mean reputational risk and erosion of customer trust for the banks.

The good news is the banks, according to Statistics Canada, were much more likely to have security requirements in place than other businesses surveyed. While that's an important differentiator for them, they'll need to do even more in a world of open banking, particularly when it comes to agreements governing their relationships with third parties to make sure they also have the right security measures in place. One way to do that is through enhanced certification processes to scrutinize a third party's security protocols before a bank lets it onto its platforms or shares data with it. Periodic assessments of third parties' security capabilities, along with close to real-time monitoring of them, will be essential in this new world. Organizations will also need to enhance their fraud management controls and cyber protections.

While the security capabilities organizations will need to put in place aren't new, the level of rigour and coverage will change as they embrace open banking, which is why it will be important for them to review their security architecture, especially for their external-facing applications.

APIs also aren't new, but with open banking increasing the speed and volume of data sharing, organizations will need to have more controls in place to detect when fraudulent activity may be happening. For example, a sudden increase in

the volume of activity is something they'll need to immediately detect and act upon.

Evolving areas, such as customer identity and access management, help organizations understand customer behaviour and patterns and immediately detect anomalies as they occur. The progress Canada has made through efforts like the Digital ID & Authentication Council of Canada (DIACC) goes a long way in planning for changes like open banking. DIACC recently released a Pan-Canadian Trust Framework, which forms the basis for Canada's full and secure participation in the evolving digital economy. The framework focuses on reliable, secure, scalable, privacy-enhancing and convenient solutions for digital identity.

As noted, driving adoption of open banking will require deep thinking about privacy and embedding it into the design at the outset. Key to that is giving customers more transparency and control over how, when and with whom their personal information will be used and shared.

But that information needs to be clear and easy to understand for customers, and their consent preferences must be enforced. That's hard enough to do within an organization, let alone when many players are involved.

It's also important to establish a strong data stewardship model to provide for accountability for privacy across the ecosystem, including making sure the use of data is legal, fair and ethical.

And since, in this environment, a system is only as strong as its weakest link, it's important to work out what an appropriate privacy assurance model would look like to give stakeholders comfort over who's plugging into the open banking and data-sharing ecosystem. The government may also need to invest in developing privacy materials and information, like policies and training, and make them available to FinTechs as they may not have the same level of resources to devote to the issue as the bigger players.

The path forward for Canadian banks

With open banking taking root around the world and Canada looking at following suit, Canadian banks can have a first-mover advantage given they're already trusted custodians of customer data with strong brands. Banks are starting to evaluate the actions to take, including the following six steps:

1

Think now, think big

- What are the most likely open banking scenarios from a regulatory perspective?
- Examine potential partnership options and use cases you could tap into if you proactively adopted an open banking mindset that goes beyond what the regulations require.
- Undertake a data-mapping exercise to determine where client data is housed across systems and see what information is available that fits with potential use cases.

2

Assess your capabilities

- Develop potential strategic responses to the scenarios you came up with and assess the capabilities needed.



4

Invest in the future

- Continue efforts to reduce or remove reliance on aging infrastructure.
- Build people and process capabilities to boost competitiveness.
- Make sure you stay ahead of emerging data security and privacy issues to increase customer trust.
- Review your security architecture.
- Build appropriate controls for fraud monitoring, including solutions related to digital identity.

3

Adopt new ways of working

- Recognize areas of non-core competence you can address through partnerships.
- Partner with third parties whenever needed to offer best-in-class services and experiences.



5

Pre-empt competition

- Achieve market leadership through test cases and experimentation to close product or service gaps.
- Compete on excellence by making sure you have top-notch products or services to support your strategy.

6

Stay the course and don't slow down

- Open banking is a reality, whether as a competitive opportunity or a regulatory requirement.
- Choose a long-term business model that optimizes your product or customer focus.

Harnessing the possibilities

To succeed, banks will need to assess what their value proposition will be. With all of the possibilities open banking offers to disaggregate and combine products and services, banks won't be able to do everything for their customers, which means it will be even more important for them to differentiate themselves from the competition and turn to partnerships that can boost and complement their offerings.

An important question will be whether they want to be the manufacturers of the products made possible by open banking or if they want to focus on offering a platform that includes a variety of third-party service providers. The answer—and the balance between those two ends of the spectrum—will vary from institution to institution.

Whatever the Canadian government ultimately decides to do, open banking presents the banks with new possibilities for creating a richer and more dynamic financial landscape. Canada's banks have already shown their capacity for customer-focused innovation, and the power of data sharing is a significant opportunity to take that even further.

Those banks that get ahead of the issue now will be in the best position to not only get an early start on their own plans and strategies but also help influence the new era of financial innovation that's taking root in Canada and around the world.



Appendix 1:

Open banking around the world

To get a better sense of what an open banking framework looks like, here's a look at what's happening around the world:



Australia

The Australian government announced an open banking framework as part of its 2018 budget. The idea is to give customers formal ownership of their data in order to facilitate open banking with regards to credit cards and savings and transaction accounts at first and then to mortgages. Australia has limited its framework to the read privilege, with open banking applied to credit cards and savings and transaction accounts by July 1, 2019, and mortgages by February 2020.



European Union

In 2015, the European Union adopted its second payment services directive (PSD2), which requires euro-area financial institutions to give payments data to, and provide for the ability to transact with, authorized third-party providers. EU countries were to integrate PSD2 into their national laws by January 13, 2018.

Further supporting PSD2 is the EU [General Data Protection Regulation](#) (GDPR), which defines the obligations banks have as data custodians and the rights of customers as data owners, including the right to port information to third parties. Compared to the Australian framework, the EU approach covers a narrower scope of accounts but a broader range of actions, including the ability to initiate payments and applications.



United Kingdom

The United Kingdom has been developing its open banking standard for several years, with preparatory work culminating in a January 2018 deadline for the country's largest banks to develop and adopt an open API standard that gives access to approved businesses.



South Korea

South Korea has set up a voluntary framework through an open API system aimed at reducing the time and costs needed to develop FinTech services.



Japan

Japan has committed to promoting the adoption of open APIs by banks and has updated its legislation to facilitate exchanges.



Singapore

Singapore's central bank is moving toward an open API architecture and is working on standards to support new uses of data by financial institutions.



New Zealand

New Zealand has announced a pilot project for open payments.



South Africa

In South Africa, banks and technology companies have worked together to build a data exchange system that includes third parties.



Hong Kong

The Hong Kong Monetary Authority recently published a framework setting out a process and a timetable for implementing open APIs.



Mexico

Mexico took a step toward open banking in 2018 with its law to regulate financial technology institutions.



India

In India, moves toward open banking have included the introduction of a unified payment interface.



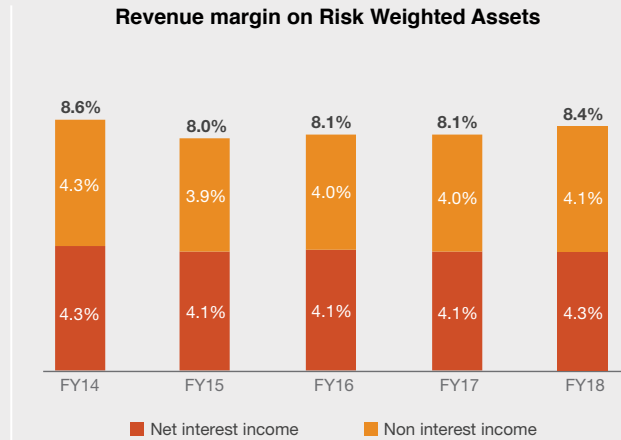
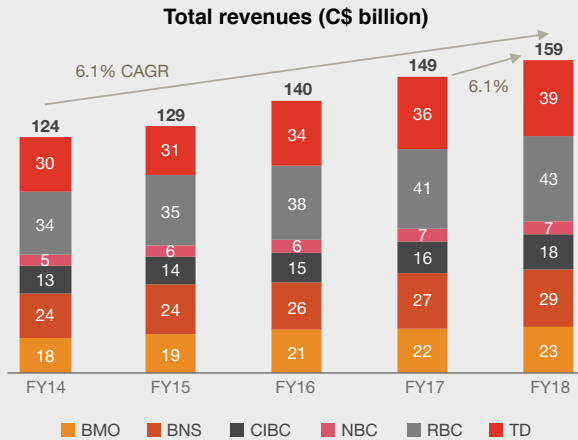
United States

The United States has so far relied on industry-led efforts, including the 2018 launch of the Financial Data Exchange, a non-profit organization that brings together the financial sector—including financial institutions, FinTechs and industry groups—to establish a single data-sharing standard that could support the adoption of open banking frameworks.

Appendix 2:

Industry snapshots

Canadian banks continue to grow their revenue, at rates comparable to the prior year



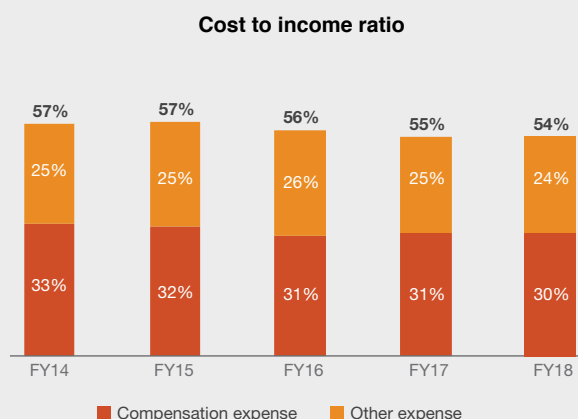
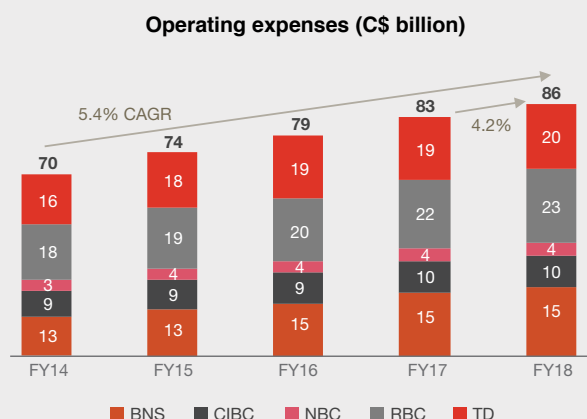
Canadian banks posted another solid year with growth in both Canadian and US revenue: Total revenue across the Big Six Canadian banks increased 6.1% year over year (y-o-y) to \$158 billion in the financial year ended October 31, 2018, compared to an 5.7% y-o-y growth in FY17. Similar to last year, CIBC and NBC led the pack with y-o-y growth of 9.5% and 8.4%, respectively. In addition CIBC and NBC also managed to unseat last year's long term growth leaders with compound annual growth rates (CAGR) of 7.5% and 7.0% since FY14.

Revenue margin¹ showed slight improvement in FY18: After maintaining status quo in FY17, the Big Six increased their revenue margin by 30 bps in FY18. This improvement can be primarily attributed to revenue growth, where both the interest and fee components of revenue grew at a faster rate than risk weighted assets.

Non-interest income (NII) benchmarked against risk weighted assets, grew by 9 bps y-o-y with NBC and TD posting gains for 34 and 30 bps each compared to FY17. Similarly, net interest margin on risk weighted assets grew by 15 bps y-o-y in FY18 compared to a reduction of 3 bps in the prior year, helped by the improving interest rate environment in FY18. Although modest, this increase in revenue margin is notable because it consolidates a modest growth trend which started in FY15 after declines in the FY12-15 period.

¹ Revenue margin defined as total revenue divided by risk weighted assets for consistency and comparability across banks. All dollar figures are in CAD unless otherwise noted.

Benefits from restructuring and cost management initiatives over the last three years helped Canadian banks manage expense growth



Growth in operating expenses at a moderate rate: Total operating expenses across the Big Six increased by 4.2% y-o-y to \$86.0 billion in FY18, a rate which although slightly higher than the 3.9% growth observed in FY17 is still significantly lower than what we have observed in the FY13-16 period.

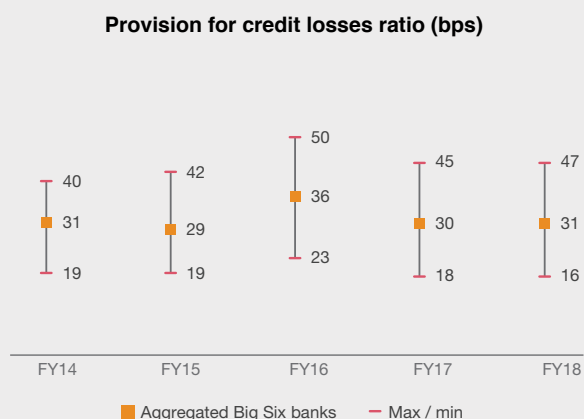
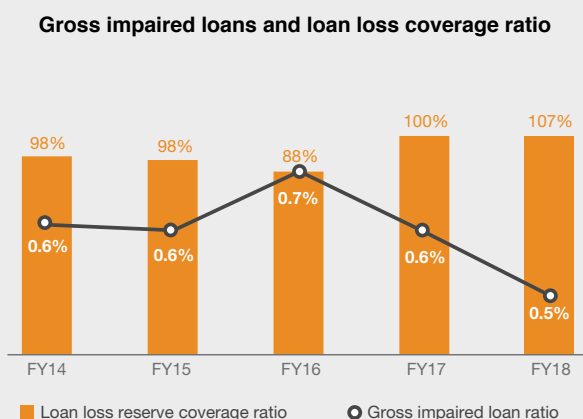
A closer look reveals that the Big Six significantly tempered the rate of compensation growth compared to last year (from 5.8% to 3.2%) to post the slowest rate of y-o-y compensation growth since FY13. The increased compensation cost was driven by increases in FTE levels which posted its largest increase in recent years at 4.2% y-o-y, but what is noteworthy is the decline in average per FTE compensation for the first time in recent years. The average FTE attracted \$125,192 in compensation in FY18 which represents a 1.0% decline compared to the prior year, putting an end to a string of y-o-y increases since FY14.

With the exception of technology costs which exhibited consistent y-o-y increases across every member of the Big Six group, other expenses fluctuated depending on the circumstances and/or strategies pursued by individual banks. For example, premises costs, which is generally the third largest expense line item at banks, increased for BMO, BNS and CIBC, while NBC, RBC and TD maintained or reduced their premises expenses.

Cost to income ratios² improve for the third year in a row: The cost to income ratio for FY18 was 54.3%, which was an improvement compared to 55.3% in FY17, marking the third consecutive year of improvements with five of the Big Six posting reductions in their cost to income ratio. As mentioned in prior years, most of the Big Six Canadian banks have undertaken large-scale cost management programs in recent years, and the overall reduction in cost to income ratio in an environment where revenue growth has slowed can be to some extent attributed to the continuation of such efforts.

² Cost to income ratio defined as operating expenses as a percentage of total interest and non-interest income.

2018 was a stable year from an asset quality perspective, continuing the FY17 gains



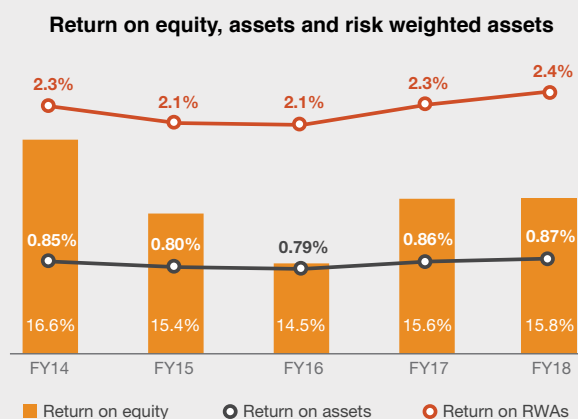
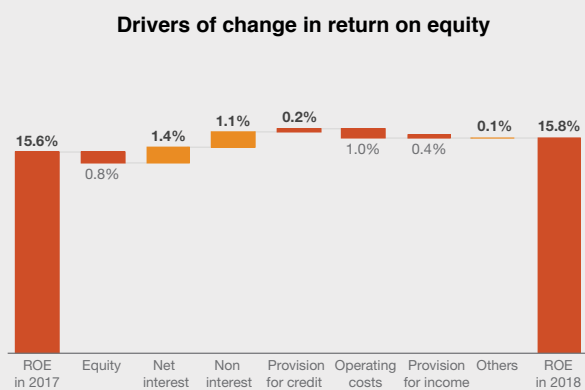
Continued favourable economic conditions in 2018 helped improve the gross impaired loan ratio: The aggregate gross impaired loan ratio across the Big Six Canadian banks remained stable, posting a 3 bps decrease to end FY18 at 0.54%. This was in part due to the overall stability in the Canadian economy despite uncertainty regarding NAFTA negotiations, trade tensions with the US on the steel and aluminium file, and uncertainty regarding the impacts of US trade policies on the global economy.

Provision for credit losses (PCL) increased by 9.54% compared to FY17, however it should be noted that this could be in part due to the conversion of loan loss provisioning methodology from IAS 39 to IFRS 9 at the beginning of the financial year. As a percentage of net customer loans, PCL increased by 1 bps to 31 bps in FY18, compared to 30 bps in FY17.

Loan loss coverage ratio³ boosted by significant increases in loan loss allowances: In FY18, the Big Six's gross impaired loans balance crept up by 90 bps y-o-y after a decline of 16.8% in the prior year. However the impact of this increase was offset by a larger increase of 7.5% in their combined allowance for credit losses, resulting in a 658 bps increase in the coverage ratio compared to last year. The continued improvement in the loan loss coverage ratio indicates continuing improvement in asset quality.

³ Defined as the total allowances for impaired loans, as a percentage of gross impaired loans.

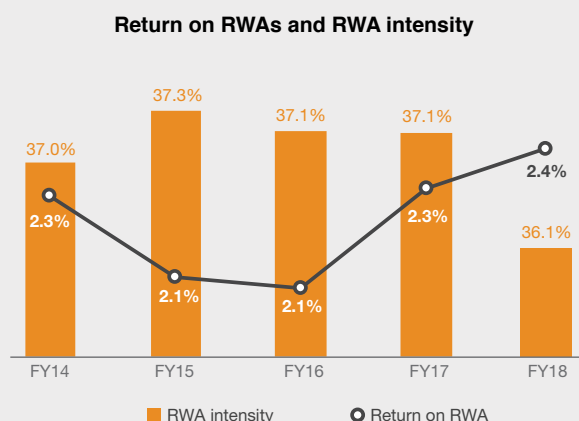
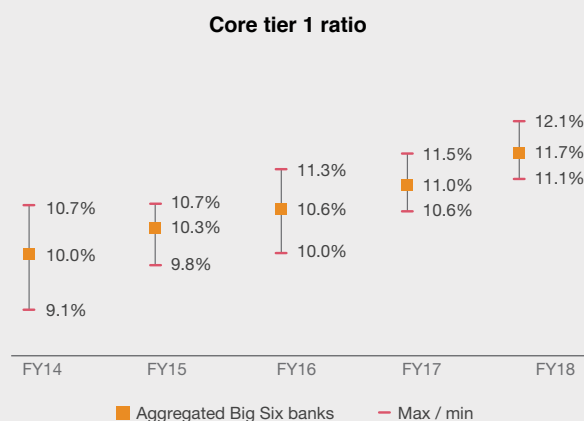
Return on equity edges up as revenue growth outpaces cost growth



Return on equity (RoE) continues to improve in FY18: Aggregate RoE for the Big Six Canadian banks increased to 15.8% in FY18 compared to 15.6% in FY17, continuing the gains made since FY16. The main drivers for growth in RoE included stronger income figures, which added 250 bps to RoE collectively (140 bps and 110 bps increase in net interest and non-interest income, respectively), with an additional 10 bps attributed to other sources. However, these gains were partially offset by increased provisions for credit losses (20 bps), operating expenses (100 bps), income taxes (40 bps), and common equity (80 bps) to net out the gains for the year at 20 bps and end the year at 15.8%.

Increase in RoE more pronounced than increase in return on assets (RoA): Similar to the trend observed in the RoE metric, the Big Six Canadian banks reported an increase of 1 bps in RoA, increasing the aggregate RoA to 0.87% in FY18, while return on risk-weighted assets increased 10 bps to 2.4% in the period, both tracking increases in RoE. The proportion of total equity to assets has increased to 6.2% in FY17, an increase of more than 40 bps since FY14. In dollar terms, Canadian banks have increased equity by \$97.8 billion since FY14, which equates to a compounded growth rate of 9.5%. In comparison, net income for the Big Six Canadian banks has increased at a compounded rate of 8.1% since FY14.

Regulatory capital metrics continue to improve despite asset growth and continued acquisitions by Canadian banks



Regulatory capital continues to increase under Basel III timeline: Under Basel III, banks must meet an increased Common Equity Tier 1 (CET1) ratio requirement of 7.0% by January 1, 2019, up from 4.5% in 2015. All six banks have been designated as domestic systemically important banks (D-SIBs) by OSFI (in addition to RBC being a G-SIB⁴), which subjects them to an additional 1.0% CET1 surcharge (i.e. all-in CET1 ratio requirement of 8.0%, with an additional 1.5% buffer required for RBC). It should be noted that OSFI has recently announced its intention to increase the D-SIB surcharge to 1.75% effective in FY19, which may push CET1 ratios higher.

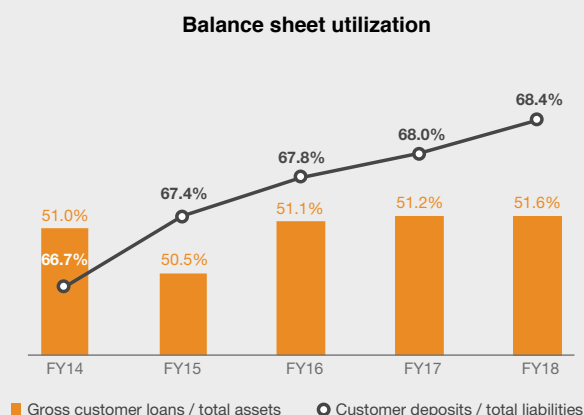
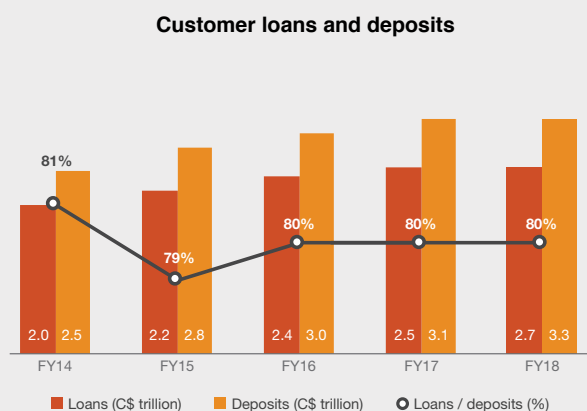
The Big Six Canadian banks added \$18.1 billion in Tier 1 Capital in FY18 which resulted in the aggregated core tier 1 capital ratio increase of 70 bps to 11.7% in FY18 compared to 11.0% in

FY17. Although each of the Big Six increased their tier 1 capital in FY18, BMO and BNS posted declines in tier 1 capital ratios of 6 bps and 42 bps respectively as the growth in risk weighted assets outstripped tier 1 capital, where TD posted an increase of 134 bps y-o-y.

RWA intensity, defined as risk-weighted assets as a proportion of total assets, saw a sharp decline of 105 bps in FY18 to end the year at 36.1%, which came at the heels of 3 years of relative stability in the FY15-FY17 period, due to the faster growth of total assets compared to risk weighted assets.

⁴ Globally systemically important bank.

For Canadian banks, growth of loans and deposits slows down in 2018



The Big Six continued to grow their loans and deposits at an equal but slower pace: The loan-to-deposit ratio for the Big Six remained stable at 80% for the third year in a row. A closer look at the results indicates that while the banks have added around \$200 billion to both their loan and deposit balances, the y-o-y growth rate of both loans and deposits continues to be at a moderate pace, although a little faster than FY17. In FY18, the Big Six increased their loan balances by 7.3% year-over-year, compared to 5.6% in the prior year and well short of the five-year high year-over-year growth of 9.8% in

FY15. Similarly, deposit balances grew by 6.5% year-over-year, compared to 5.7% in FY16 and the five-year high year-over-year growth of 12.2% in FY15. In the same five-year period the banks increased their balance sheet utilization as customer deposits, as a proportion of total liabilities, increased 40 bps to 68.4% in FY18 compared to 68.0% in FY17.

Key drivers of return on equity⁵





Definition of financial metrics and ratios

Return on equity

Net income (before minorities) / average total equity (including minority interest)

Return on assets

Net income (before minorities) / average total assets

Return on risk-weighted assets

Net income (before minorities) / average total capital risk-weighted assets



Contacts



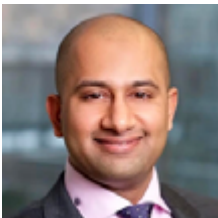
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