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CUSTOM REPORT

An Assessment of Calgary as a Financial Centre

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Prepared by:
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Contents

Executive Summary

Calgary is a world class city. It has experienced tremendous growth over the past fifteen years, and its economy has been fundamentally transformed as vast sums of capital have surged into the oil sands, turning the city into one of the most prominent energy hubs in the world. Calgary is now host to most of the largest oil and gas firms in the country and is the Canadian seat of operations for many of the world's largest integrated producers. This transformation has created immense wealth, which in turn, has attracted tens of thousands of Canadian and international migrants to the city in search of the high-paying jobs the city has on offer. As a result, the city is now younger and more diverse than in the past. And although the local economy has taken a severe hit in the past two years, the city's future is still bright given that further near-term contractions in private investment are unlikely.

However, the city`s evolution has not been smooth over time and has been marked by periods of rapid expansion followed by severe contraction, in line with global commodity prices that are determined entirely by external factors. To help reduce periods of extreme volatility in the future, Calgary is pursuing a strategy of economic diversification that will allow the city to better withstand future downturns in the energy sector. Given the existing cluster already present in the city, financial services provide an excellent opportunity to fulfill this objective.

This report assesses some of the existing strengths in Calgary`s financial services sector, and considers the factors that have bolstered its development over time. Although the energy sector has been the catalyst of Calgary's rise to global prominence in the past decade, the city has grown into more than just a collection oil and gas firms at its core. Calgary is the country`s fourth largest employer of financial service professionals, and has a high share of related professional service activities like management consulting relative to the size of its economy. Today, the network of professional service firms in the city operate as one of the world`s strongest clusters in energy-related transactions and foreign direct investment. The growing complexity and scale of financing requirements originating in the city has been a key factor in Calgary`s emergence as a globally-recognized financial centre.

In addition to outlining the city`s existing strengths in financial services, this report also considered Calgary`s relative attractiveness across a wide variety of indicators that firms and individuals would likely consider when choosing where to locate and provides context for this information by comparing Calgary to other financial centres in Canada like Toronto and Vancouver. The results suggest that the city`s population is young, educated, and highly-productive. Furthermore, due in part to the recent downturn in the economy, there is also ample labour supply for firms to tap across key occupations for financial service firms. There is also evidence that Calgary is a great place to work given the relatively high wages paid, and lower tax burdens, that provide residents with considerably more buying power than any other major metro area in the country. The city also boasts an extensive public transportation network, shorter commuting times, and provides easier access to health care thanks to the relatively high number of physicians located in the city.

Calgary also provides a strong value proposition to firms, particularly with respect to the cost of doing business. For example, different measures of tax competitiveness show that the city offers one of the lowest effective tax rates in the country and prime office space in the city is more readily-available and more cost-effective when compared to places like Toronto and Vancouver. Growth in labour costs, which previously have been a concern for firms operating in the city, has also slowed in recent history, as labour markets have weakened. The city is also well connected to the rest of the world. It has high airplane seat capacity relative to its population, and provides non-stop service to a high number of international destinations.

How goods and services flow across borders can be influenced by economic and policy developments over time. Many industries cluster around key resources or proximity to market, but in activities like information technology, business, and financial services, some of the historical reasons for clustering are less important today than ever before. Modern communications technology allows firms to serve clients around the world without ever leaving the city, and the rapid and accurate flow of information across networks lowers transaction costs significantly.

Thus, in the future, other competitive factors like the cost of doing business, access to high-quality employees, tax competitiveness, and integration with global markets, are all likely to be more important for firms when they are choosing where to locate their operations. And by these measures, Calgary offers significant potential value to prospective firms.

Introduction

Over the past fifteen years, the city of Calgary has posted one of the strongest growth rates of any major metropolitan area in the country. A key driver of this success has been the energy sector, and the oil sands' rise to global prominence in particular. This has created tremendous wealth and employment opportunities, particularly in Calgary where many of the oil and natural gas firms' head offices are located.

Without question, Calgary is better off today because of the energy sector, as is Canada as a whole.[1] But the path has been rocky at times over the years, with recent history marked by periods of both extremely strong growth, that brought the economy to the point of overheating and drove wage rates far above those posted elsewhere in the city, and rapid contractions that resulted in drastic job cuts and recessionary conditions.

But Calgary is not just an energy hub. It is also a global leader in agriculture and agri-food services and several of the country's largest agricultural firms call the city home. Calgary is also the location of the head offices for some of one of the country's largest firms including a major telecommunications company, and Canada's second largest airline and rail carrier. The economic success of the region has attracted tens of thousands of Canadian and international migrants to the city over the past decade, most of them younger and educated. This influx of diverse and smart people, aided by world-leading research institutions, has spawned a burgeoning high-tech sector, particularly companies looking at innovative clean-tech solutions.[2]

Similarly, clusters of related industries have emerged to provide services to the outsized number of large corporations headquartered in the city. As specialists in energy-related transactions and foreign direct investment, Calgary's professional services industry sells its expertise all over the world. And the growing scale and complexity of energy financing that is conducted in the city has also helped turn Calgary into a globally-recognized financial centre over time.[3]

The high-tech and professional services industries represent a considerable wealth of experience and talent to build on and present an opportunity for the city to continue to grow, while simultaneously diversifying its economy. The historical focus of these related clusters has always been the energy sector. But the expertise these firms have developed over time gives them the capabilities to branch into more activities. Calgary's labour force is educated and growing, and has all the key skill sets required to increase the city's domestic and global reach over time.

The main purpose of this report is to highlight the factors that make Calgary an attractive place for high-knowledge industries like financial services to locate their operations. The first section of the report outlines the current state of financial services industry and discusses the particular strengths that have emerged over time to make Calgary a global financial centre. The second considers the value proposition that the city provides to firms and their employees by benchmarking key metrics that firms and

[1] (Burt & Crawford, 2016).
[2] (Colliers, 2016) & (Morgan, 2016).
[3] Calgary is ranked as the 34th most important financial centre in the world. This is down slightly in relative terms compared to 2014 when Calgary was ranked as high as 22nd. The most recent edition of the Global Financial Centres Index suggests that the city's focus on energy financing and recent volatility in the sector negatively impacted its ranking. (Z/Yen Group, 2016).

individuals would likely consider when choosing where to locate. The third section looks at how clusters develop and provides some thoughts on why Calgary is an ideal candidate to continue to grow its existing clusters going forward. The final section offers some concluding thoughts. Calgary as a Global Financial Centre.

The Status of Financial Services in Calgary

The financial services industry is one of the most important in today's modern economy. It acts as the lubricant for business and plays an essential role in connecting the Canadian economy to the rest of the world by facilitating global trade and allowing capital to flow efficiently across international borders. Canada has one of the most well-developed and secure financial systems in the world,[4] and the industry has been a key factor in driving economic growth for the country over time. A significant majority of financial services in Canada occurs in four internationally-recognized financial centers, and Calgary is one of these cities (along with Toronto, Montreal, and Vancouver).[5]

Calgary has the country's fourth largest financial sector in terms of employment. In 2016, there were an estimated 30,900 workers employed in financial services, spread across 2,015 locations in the city. Most of these are smaller and boutique firms, but the city also boasts many large firms with hundreds of employees that account for a large share of industry employment and output. A list of top financial services firms operating in Calgary is provided in Appendix C.

The vast amount of capital surging into energy infrastructure over the past fifteen years has fundamentally transformed Calgary's financial services sector. The city became a global energy hub, developing world class expertise in related investment banking, commodity trading, energy financing, and managing cross-border capital tied to foreign direct investment. Over the last fifteen years, which coincide with the rapid increase in oil patch investment, the number of people employed in the city`s financial sector has grown by 50 per cent, or a little more than 10,000 employees. This is nearly 10 per cent of the total increase in financial services employment across the country over that period – a share well above the city`s share of Canada's economic activity. Consequently, the share of Canadian financial services activity conducted in Calgary has also expanded over time.

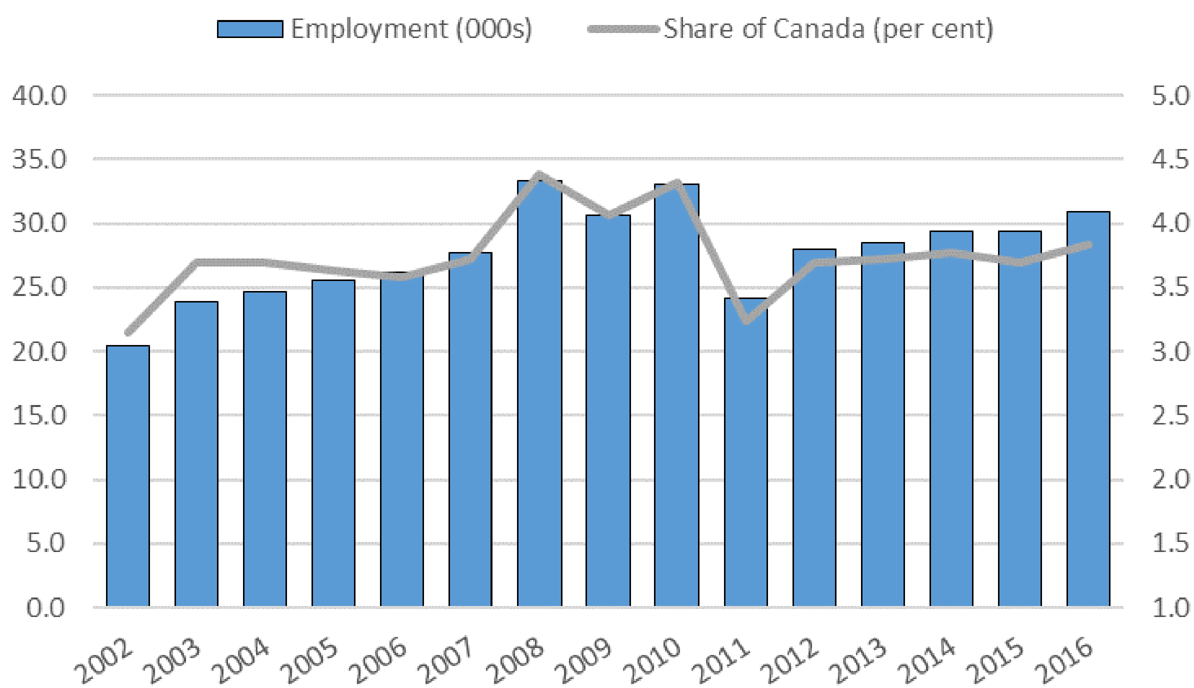
As with the rest of the economy, the expansion in financial services has not always been steady. The financial crisis wreaked havoc nationwide, but had a particularly severe impact in Calgary as energy-related investment collapsed with commodity prices. Between 2008 and 2011, financial services employment in Canada decreased by 1.9 per cent. But in Calgary, employment contracted by 28 per cent in just two and a half short years. Fortunately, the situation has since stabilized and it appears that the worst has past. Since the end of the crisis, financial services employment has surged 28 per cent – or 6,700 net jobs – in Calgary, which is equivalent to 12 per cent of the total gain across Canada. (See Chart 1.)

Firms in Calgary are accustomed to dealing with the hardships that a downswing in the economy can bring and it has made them more resilient. Despite the rapid contraction in employment, industry output continued to post steady increases resulting in substantial labour productivity gains. Even with the rebound in employment in the post-recession period, labour productivity in Calgary's financial services sector is 25 per cent higher than the Canadian average (and about 85 per cent higher than the

[4] (World Economic Forum, 2016).
[5] (Crawford & Renner, 2016).

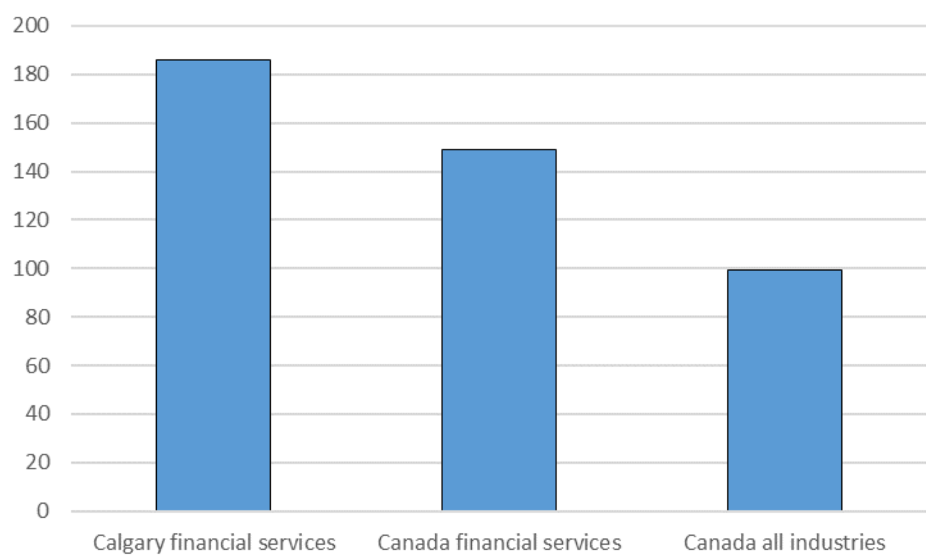
average across all industries). (See Chart 2.) This resilience, and high levels of output per worker, are indicative of a highly-skilled and motivated workforce that drive substantial value for the firms that employ them.

Chart 1 – Financial Services Employment in Calgary is Significant
(total financial services employment – 000s; share of Canadian financial services employment – per cent, right scale)



Source: The Conference Board of Canada; Statistics Canada

Chart 2 – Financial Services in Calgary Are Highly Productive
(GDP per employee - $000s, 2016)

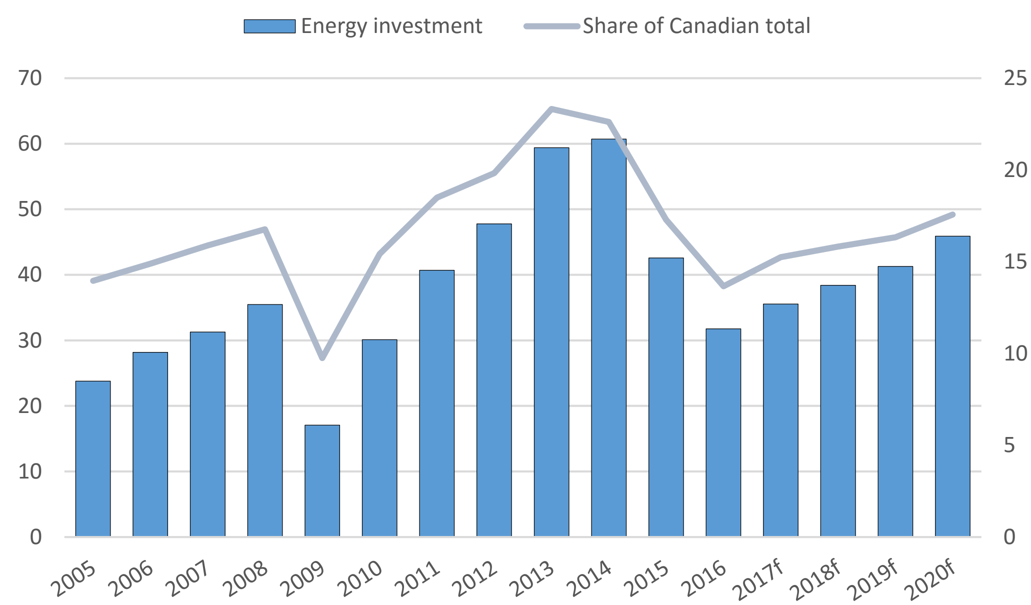


Source: The Conference Board of Canada; Statistics Canada.

Moreover, there is also still ample room for the industry to grow. Despite the resurgence of the last two years, financial services employment today is still close to 10 per cent lower than its pre-recession levels and the industry makes up just 3.8 per cent of total employment in the city today compared to 4.4 per cent at its peak. This suggests that some workers with the necessary skill sets could be enticed back to the industry in the next several years. Commodity prices have stabilized and are expected to rise, and the days of deep cuts in business investment are largely past for now. The energy sector will continue to be a key driver of economic growth for the city, and capital spending in the industry is projected to slowly increase over the next five years.[6] (See Chart 3.) This will be a key factor influencing the performance of financial services activity over the medium term.

Chart 3 – Energy Investment in Alberta expected to Gradually Recover

(Alberta energy investment, left scale - $ billions; share of Canadian total business investment, right scale – per cent)



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Source: The Conference Board of Canada, Statistics Canada.

Calgary's Strengths

Alberta's oil sands represent the world's third largest deposit of proven reserves in the world,[7] and as such, Calgary has emerged as a global energy cluster with many of the world's largest oil and gas companies having a presence in the city. While the investment and extraction activity takes place outside of the city, where the resource deposits are located, many of the headquarter functions are run out of Calgary. The city is home to eight of the ten largest energy firms in the country, and most of the top thirty. (See Appendix A.) The international oil companies with a presence in Alberta also disproportionately run their operations out of the city as well.

[6] (The Conference Board of Canada, 2017).

[7] (U.S. Energy Information Administration, 2016).

Calgary's rise to global prominence began with the energy sector, but has since branched out into related industries like financial services. The city's financial services sector has increased in size and sophistication to accommodate the rising number of energy firms in the area, and the growing complexity of their demands. In fact, it is this expertise that has allowed Calgary to emerge as a true global financial centre.[8] The purpose of this section to look at the specific strengths that Calgary's financial services sector has to offer, and some of the factors that have influenced how these strengths have developed over time.

Prior research by the Conference Board has shown that financial service firms tend to cluster disproportionately in larger, complex, and vibrant economies.[9] Historically, large financial centres emerged in large population centres, as that ensured firms the easiest access to the largest possible client base. This is particularly true for corporate banking activities, since most large head offices tend to be in urban centres. Thus, it is no surprise that Canada's four financial centres are Calgary, Toronto, Vancouver, and Montreal. Combined, these four cities account for a significantly outsized share of financial services activity in the country, and each of them individually accounts for more financial activity than their population would suggest. But each of them also excels in different ways that mirror the uniqueness and composition of their respective regional economies.

Table 1: Strengths of Calgary's Financial Services Sector

Investment banking	1
Foreign direct investment	2
Private equity management	3
Wealth management	4
Retail and corporate banking	5

Source: The Conference Board of Canada

As part of the process of identifying the factors that make financial centres unique, five specific aspects of Calgary's financial services industry were identified as strengths: investment banking, managing foreign direct investment, private equity management, wealth management, and retail and corporate banking.[10] (See Table 1.) These strengths have obvious links with the energy sector, particularly the first three, while the fourth is representative of the high average levels of income earned by the region's workers. Moreover, these strengths support related clusters of strength in professional and information, technology, and communication (ICT) services, which are well represented in the city.

Investment Banking

The link between Calgary and investment banking is a natural one, driven primarily by robust mergers and acquisitions (M&A) activity and the large underwriting requirements of the energy sector. As chart 3 shows, the capital expenditures that have taken place in Alberta's energy sector have accounted for a significant share of all private-sector investment in the Canadian economy for most of the last decade. As the complexity of oil production has increased over time, capital requirements for new projects are

[8] (Crawford & Renner, 2016).
[9] Ibid.
[10] This information is based in part on survey results of professionals employed in financial services across the country. See (Crawford & Renner, 2016) for a full description of the four financial centers in Canada and their respective strengths.

often orders of magnitude higher than in past decades. Indeed, very few sectors require the levels of capital infusions that Canada's energy sector does.

M&A markets in Alberta were sharply curtailed in 2015 as low commodity prices weighed negatively on the investment climate and made the province's natural resources relatively less attractive for acquisitions. The total value of completed deals in the city reached $60.8 billion in 2014, but fell by 51 per cent in 2015 to $29.7 billion. Consequently, Calgary's share of total M&A activity in Canada fell from 26.8 per cent to 11.6 per cent. Since then however, Calgary has re-established itself as an attractive place for deal making – the total value of completed deals in 2016 topped $85.6 billion, equivalent to more than one-third of all M&A activity across the country. Thus, despite the commodity-related weakness in 2015, Calgary remains a hotbed of M&A activity. Over the last five years, we estimate that 11.7 per cent of total M&A deals in Canada have involved Calgary. (See Table 2).

Table 2: Completed M&A Deals Across Canada

(Number of deals, value in millions of $)

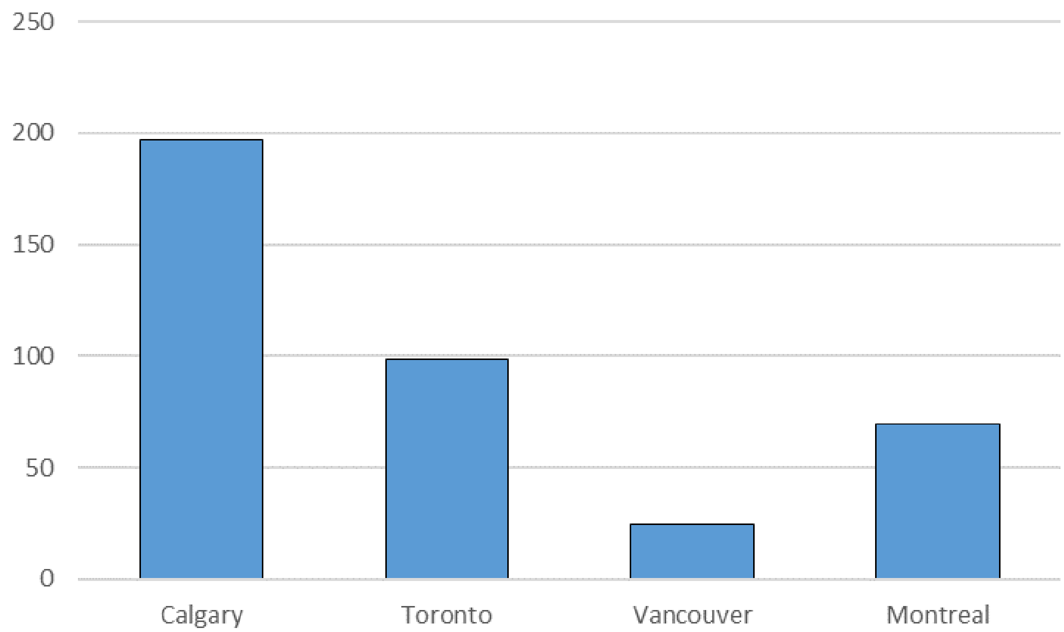
		Calgary	Toronto	Vancouver	Montreal	Canada
2012	Deals	324	560	376	176	**2,305**
	Value	66,116	49,691	15,101	17,241	**215,592**
2013	Deals	278	542	421	148	**2,194**
	Value	25,291	63,039	7,117	7,494	**148,886**
2014	Deals	289	525	348	149	**2,206**
	Value	60,843	44,424	7,873	23,870	**227,334**
2015	Deals	229	607	377	170	**2,463**
	Value	29,695	82,718	9,324	4,270	**255,715**
2016	Deals	237	577	435	151	**2,425**
	Value	85,579	38,027	8,140	2,558	**247,130**
2012-2016	Deals	1,357	2,811	1,957	794	**11,593**
	Value	267,524	277,898	47,555	55,433	**1,094,658**

Sources: Bloomberg, The Conference Board of Canada.

However, where Calgary really shines is in deal value. The 11.7 per cent of total deals that have passed through Calgary's financial service firms over the last five years is lower than the 24.2 per cent in Toronto and 16.9 per cent in Vancouver. But Calgary's average deal size is considerably higher than in those other two cities. Between 2012 and 2016, the average deal size in Calgary is estimated to be $197 million, compared to $99 million in Toronto, and $24 million in Vancouver. (See Chart 4.) Thus, over the last five years, 24 per cent of total deal value in Canada has touched Calgary, which is comparable to Toronto's 25 per cent, and well above the 4 per cent that passes through Vancouver.

Calgary's M&A market, in terms of deal value, is positively impacted by its linkages with the energy sector. In many cases, firms that have productive assets will partner with larger firms to develop those resources. Or in some cases, volatile commodity prices leave smaller firms asset-rich, but restricted in terms of cash flow, making them attractive targets for acquisition. Calgary's investment bankers often end up consulting on some of the largest deals in Canada as a result. Over the last five years (2012-2016), the city's firms handled 9.5 per cent of the total number of energy-related deals across the world, and about 17 per cent of their total value. This is about four times higher than Alberta's share of global energy production, and highlights how attractive natural resource assets like those located in the province help to stimulate demand for financial services. (See Table 3).

Chart 4 – Calgary has High Average Deal Size
(2012 to 2016, total value of completed deals divided by number of completed deals - $ millions)



Sources: Bloomberg, The Conference Board of Canada.

Table 3: Calgary Accounts for an Outsized Share of Global Energy Deals

		Total Completed Deal Value (US$, Millions)	Total Number of Deals	Share of Deal Value (%)	Share of Deals (%)
2012	Calgary	57,610	142	15.2%	6.9%
	World	378,356	2,052		
2013	Calgary	16,772	173	6.7%	9.2%
	World	250,115	1,878		
2014	Calgary	60,843	288	26.8%	13.1%
	World	227,334	2,205		
2015	Calgary	29,695	228	11.6%	9.3%
	World	255,715	2,462		
2016	Calgary	80,710	148	23.5%	8.7%
	World	343,885	1,701		
2012-2016	Calgary	245,630	979	16.9%	9.5%
	World	1,455,406	10,298		

Sources: Bloomberg, The Conference Board of Canada, Calgary Economic Development.

The relevance of the energy sector in global financial markets is why virtually every major global investment bank maintains a presence in Calgary, as do a high share of the world's largest commercial banks (including all the major Canadian ones). It has also supported organic development of home-grown world-class investment banking and consulting organizations like GMP FirstEnergy Capital, Peters & Co. and Acumen Capital in the city.

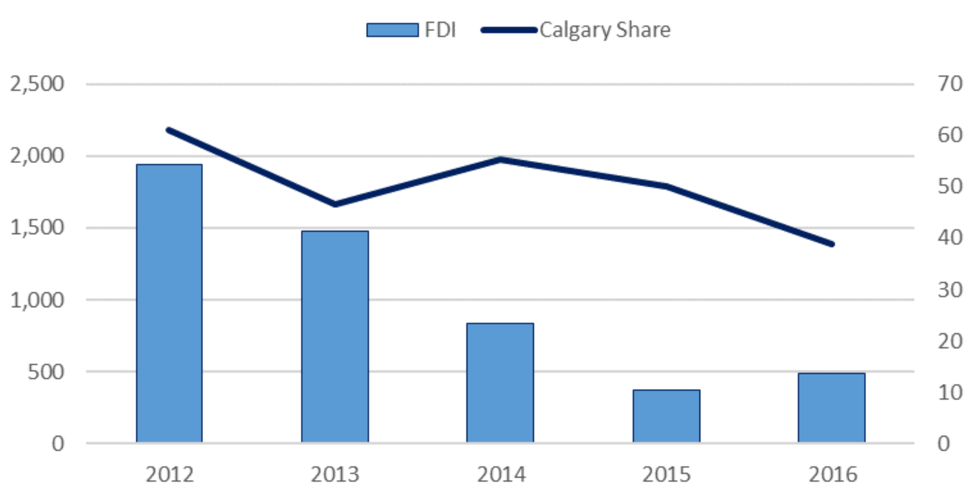
Foreign Direct Investment

A related area of strength for Calgary stems from the volume of foreign direct investment (FDI) that flows through Alberta. Between 2012 and 2016, Alberta attracted 136 new projects financed by foreign investment – equivalent to $5.1 billion. This amounts to 0.3 per cent of the province's nominal GDP over the same period. Inward FDI encourages diffusion of technology and management skills as the subsidiaries and domestic firms in these transactions acquire knowledge and technology from their international owner. Ultimately, inward FDI leads to higher productivity, improved quality of products, and increased competitiveness long-term for a region.[11]

Calgary specifically has been the destination city for a little more than 50 per cent of all inward FDI transactions to Alberta since 2012. (See Chart 5.) Low commodity prices temporarily made Alberta's oil patch a less-attractive destination for foreign investment over the past few years, yet despite that fact, Calgary retains a high share of all activity that passes through the province. More importantly, the downturn in Alberta as a destination for foreign investment transactions appears to have turned the corner. Inward FDI into Alberta increased by 32 per cent in 2016 to $500 million and through the first three months of 2017, another $820 million has already been attracted to the province. These types of transactions are facilitated by Calgary's financial service firms, which handle a disproportionate amount of activity in the province.

Chart 5 – Foreign Inward Direct Investment in Alberta

(FDI - $ billions; Calgary's share of Alberta projects – per cent, right scale)



Sources: The Conference Board of Canada; fDi Markets.

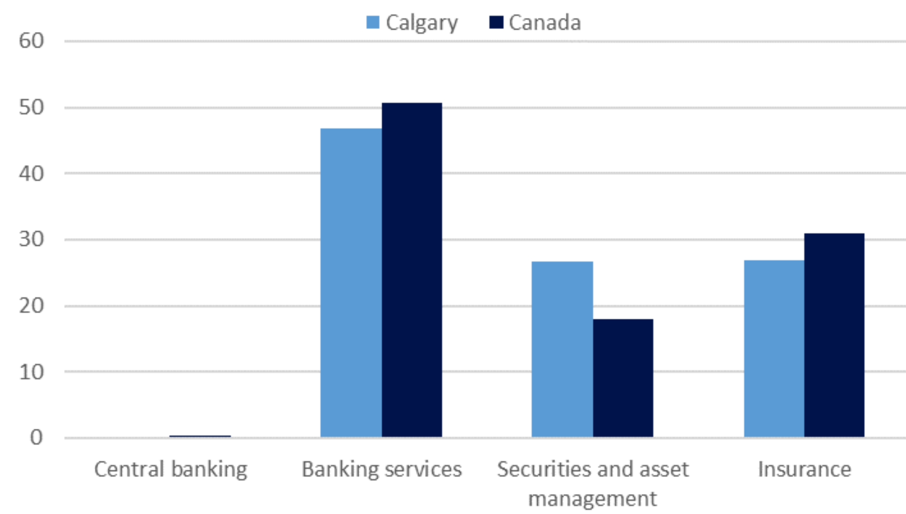
[11] (The Conference Board of Canada, 2014).

Wealth Management and Private Equity

Calgary's financial services industry is weighted more heavily towards securities related activities like investment banking and asset management than any other financial centre in Canada. (See Chart 6.) Today, roughly 8,200 workers in the city are employed in this sector or about 27 per cent of total financial services employment, and securities and asset management firms make up about half of all firms operating in the city. Thus, investment banking and underwriting activity has been crucial to the sector's development over time.

Chart 6 – Calgary's Financial Services Sector Heavily Weighted Towards Securities and Asset Management

(share of total financial services employment by subsector, per cent)



Source: The Conference Board of Canada; Statistics Canada.

Another source of strength in Calgary's financial services sector is in wealth management. Calgary has the highest average level of income of any metropolitan area in Canada, with per-capita levels of disposable income exceeding the national average by nearly 60 per cent. (See Chart 7.) Additionally, Calgary has the second highest number of millionaires and the highest number of millionaires per capita in all of Canada. (See Chart 8). This large local pool of high net worth individuals are in need of wealth management services and the financial sector in the city has responded by developing considerable expertise in this area over the years. It is also another key factor in why major financial institutions have an interest in maintaining a presence in the city.

High average levels of income have also driven demand for investment services like private equity and venture capital funds – areas where Calgary has an extremely strong presence. The city also benefits from being the headquarters for Canada's main small cap exchange, the TSXV, which has an adjusted market capitalization of more than $20 billion. But it is in private equity where the city stands out. Alberta was the destination for 24 per cent of private equity deals in Canada in 2016, valued at $3.3 billion,[12] and this share was much higher in previous years, before the decline in oil prices.[13] (See Chart

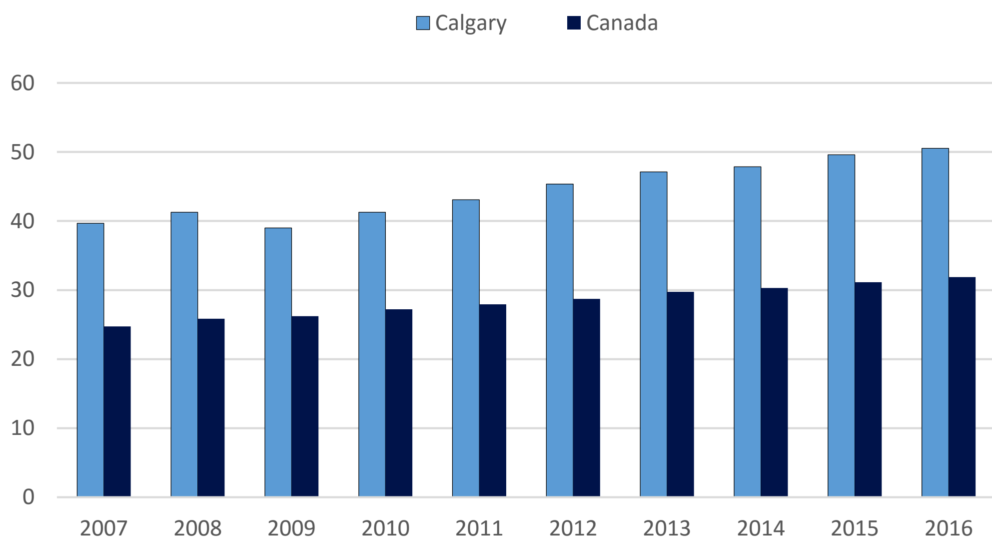
[12] (Canadian Venture Capital and Private Equity Association, 2017).

[13] (Canadian Venture Capital and Private Equity Association, 2016).

9.) In part, this strength owes to the fact that private equity transactions in the energy sector tend to be higher in value on average. These facts are key reasons why prominent Canadian private equity firms like ARC Financial, TriWest Capital, and Mosaic Capital all call Calgary home.

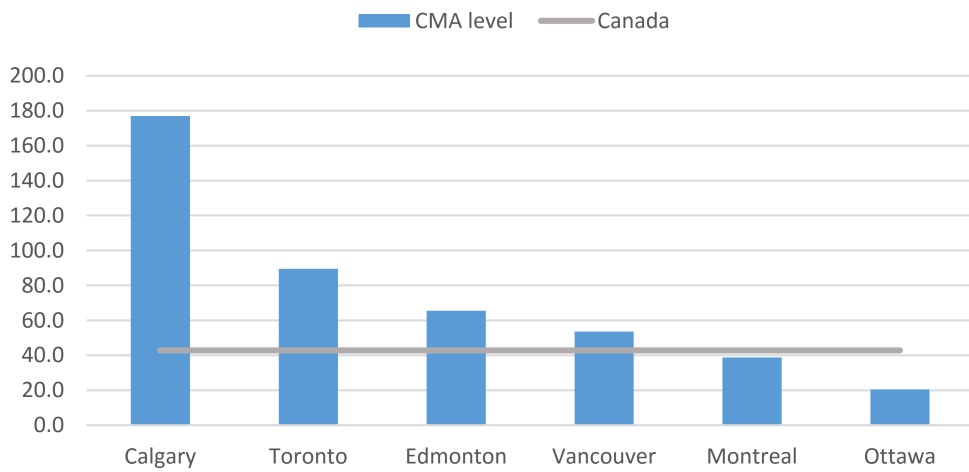
The city's strong presence in private equity markets also suggests another important factor at play for Calgary - extensive management and executive expertise. Private equity firms often target mature companies in financial distress due to inefficient operations or insufficient capital. These investors typically take significant ownership stakes and become actively involved in the management of their acquisition with the goal to turn the company around financially. This necessarily requires high levels of management and financial skills, which have been key reasons why private equity firms in the city have been so successful over time.

Chart 7 – Calgary has High Average Levels of Income
(disposable income per capita, 000s)



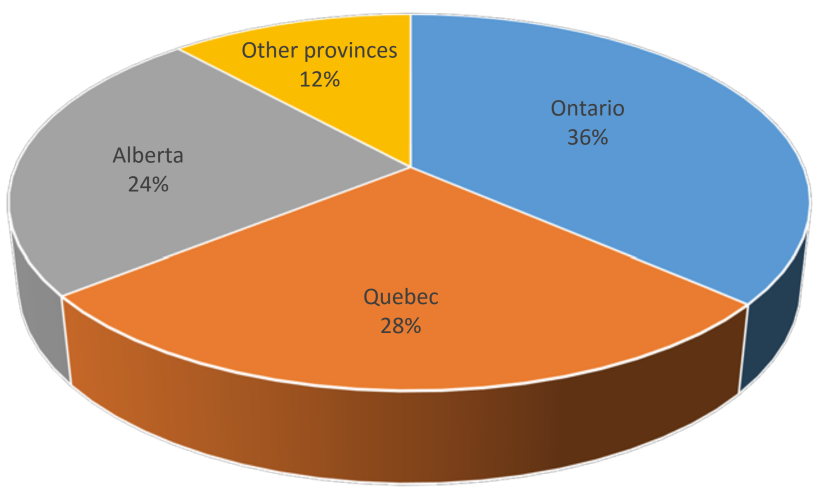
Source: The Conference Board of Canada; Statistics Canada.

Chart 8 – Calgary Has the Most Millionaires Per Capita in Canada
(millionaires per 100,000 people)



Source: Statistics Canada, 2014.

Chart 9 – Alberta is the Destination for a Large Share of Canadian Private Equity Investment
(share of private equity investments, by value in 2016 – per cent)



Sources: The Conference Board of Canada; CVCA.

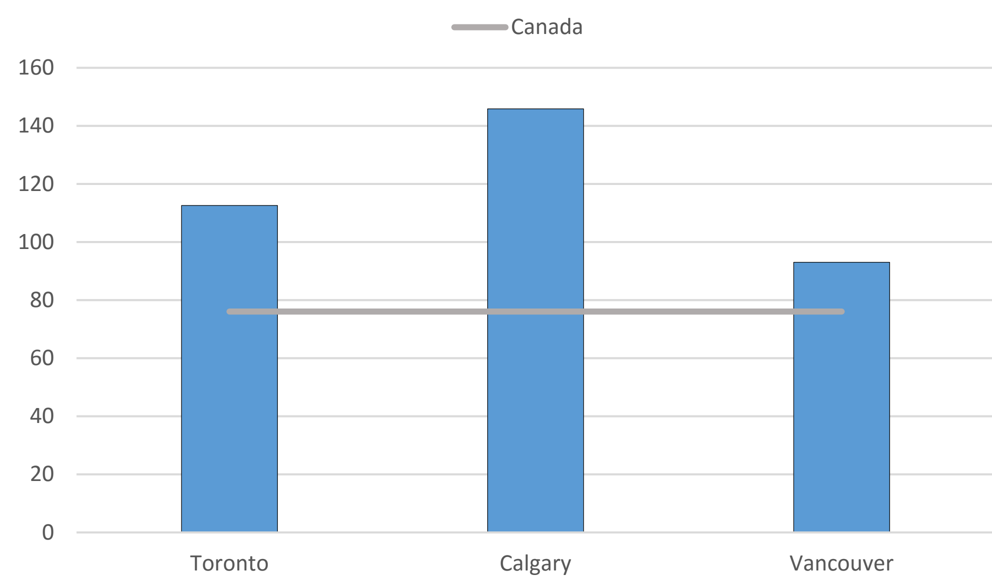
Corporate Banking and Professional Services

One final area that our research has shown to be particularly strong in Calgary is corporate banking. Like retail banking, which is widely dispersed across the country in line with the distribution of population (and therefore clients), corporate banking also has an incentive to locate close to their clients. But in this case, the client base is significantly more concentrated in large financial centres like Calgary. That is because demand for corporate banking originates at a firm's head office, and head offices in Canada are disproportionately located in large cities, as they exhibit strong clustering effects.

Although the city counts for just 4 per cent of Canada's population, it has nearly double that share of Canadian headquarters, resulting in the highest concentration of head offices per capita in the country. (See Chart 10.). Moreover, Calgary has the highest concentration of major head offices per capita (Revenue of $99 million CAD and above), about two times greater than Toronto and Vancouver and four times greater than Canada. (See Chart 11.) As previously noted, the city's stature is bolstered by the high concentration of oil and gas firms in the city. But it is more than just a hub for energy and Calgary is home to many large non-energy head offices as well, including Canadian Pacific Railway, WestJet Airlines, Agrium Incorporated, and Shaw Communications. The physical presence of these large firms in the city has stimulated development of a strong corporate banking sector – one that is likely to expand as the city continues to attract a growing number of firms over time.

Finally, although not part of financial services, one related sector where Calgary has emerged as a global leader over time is professional services. Professional services is a low-capital, high-knowledge industry that employs people with specialized training, often in scientific or technical occupations and in many cases, these jobs require post-tertiary training and professional certifications. Indeed, the link between some professional services, such as legal and tax advice, and financial services is so strong that they are often considered to be a part of the broader financial services sector. Calgary accounts for 6 per cent of Canadian professional services employment, an above average share. (See Chart 12.)

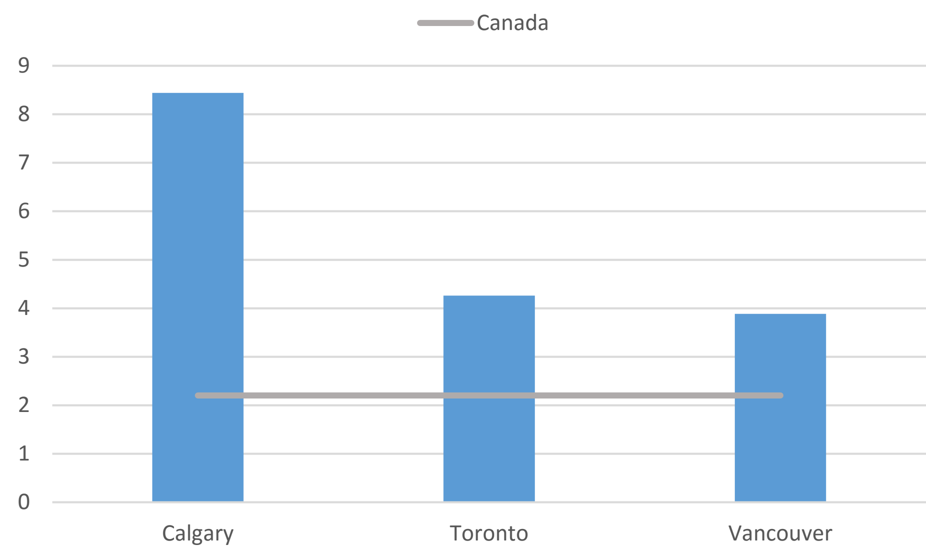
Chart 10 – Calgary Has a High Concentration of Head Offices
(number of head offices per 100,000 in population – 2015)



Sources: The Conference Board of Canada; Statistics Canada.

Chart 11– Calgary Has a High Concentration of Major Head Offices (Revenue - $99 million CAD and above)

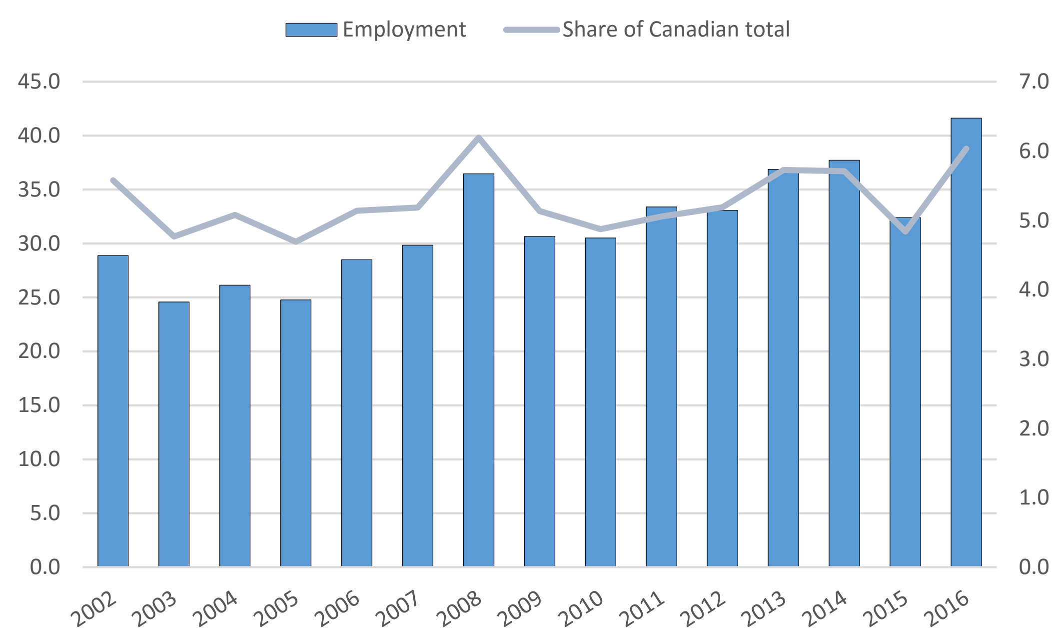
(number of major head offices per 100,000 in population – 2017)



Sources: FP500 2017 Database

Chart 12 – Professional Services Are an Important Cluster in Calgary

(non-engineering, non-IT professional services employment, 000s; share of Canadian total, per cent - right scale)



Sources: The Conference Board of Canada, Statistics Canada.

While activities like legal and tax advisory services are well-represented in Calgary, the city's strength is most apparent in consulting services. Management and scientific consulting services account for 35 per cent of the non-engineering, non-IT professional services in the city, which is well above the 29 per cent national average and the highest share of consulting activity among Canada's global financial centres. This above-average concentration of consulting activity is reflective of Calgary's strong link to the investment banking industry as things like securities origination and underwriting, initial public offerings, and M&A activity all have strong associated management consulting aspects. Moreover, the energy sector is also a hot bed for foreign direct investment, and consultants are often called upon to offer advice on these transactions. With an estimated 41,600 people working in non-engineering, non-IT related professional services in 2016, there are more people working in these industries in Calgary than in the financial services sector - the only financial centre in Canada where this is true.

All in all, Calgary has one of the most highly-developed financial services sectors in the country and accounts for an outsized share of Canadian and global activity in this sector. Its strengths include investment banking, facilitating foreign direct investment, private equity, wealth management, and corporate banking. These strengths are generally linked to the unusually large number of firms headquartered in the city, as well as its high level of income and wealth. The oil and gas sector has been a key driver of the industry historically, as it helped establish a critical mass of talent and firms in the city. This has prepared the sector to expand into new and related activities, and today, Calgary's talent and expertise is exported all over the world.

Benchmarking the Attractiveness of Calgary as a Financial Centre

The main purpose of this report is to outline some of the key reasons why Calgary is an attractive place for financial firms to locate their operations. One of the most straightforward approaches is to compare the competitive landscape that exists in Calgary to key competitors. In this section, we identify a number of metrics that firms are likely to consider when choosing where to locate their operations and place the results in context by comparing Calgary's performance to two other global financial centres in Canada – Toronto and Vancouver.

Toronto is chosen as a comparator city because it is the largest and most well-developed financial centre in the country. It accounts for a disproportionately large share of financial services nationwide in terms of employment and output and is the standard for a financial services cluster against which other Canadian cities compare. Vancouver is included in the analysis because it is also a global financial centre and because it is a key competitor for Calgary when it comes to attracting firms and workers due to its relative geographic proximity in Western Canada.

The indicators in this section were based on available information and do not necessarily represent a complete listing of factors that firms or individuals would consider when deciding where to locate. Each city is ranked per their performance on the specific indicators, but this ranking is meant only for illustrative purposes. The rankings on these indicators cannot be aggregated into a composite ranking as that would assume that each of these factors are equally important with respect to firms' decisions. The main point of this section is to highlight that, across many key factors related to the economy, labour force, and cost of doing business, Calgary performs just as well or better than its comparator cities.

Factors that Make Calgary Attractive to Firms

Economy

The economic strength of a metro area and its surrounding region can be a critically important indicator for firms looking to choose a city to locate their operations in. A strong and growing economy represents an expanding market for firms and sustainable job creation for workers. Increasingly, Canadian workers are mobile and will locate where new jobs present themselves. Stronger growth draws larger numbers of inter-provincial and international migrants to a city, which is important for firms that require access to workers with advanced, and oftentimes industry-specific, skill sets.

Beginning in late-2014, Alberta's economy entered a deep recession which reduced real GDP by 6.1 per cent in just two years. Yet despite this recent downturn, the provincial economy remains fundamentally transformed compared to fifteen years ago. The provincial economy still increased in size by 42 per cent between 2002 and 2016, which is well above the 30 per cent expansion for the national economy over the same period.

Calgary has naturally shared in, and has been a key driver of, the provincial growth trajectory over time. The municipal economy was 5 per cent smaller in 2016 compared to two years ago, as many of the supply-chain and income effects that begin in the oil sands are felt almost immediately in Calgary. Because of this recent weakness, Calgary's economy has increased by an average of just 1.8 per cent over the last five years. This is well below the average growth rates in Vancouver (3.6 per cent) and Toronto (3.1 per cent) over the same period.

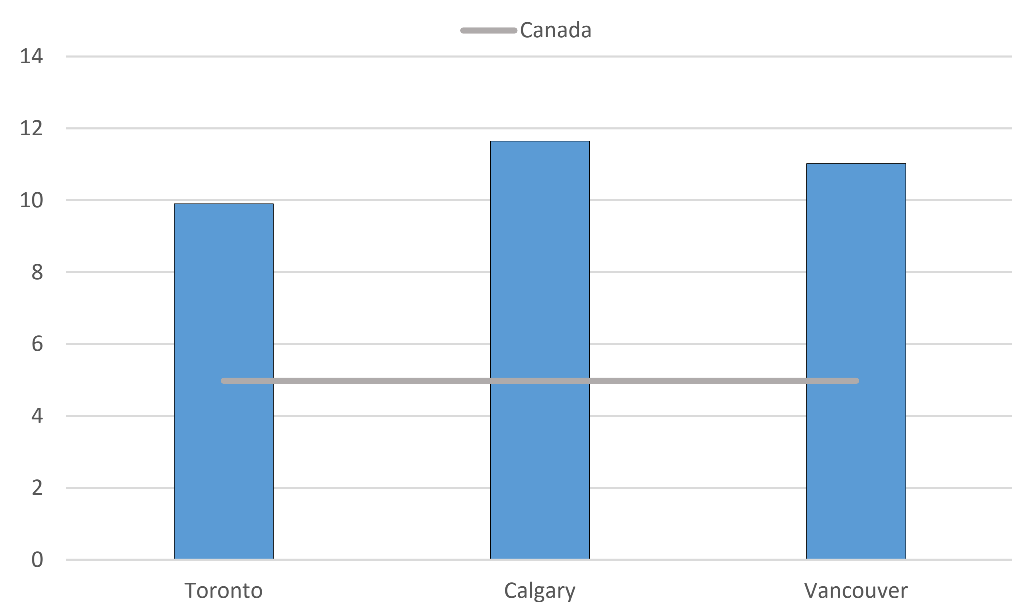
Although Calgary trails its comparators on this indicator, it is worth pointing out how heavily these results are influenced by the performance over the last two years. In the five-year period that followed the financial crisis (2010 to 2014), Calgary's economy advanced by an average annual rate of 5.2 per cent a year, well ahead of the 3.3 per cent in Vancouver and 2.8 per cent in Toronto. While the weak performance of the last two years cannot be easily dismissed, there are reasons to suspect that Calgary's economy is prepared to reverse the recent losses it has suffered as commodity prices stabilize and the city continues to diversify its economy into other sectors. That should reduce the size of the swings in the oft-repeated boom and bust cycles of the past driven by volatile commodity prices.

Growth in real GDP is a key indicator of the economic strength of a region, and thus a key factor firms consider when choosing where to locate their operations. However, results over relatively short periods of time can be heavily influenced during periods of economic instability, which is clearly true for Calgary in the past two years. Two alternative measures of economic strength are the current unemployment rate and the underlying trend performance in employment.

Unsurprisingly, Calgary's current unemployment rate of 9.2 per cent is higher than Toronto's 7 per cent and well above the 5.5 per cent rate in Vancouver. But what is perhaps surprising, is that, even allowing for the deterioration in the city's growth performance these last two years, Calgary still outpaces both Toronto and Vancouver in terms of employment growth. Over the last five years, total employment in the city has increased by an average annual rate of 2.2 per cent, better than the 2.1 per cent posted in Vancouver and the 1.9 per cent for Toronto. (See Chart 13.)

Chart 13 – Despite the Recent Weakness, Employment Growth in Calgary Has Outperformed Over the Past Five Years

(5-year growth in total employment – per cent)



Source: The Conference Board of Canada; Statistics Canada.

Table 4 details the values for each of the economic indicators. Calgary ranks first in overall employment growth over the past five years, but trails both Toronto and Vancouver in GDP growth and the current unemployment rate.

Table 4: Summary of Economy Indicators

Indicator	Calgary	Toronto	Vancouver	Calgary	Toronto	Vancouver
	Value			Rank		
Average growth rate, real GDP 2012-2016 (%)	1.8	3.1	3.6	3	2	1
Average growth rate, employment 2012-2016 (%)	2.2	1.9	2.1	1	3	2
Unemployment Rate , 2016 (%)	9.2	7.0	5.5	3	2	1

Sources: The Conference Board of Canada, Statistics Canada.

Labour Force

Firms are also like to consider the availability and quality of a city's labour force when choosing where to locate their operations. This is even more likely to be true for service providers like financial services or ICT, or any other industry where labour is the dominant input and access to highly-skilled workers is a necessity for long-term success.

One measure of the relative skill level in an economy is the share of the working-aged population (24-64) who hold a university degree. Metro areas with a highly educated population are more attractive to other highly educated people and more attractive to firms because it represents a strong pool of highly skilled workers to hire. Alberta has a large (in relative terms) share of their employment in trades or other types of postsecondary training, and as such ranks significantly behind both Ontario and British Columbia in terms of average educational attainment. However, the story is somewhat different among the largest metro areas in each of the three provinces. Toronto has the highest share (36.8 per cent) of the population aged 25 to 64 with a university degree, and also has the highest share (11 per cent) with a master's degree or PhD. In Calgary, 34.8 per cent have at least a university degree, followed by Vancouver with 34.1 per cent. On balance, all three cities are relatively more educated than the rest of Canada and as such, have highly qualified labour pools for firms to draw from.

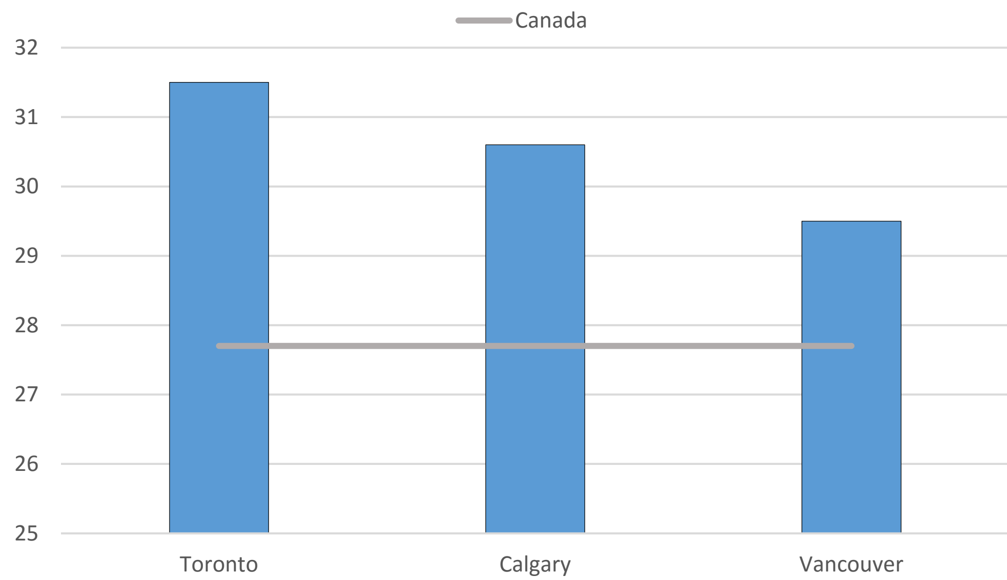
Another indicator that relates to the quality of labour in a metro area is labour productivity. Cities with high levels of productivity tend to offer high wages for workers and high profits for firms. Growing labour productivity is the only sustainable way to raise living standards over the long term, and high levels of productivity growth increase the competitiveness of firms.

Among the major metro areas in Canada, Calgary has the highest output per worker by a wide-margin. In 2016, output per worker on an annual basis in Calgary was roughly $140,000, compared to $103,000 in Toronto, and $94,500 in Vancouver. This gap has narrowed in recent years however. Labour productivity in the city has declined by an average annual rate of 0.4 per cent a year over the last five years, compared average gains of 1.5 per cent a year in Vancouver and 1.3 per cent a year in Toronto. This is again largely a result of the performance of the last two years. In the five years immediately preceding the recession, output per worker increased by 2.8 per cent a year in Calgary, well above the rates in the other two cities. Also, output per worker is estimated to have increased 0.2 per cent last year in the city, suggesting that the worst has passed and the economy is moving back into balance. Calgary's elevated productivity levels are also evident within the financial services industry itself, where output per worker was $186,000 in 2016, compared to $177,200 in Toronto, and $155,000 per worker in Vancouver.

Another factor that is likely relevant to prospective firms considering where to locate their operations is the availability of key skill sets. In this analysis, the focus is on financial service firms engaged primarily in "back-office" type activities, such as settlements, clearance and record maintenance. The people who work in these types of operations primarily consist of management occupations, or those in business, finance, and administration. Toronto has the highest concentration of people in these occupations with 31.5 per cent of the labour force, followed by Calgary with 30.6 per cent, and Vancouver with 29.5 per cent. (See Chart 14.)

Chart 14 – Calgary has a High Share of Financial Services Professionals

(share of labour force in management, business, finance, or administrative occupations – per cent)



Sources: The Conference Board of Canada; Statistics Canada.

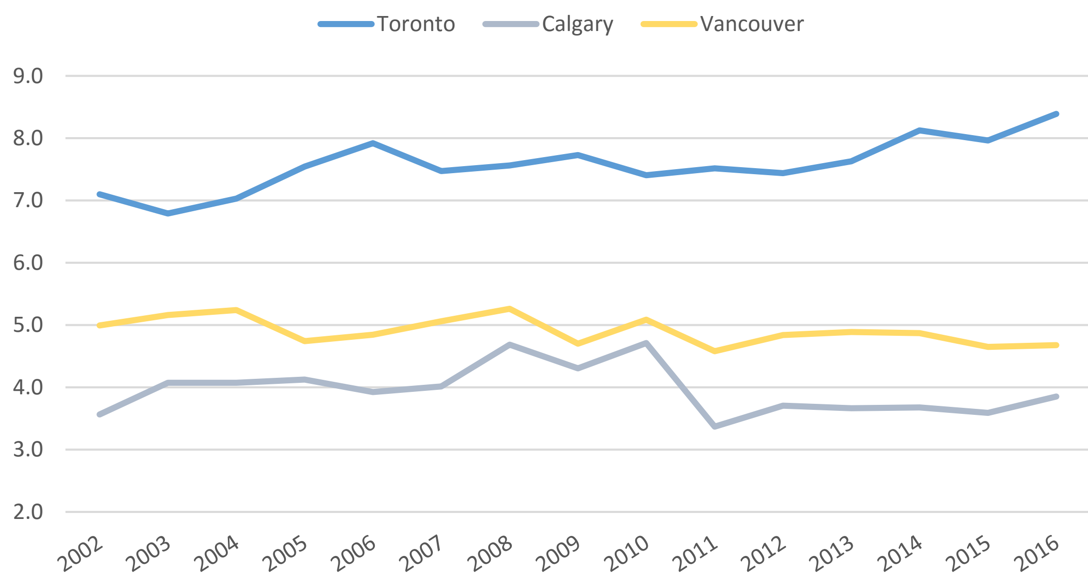
Interestingly, Calgary has the second highest share of its labour force with training in business, finance, or administration occupations compared to Toronto and Vancouver, but has the lowest share of employment in the financial services industry. Just 3.9 per cent to total employment in the city is in financial services, compared to 8.4 per cent in Toronto and 4.7 per cent in Vancouver. (See Chart 15.) This suggests that there is an ample supply of people with the types of skills that financial service firms would seek in the city, but they are (or were before the recent recession) working in other industries.

This result is confirmed by a labour supply analysis conducted on behalf of Calgary Economic Development. This detailed forecast of labour supply by occupation in the city suggests that there are plenty of financial service and related professionals currently unemployed and in search of work. Key occupations like auditors, investment analysts, securities agents and investment dealers, and other types of financial officers, are currently unemployed at a rate of 14.1 per cent in aggregate. (See Chart 16.) This represents nearly 3,800 professionals with training specific to the financial services industry that are currently available to work immediately.[14] There are also another 1,350 professionals in

[14] Occupation supply and unemployment rates are based on customized estimates created by Metro Economics, on behalf of Calgary Economic Development.

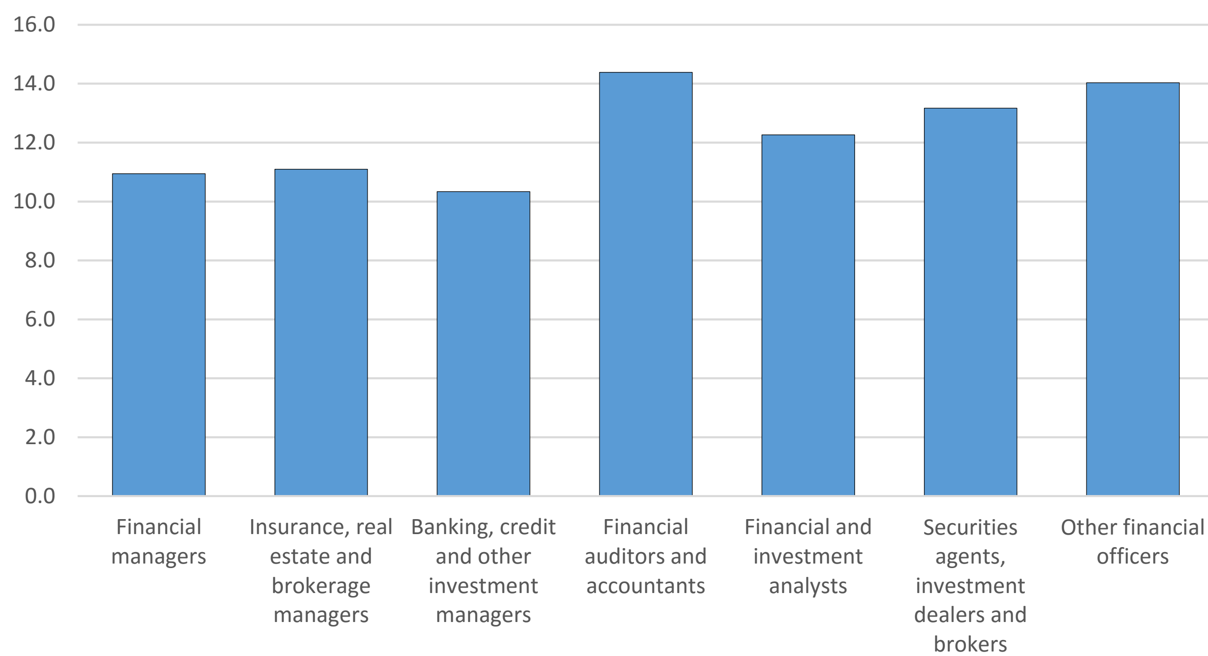
occupations like information systems, database analysts, and data administrators in the city that are currently in search of employment.

Chart 15 – Financial Services Employment Is Important to All 3 Cities
(share of total employment in financial services, per cent)



Sources: The Conference Board of Canada, Statistics Canada.

Chart 16 - Unemployment Rates for Selected Financial Services Occupations
(Calgary, per cent)



Sources: Metro Economics, Calgary Economic Development, forecast for 2016 occupational unemployment.

Professional services, such as legal, consulting, audit and tax, is a key industry linked to financial services through the industry's supply-chain. Since there is a constant flow of information between professional and financial service firms, proximity to their services could be an important factor for prospective firms. In Calgary, 5.2 per cent of the city's workforce is employed in non-engineering, non-IT related professional services, which is only slightly behind Toronto's 5.5 per cent, and ahead of Vancouver where 4.4 per cent of the labour force are engaged in these activities. In particular, Calgary has the highest share of employment in consulting-related activities at 1.7 per cent, compared to 1.1 per cent in Toronto and 1 per cent in Vancouver.

Table 5 summarizes the results for the labour force indicators. By most measures, Calgary ranks favourably compared to Toronto and Vancouver. And in the one case where Calgary ranks last among the three cities, share of employment in financial services, there is evidence that there are ample workers available with the right skills in Calgary, who have been working in other industries until recently.

Table 5: Summary of Labour Force Indicators

Indicator	Calgary	Toronto	Vancouver	Calgary	Toronto	Vancouver
	Value			Rank		
Share of population (25-64) with a university degree (%)	34.8	36.8	34.1	2	1	3
Output per worker - all industries (000s)	141.8	103.3	94.5	1	2	3
Output per worker - financial services (000s)	186.0	177.2	155.0	1	2	3
Labour force in management, business, finance, or administration occupations (%)	30.6	31.5	29.5	2	1	3
Share of employment in financial services (%)	3.9	8.4	4.7	3	1	2
Share of employment in non-engineering, non-IT professional services (%)	5.2	5.5	4.4	2	1	3

Sources: The Conference Board of Canada, Statistics Canada.

Cost of Business and Taxes

One of the most important metrics firms are likely to evaluate when choosing where to locate is the relative cost of doing business in the area. Although developing a complete picture of business costs in Calgary relative to the comparator cities is outside the scope of this analysis, several indicators were readily available to assess the city's competitiveness at a high level.

The first of these is the marginal effective tax rate (METR) on capital investment for business. This represents the proportion of the rate of return generated by firms from a new investment that is used to pay corporate income taxes, sales taxes on capital purchases, and all other capital-related taxes such as financial transaction taxes and asset-based taxed. Essentially, the METR is a means of gauging a particular region's competitiveness in attracting capital. A high marginal effective tax rate on capital investment makes a region less attractive to corporate investment, reducing economic growth. Conversely, a relatively lower tax rate on capital makes a metro area more attractive financially for firms and is therefore likely to have greater success in attracting new firms to the area long-term.[15] Recently, researchers at the University of Calgary School of Public Policy estimated METR for 92 countries across the world, including a detailed analysis of all Canadian provinces and U.S. states over the past decade.

Their results show that Toronto faces the lowest METR among the three comparator cities at an estimated 18.9 per cent in 2016. Calgary is still highly competitive however, with a METR of 19.3 per cent and both cities do significantly better than Vancouver on this indicator, which has an estimated METR of 27.9 per cent. The analysis shows that firms in Calgary benefitted from a lower METR as late as

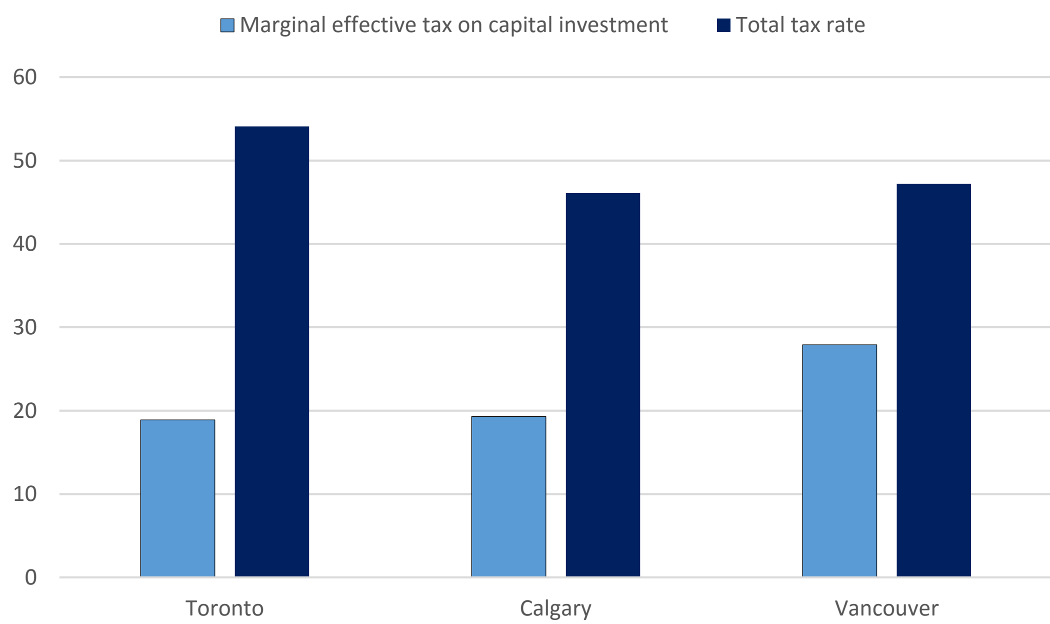
[15] (The Conference Board of Canada, 2016).

2014, but recent increases in the provincial corporate income tax rate drove the METR up 2.3 percentage points last year.[16]

Another measure of tax competitiveness, developed by KPMG, also shows the financial advantages of locating operations in Calgary. They calculated a total effective tax rate for 110 cities across the world based on three tax components: corporate income taxes, statutory labour costs (employer-funded CPP and EI payments, workplace safety, and medical), and other corporate taxes (sales, capital, and property taxes).[17] Unlike the METR above, which measures the competitiveness in attracting capital to a region, the total effective tax rate aims to quantify the tax burden a company faces on its operations.

The total effective tax rate is the sum of these three individual tax rates, and was calculated for a number of different industries. Among them is the “corporate services” industry, which includes activities like securities trading and foreign exchange transactions, funds management, centralized accounting, call centres and IT-related functions.[18] Between the three cities in this analysis, Calgary has the lowest total effective tax rate in this sector with a value of 46.1 per cent, which is the sum of the effective tax rates for each of the three components. This is lower than Vancouver, which has an estimated total tax index value of 47.2 per cent, and Toronto with 54.1 per cent. (See Chart 17.) Calgary does particularly well in the other tax component due to the fact that there is currently no provincial sales tax in Alberta. Total indirect taxes in Calgary are therefore only 5 per cent, compared to 12 per cent in Vancouver and 13 per cent in Toronto.

Chart 17 – Calgary Compares Favourably on Corporate Tax Rates
(marginal effective tax rate on capital investment and total effective tax rate, per cent)



Source: The Conference Board of Canada, KPMG, University of Calgary.

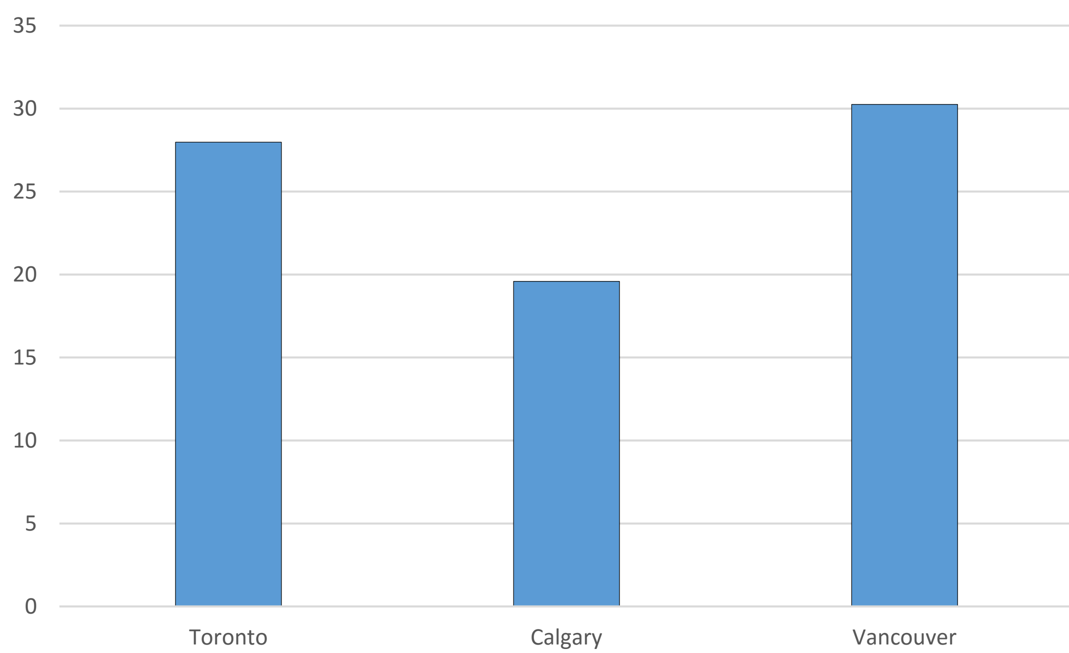
[16] (Bazel & Mintz, 2016).
[17] (Kelleher, Francescucci, & Cepparo, 2016).
[18] Note that, although KPMG specifically excludes financial institutions for the purpose of applicable taxes, many of the functions and activities defined in this sector are consistent with back-room related activities tied to financial services.

Thus, despite the recent increase in provincial corporate income tax rates, Calgary remains highly competitive with respect to the overall tax burden firms face. But another area related to the cost of doing business where Calgary shines is the cost of leasing office space. This is a direct, and critically important indicator of business costs, particularly for the types of firms considered in this analysis, whose main operating costs relate to their workers and the office space they occupy.

During the last boom cycle for the city between 2010 and 2014, there was a rapid expansion in new commercial office space, which has gone largely unabsorbed due to the subsequent contraction in the economy and drop in business confidence. One silver lining out of the most recent economic downturn is that prime commercial real estate is therefore readily available, and cheap.

The commercial vacancy rate for class A commercial space in downtown Calgary was 25 per cent at the end of 2016, compared to 7.7 per cent in Vancouver and just 4.4 per cent in Toronto. Consequently, the average lease cost for downtown commercial space in Calgary was only $19.59 per square foot at the end of 2016, compared to $27.98 in Toronto and $30.25 in Vancouver.[19] (See Chart 18.) On a typical office space of 75,000 square feet (which houses 500 employees at 150 square feet per employee), firms situated in Calgary would therefore save a significant amount on rent costs, roughly $630,000 a year compared to Toronto and $800,000 a year compared to Vancouver. Firms willing to lease large spaces may even realize greater cost savings then those suggested by the posted rates, as they would likely have the ability to negotiate a preferential agreement in the current climate.

Chart 18 – Calgary Office Lease Rates Are Well Below Those in Toronto and Vancouver
(average lease cost for Class A commercial space at end-2016, dollars)



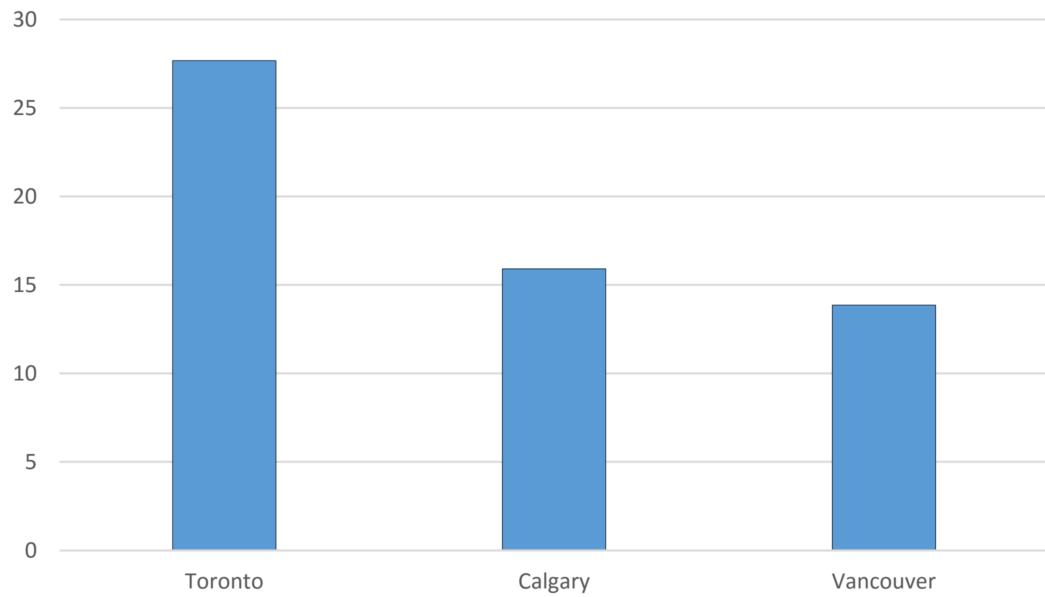
Source: CBRE Ltd.

The final indicator chosen to assess business occupancy costs is the average commercial property tax rate per $1,000 in assessed value. This is another direct measure of the cost of doing business in an area

[19] (CBRE Ltd, 2017). Data are for 2016, quarter four.

as it impacts operational costs for building owners and long-term lease costs for renters. As such, metro areas with low commercial tax rates are relatively more attractive places to do business. Vancouver leads in this area with an estimated $13.86 paid in commercial property tax per $1,000 in assessed value, but Calgary is close behind at $15.91. (See Chart 19). Both cities do better than Toronto by a wide margin, where commercial rates suggest $27.67 in property tax per $1,000 in assessed value.[20,21]

Chart 19 – Calgary has Competitive Commercial Property Tax Rates
(Commercial property taxes per $1,000 in assessed value, dollars)



Sources: The Conference Board of Canada; cities' property tax websites.

In addition to the tax burden and occupancy costs, firms are also likely to consider labour costs when choosing where to set up their operations. For service producing industries in general, and highly-skilled ones like financial or IT services, labour is often the single largest cost component and can have a substantial impact on a company's profitability.

On average, wages in Calgary are considerably higher than in the other two cities. For example, average annual wages and salary per employee in Calgary were $73,700 in 2016, compared to $52,000 in Toronto, and $49,700 in Vancouver. But the all-industry average can mask important distinctions. Calgary has a relatively high share of head offices and head office employment relative to its size. This

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[20] Based on publicly available posted tax rates for 2016 for Calgary and Vancouver, and 2015 for Toronto. Data for Calgary are based on non-residential class space, data for Toronto are based on general commercial space, and data for Vancouver are based on class 6 business commercial space. (City of Calgary, 2017), (City of Toronto, 2017), & (City of Vancouver, 2017).

[21] These estimates include both the municipal and provincial components of property tax. Municipalities have no control over provincial rates, but firms located in the metro area are still subject to provincial tax. Moreover, in some cases, property taxes are split into several levies which can differ from province-to-province. For example, property taxes in Vancouver includes separate rates for general purpose, provincial schools, TransLink, and the Municipal Finance Authority. These are in addition to the provincial and metro Vancouver assessment rates. Because firms are subject to all of these individual charges, the broadest measure of property tax was used in these calculations.

implies a larger number of executive salaries that pull up the average. Furthermore, previously strong labour demand from the energy sector, exacerbated by the massive residential and commercial construction boom in the city over much of the past decade, has led to elevated wages for skilled trades and technical occupations.

Thus, when measured by average wage rates, labour costs in Calgary (and Alberta as a whole) are therefore higher than the other two cities. But not all industries experience the same wage premium as others. For example, provincial wage rates in banking and related activities in Alberta were only 3.3 per cent higher than in Ontario in 2015, and 4.8 per cent higher than British Columbia.[22] This suggests that the mix of specific occupations matters.

Indeed, data compiled by fDi Benchmark on 38 distinct financial service occupations suggest that labour costs vary very little between the three cities. At the lower end of the pay scale, occupations like accounts, credit settlement, and other clerking jobs in Calgary make 0.1 per cent on average less than the same occupation in Toronto, and 1.2 per cent less than those in Vancouver. In occupations where specific experience, skills, or training is required such as accountants, investment and risk analysts, anti-money laundering and compliance officers, wages are 1.1 per cent higher in Calgary than Toronto, but 1.4 per cent lower than Vancouver. In fact, across 37 of the 38 occupations analyzed, it is Vancouver that has the highest average wage rates, although the overall difference is generally small.[23]

Thus, while the high average labour costs in Calgary can seem prohibitively costly for some firms, it is important to consider the actual occupations that a firm will use. Specific wage rates in financial services activities are competitive across the three cities and this is likely to be particularly true today given the elevated unemployment rates for many key occupations in the city.

Travel

The global economy has grown increasingly connected over time. As such, having easy access to global markets is another factor that firms consider when they choose where to locate. This is particularly true for firms (like many in financial services) that do business across international borders, either with the United States or other countries. One measure of how connected a metro area is with the rest of the world is the overall seat capacity of incoming non-stop flights, adjusted for the size of the market. In essence, the greater the number of inbound seats per capita, the greater the opportunity for business and leisure travel. Higher airport capacity gives businesses a greater opportunity to meet faraway clients face-to-face and provides better access to global supply chains as a result.

In 2016, there were an estimated 6.5 non-stop airplane seats per capita flying into Calgary, compared to 4.9 in Vancouver and 4.3 in Toronto.[24] (See Chart 20.) Indeed, previous research by the Conference Board of Canada found that Calgary ranked 2nd overall in a comparison of 20 cities worldwide on this measure, trailing only Copenhagen, and outpacing other world-class cities like Singapore, San Francisco, Hong Kong, Los Angeles and Sydney by comfortable margins.[25]

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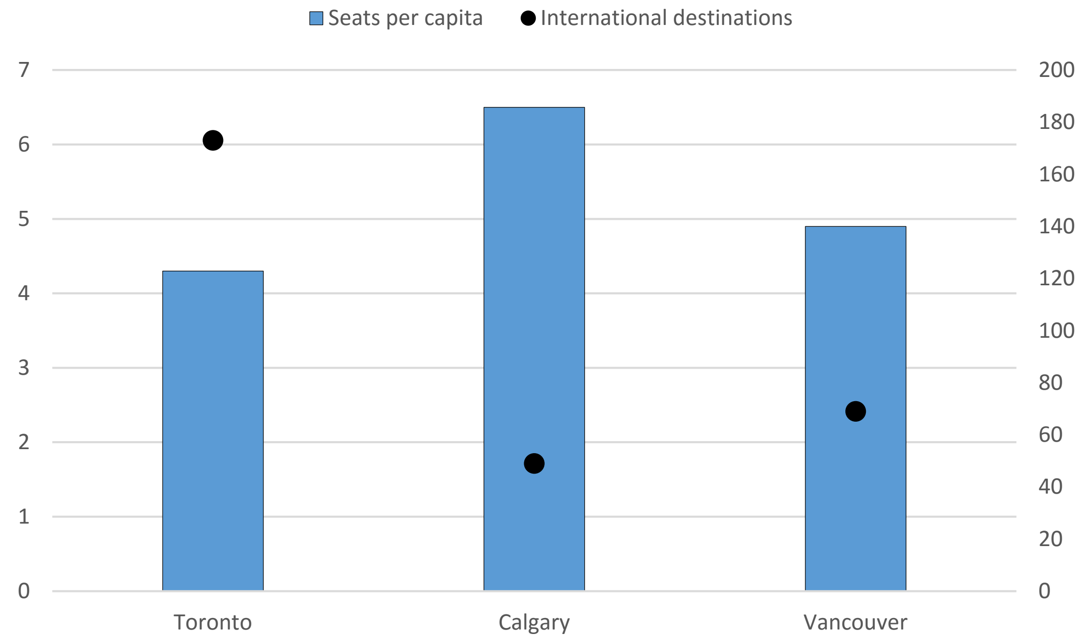
[22] Based on CANSIM Table 281-0027.
[23] Wages by occupation were taken from a customized analysis undertaken by fDi Benchmark on behalf of Calgary Economic Development. (fDi Benchmark, 2016).
[24] Data compiled individually for each city using OAG Schedules iNET service.
[25] (The Conference Board of Canada, 2016).

Chart 20 – Calgary Has Ample Air Capacity but Limited International Connections
(number of direct air seats per capita, left scale; number of direct international destinations, right scale)



Sources: The Conference Board of Canada, OAG Schedules iNET service.

Calgary does well in adjusted measures of access to travel, but Toronto still serves as the main international hub in Canada, a relationship which reflects its elevated population and large economy. The city currently serves 173 unique international destinations with non-stop service, which is easily the highest number of any metro area in Canada. Vancouver meanwhile benefits from being a key hub for facilitating travel between North America and Asia, and boasts 69 unique international destinations. Calgary trails both cities on this metric, but still serves an impressive 49 unique international destinations, which virtually ensures that travelers from the city can reach any city in the world with non-stop, or one-stop, service. A map of international connections through Calgary International Airport is included in Appendix B.

The results on costs and travel are summarized in Table 6. They show that Calgary compares extremely well to the other two cities, particularly with respect to occupancy costs and effective tax rates. The city does trail its comparators on labour costs as measured by average wages. But a more detailed look at wage information for specific occupation suggests that the gap may not be wide as this indicator implies. Moreover, lower occupancy costs and tax rates also help to offset this potential shortcoming.

Table 6: Summary of Business Costs and Travel Indicators

Indicator	Calgary	Toronto	Vancouver	Calgary	Toronto	Vancouver
	Value			Rank		
Marginal effective tax rate on capital investment for business (%)	19.3	18.9	27.9	2	1	3
KPMG total tax index (%)	46.1	54.1	47.2	1	3	2
Average monthly lease costs for Class A commercial space ($ per sq. ft)	19.59	27.98	30.25	1	2	3
Commercial property tax per $1,000 in assessed value ($)	15.93	27.67	13.86	2	3	1
Average wages and salary per employee (000s)	73.7	52.0	47.1	3	2	1
Inbound airplane seat capacity per capita	6.5	4.3	4.9	1	3	2
Number of unique non-stop international destinations by air	49	173	69	3	1	2

Sources: The Conference Board of Canada, University of Calgary, KPMG, CBRE, cities' property tax websites, OAG Schedules iNET, Statistics Canada.

Factors that Make Calgary Attractive to Workers

Incomes

The identified metrics in the previous section presented an overview of Calgary's performance in areas that are likely important to firms. Several of these related to the quality and availability of labour in a metro area. Thus, it is reasonable to also look at factors that might be attractive to individuals as well. Cities that are attractive for highly skilled workers are more likely to possess the necessary skills and experience financial service firms require for long-term success.

One of the most likely factors to influence labour to move is the wages they could expect to earn in a city. As noted in the previous section, average wages in Calgary are well above those in Toronto or Vancouver. And although the gap may narrow for certain occupations, high average wages are positive for potential employees and their family members that relocate with them. Thus, while high average wage rates in Calgary may be a concern from the firm's perspective, it is very positive from the employee's point of view. High wages also have long-term effects on population growth. Indeed, the relatively high wages earned by employees in the city has been a key reason why Calgary has gained 62,600 net interprovincial or intra-provincial migrants over the past ten years, compared to just 21,200 in Vancouver, and a loss of 33,300 for Toronto.

Incomes on a city-by-city basis are likely to be less important for international migrants, since these either usually benefit from higher wages in the Canadian market generally relative to their home country, or they immigrate to a specific Canadian city for other factors, such as a specific job sponsored by a company located in a city, or a large presence of other immigrants from the same home region. Regardless, all three cities in this analysis attract a significant number of international immigrants. Net international migration over the past ten years relative to 2016 population is highest in Toronto at 13.7 per cent, followed by Vancouver at 12.5 per cent, and Calgary at 10.1 per cent. This represents a net gain of nearly 150,000 international migrants in Calgary over the past decade. Unsurprisingly, the pace of international immigration to the city has slowed in the past two years as the economy has weakened and job opportunities have dried up. This is yet another indicator that is likely to turn around over the next several years as Alberta's economy gets back on track.

On average, workers in Calgary earn significantly more than in other metro areas across the country. But workers are also likely to factor in the relative tax burden between jurisdictions, as this affects their relative spending power. The estimated marginal tax rate[26] for an individual earning $76,500 per year in

[26] The marginal tax rate is the share of $1 of additional income paid in tax.

Calgary is 30.5 per cent, compared to 31 per cent in Vancouver and 31.5 per cent in Toronto.[27] In fact, the estimates suggest that for all income levels above $73,250 per year, Calgary has a lower marginal personal income tax rate than Toronto and for all incomes above $76,500, Calgary has a lower rate than Vancouver.

Below those thresholds, workers in Calgary will pay a higher average, and marginal, rate of personal income tax. This result stems from the relatively less progressive nature of provincial taxation in Alberta. But it is important to keep in mind that the personal income tax rates in place are particularly beneficial to workers with above-average incomes like those we would expect to find in financial services or related professional occupations.

Since workers in Calgary earn relatively more on average than in Toronto and Vancouver, and the city benefits from a provincial income tax system that is beneficial to higher wage earners, it is unsurprising that after-tax disposable incomes are significantly higher than in the other two metro areas. In 2016, disposable income per capita was $50,500 in Calgary, compared to $38,400 in Vancouver, and $35,900 in Toronto. Workers in the city also have expanded buying power due to absence of any provincial sales tax. This is an important factor for firms to consider, as metro areas with high-levels of disposable income represent large spending capacity and are more likely to draw in skilled workers in search of employment opportunities.

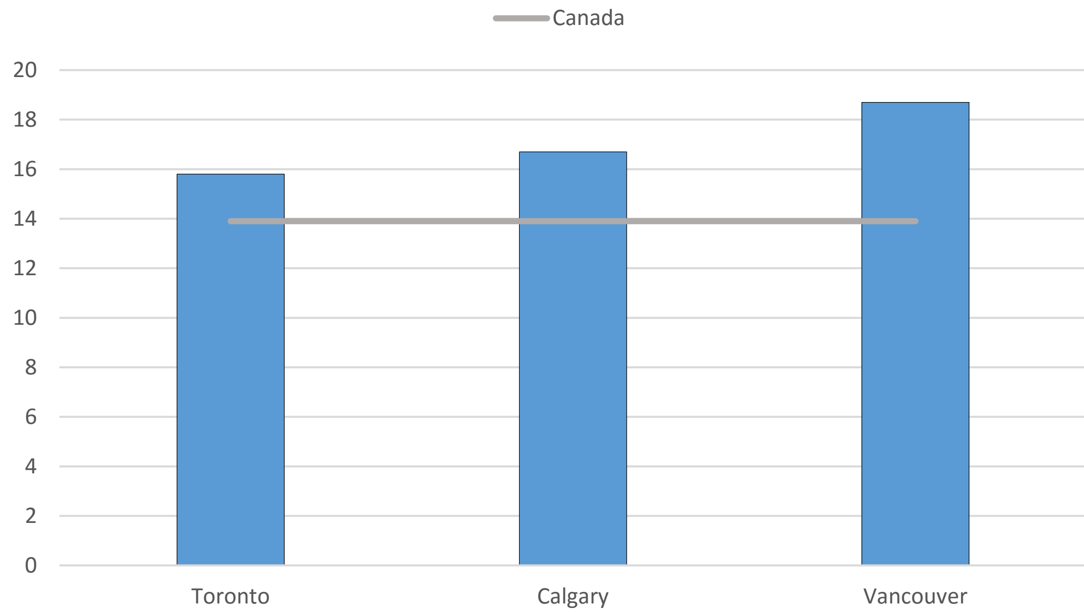
Quality of Living

Calgary outperforms its comparators in measures of income and tax burden, but individuals may also look at other factors when assessing the quality of a city. Previous research has identified key metrics for benchmarking purposes that provide very high-level information on how “fun”, or “modern” a city is. For example, urban centres are increasingly young and have relatively high shares of their population aged 25 to 34 years old and this age cohort tends to be well educated and highly mobile. Any metro area with a large proportion of its population in this age group will be attractive to other young adults and will also be better positioned for the future. All three metro areas in this analysis exceed the national average of 13.9 per cent, but it is Vancouver who leads the way with 18.7 per cent, followed by Calgary with 16.7 per cent, and Toronto with 15.8 per cent. (See Chart 21.)

Because Canada’s population is increasingly concentrated in urban centres, congestion has emerged as a major problem in major metro areas across the country. Ease of navigation within a city and the presence of a well-developed public transport system can play a positive role in drawing people to a city, particularly younger age cohorts which are more likely to use public transportation. The ability to walk or bicycle to work is also an important consideration for younger workers. As urban centres, Calgary, Toronto, and Vancouver each have vast public transportation networks but Toronto’s public transportation system is the most extensive, and consequently it has the highest share of people whose primary commute to work is through public transportation, walking, or bicycling at 29 per cent. Vancouver has 28.4 per cent commuting through these means.

[27] Estimates only. Based on calculations provided by EY Tax Rates. (EY, 2017).

Chart 21 – All 3 Cities have Young Populations
(share of population between 25 and 34 years old, per cent)



Sources: The Conference Board of Canada, Statistics Canada.

Calgary finishes last in this measure, with just 21.9 per cent of the population commuting to work by these modes of transportation. In part this is due to the rapid surge in population for the city, leading to previously sparsely populated areas only now becoming sufficiently dense to justify being served by public transportation capacity. Rapid transit in all three cities is in a constant state of expansion, but in Calgary these expansions will help serve potential riders that previously had little or no access to rapid public transport. For example, the city is preparing to begin construction in 2017 of a new Green Line for the CTrain service, which will add 40 km to the existing light-rail trail network and could carry 41 million passengers annually.[28]

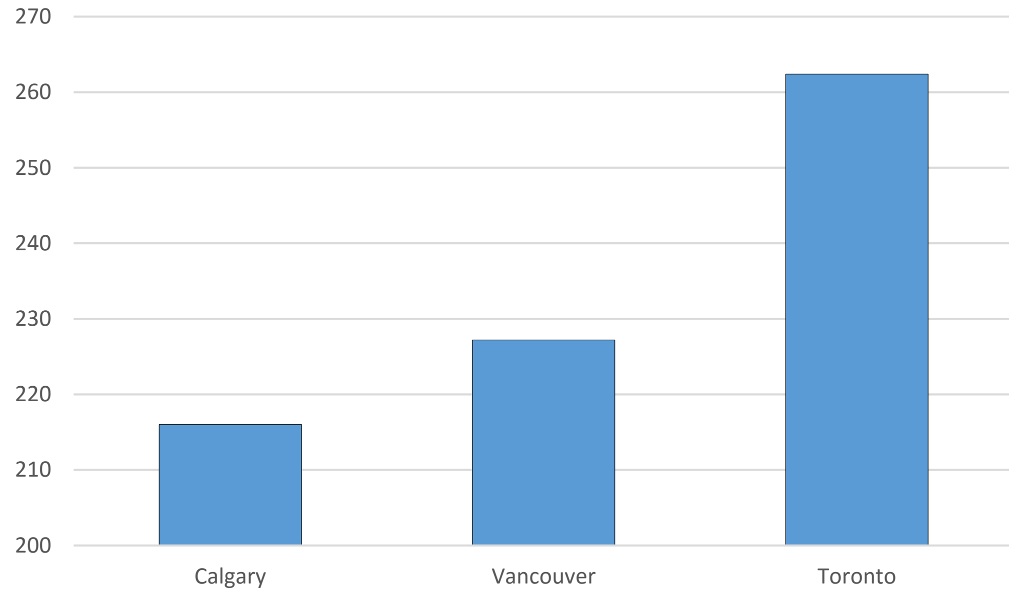
In addition to the ease of commuting, individuals will also likely consider the time it takes to get to and from work each day. Road congestion in most urban Canadian centres is an issue, and has a negative impact on the economy and quality of life.[29] All three cities in this analysis have above-average commute times with respect to the Canadian average, but Calgary performs the best, with an average time to work of 27 minutes, followed by Vancouver at 28.4 minutes, and finally Toronto at 32.8 minutes.[30] (See Chart 22.) While the gap for any one person, each way, to work is only a matter of a few minutes, the loss in productivity can be huge on an aggregate basis. For example, a worker in Calgary saves 11.6 minutes a day, on average, in commuting time relative to Toronto. If that is spread across the entire 800,000 employees in the city, the savings amount to roughly 155,000 hours per day for the entire workforce, or as much as 37.8 million hours per year that can be diverted to productive activities

[28] (Calgary Transit, 2017).
[29] (Gill & Lawson, 2016).
[30] (Statistics Canada, 2016).

in the city. Calgarians save more than 9 million hours per year relative to Vancouver due to shorter average commuting times.[31]

Chart 22 – Calgary Has Shorter Commute Times than Toronto or Vancouver

(average annual hours spent commuting per worker)



Sources: The Conference Board of Canada, Statistics Canada.

Urban centres also market themselves as “fun” places to live, and although this is a difficult indicator to quantify, one metric that has been used in other Conference Board research as a proxy for access to culture is the share of labour force engaged in cultural occupations. In effect, a metro area with a high proportion of cultural workers will be better able to attract people, particularly the important younger cohorts that help ensure a city’s long-term success. By this measure, Vancouver rates as the most attractive city among the three, with 4.1 per cent of the labour force engaged in cultural occupations, compared to 3.9 per cent in Toronto and 2.5 per cent in Calgary. On the other hand, there is 2.8 per cent of Calgary’s workforce employed in arts, recreation, or entertainment today, which is essentially the same as in Vancouver and above the 2.3 per cent recorded in Toronto.

The final measure of quality of living that we assess in this analysis is access to health care, which is represented by the number of physicians per 100,000 people. Health care is a key concern for many families and the ease of mind that comes with easy access to it could be a factor that individuals consider when choosing where to locate. Data compiled for 2015 by the Canadian Medical Association (CMA) shows that Calgary has 253 general practitioners (GPs) and specialists in the city for every 100,000 people, which is slightly higher than 249 in Vancouver, and well above the 202 in Toronto.[32] Calgary has an even stronger advantage with respect to the number of GPs specifically, which is an important consideration, as family doctors are the first step into provincial health care systems.

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[31] These estimates are based solely on average commuting times for the three cities and allow for 250 working days a year.

[32] (Canadian Medical Association, 2017).

Table 7 summarizes the results on quality of life indicators for individuals. Calgary performs well in terms of average income levels, commuting time to work, and access to health care due to its rate of physicians per capita. Calgary lags the other two cities in terms of the share of population who use public transportation, but the upgrades to the CTrain in coming years ensures that a high share of city residents still have access to quality public transportation.

Table 7: Summary of Quality of Living Indicators

Indicator	Calgary	Toronto	Vancouver	Calgary	Toronto	Vancouver
	Value			Rank		
Wages and salaries per employee ($000s)	73.2	52.0	47.1	1	2	3
Marginal Personal Income Tax Rate at $76,500 (%)	30.5	31.5	31.0	1	3	2
Disposable income per capita ($000s)	50.5	35.9	38.4	1	3	2
Share of population 25 to 34 years old (%)	16.7	15.8	18.7	2	3	1
Average commuting time to work (minutes)	27.0	32.8	28.4	1	3	2
Population using public transport, walking, or bicyling to work (%)	21.9	29.0	27.8	3	1	2
Labour force in cultural occupations (%)	2.5	3.9	4.1	3	2	1
Employment in arts, entertainment, and recreation (%)	2.8	2.3	2.8	2	3	1
Physicians per 100,000 in population	253	202	247	1	3	2

Sources: Statistics Canada, EY, Canadian Medical Association, The Conference Board of Canada.

Housing Affordability

Another key factor for individuals to consider when relocating is housing affordability. Although previous sections have already shown that workers in Calgary earn above-average wages, it is useful to understand if that stretches further in terms of housing compared to Toronto and Vancouver.

The simplest indicator of housing affordability is the average house price, which in 2016 was $462,216 in Calgary based on data compiled from the Canadian Real Estate Association (CREA).[33] (See Chart 23.) This is 36 per cent lower than Toronto ($724,017) and 53 per cent lower than Vancouver ($991,200) for 2016 as a whole.[34] The relative difference in housing prices alone suggests that Calgary has an advantage in affordability, but the gap is even wider when considering the higher average wages paid to its workers. The average home price in Calgary is equivalent to 6.3 times the average annual income paid to workers in the city. In Toronto, housing is more than twice as expensive relative to income, and in Vancouver it is more than three times as expensive. Thus, Calgary has a massive advantage with respect to housing affordability, as families devote a significantly smaller share of their incomes to shelter.

Residential housing is also subject to property taxes, which fund the provision of public services and upgrades in the community. These rates vary considerably across provinces and are a direct cost borne by property owners. To assess the average property tax burden across the three cities, we calculate the average property tax paid per $1,000 in assessed value. In this area, Vancouver leads the way as residential property owners could expect to pay, on average, $3.17 per $1,000 in assessed value. Calgary is in second place at $6.17, followed by Toronto at $7.06. (See Chart 24.)

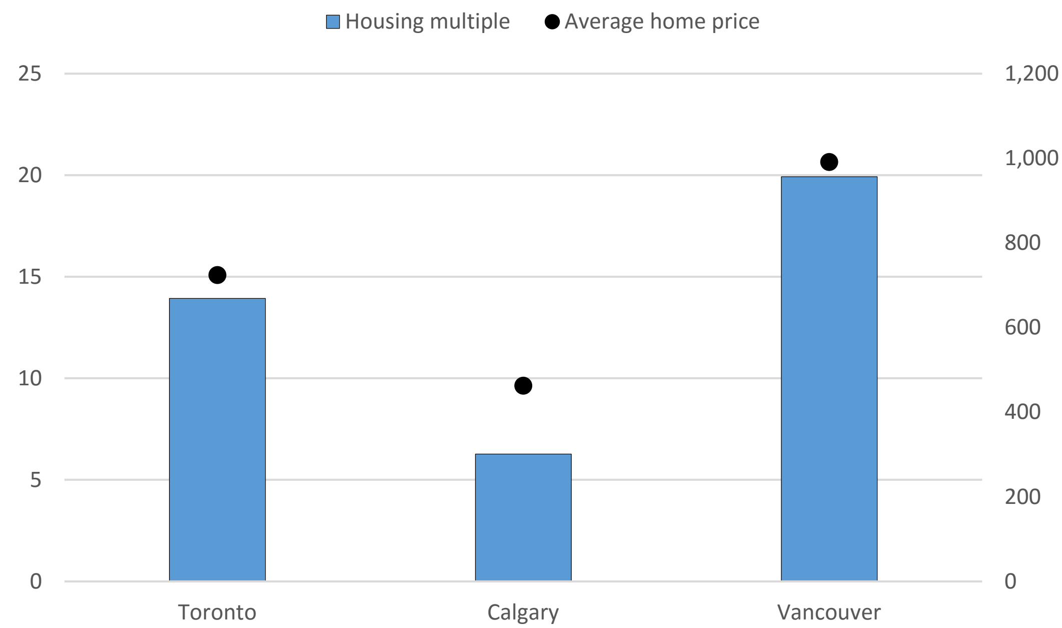
[33] (Canadian Real Estate Association, 2017).

[34] We chose to analyze housing prices using the annual average for 2016 to improve consistency with income and wages, which are also aggregated to an annual frequency. Importantly, the average price in Vancouver has come down significantly (18.9 per cent decline between January 2016 and January 2017), in part due to new restrictions on foreign ownership. Over the same period, the average house price increased by 22.1 per cent in Toronto and by just 2.7 per cent in Calgary. Despite these recent fluctuations relative to the annual average, they do not influence the relative affordability rankings between the three cities.

While Calgary does have a residential property tax rate that exceeds Vancouver, it is worth considering that rate in the context of the average price of housing. For example, the average house in Calgary would owe approximately $2,786 in property taxes in 2016 which is effectively the same as in Vancouver where an average-priced home results in $2,780 in property tax. Both cities are about half of what the average house in Toronto receives for a tax bill at $5,438.

Chart 23 – Calgary Has Much Better Housing Affordability

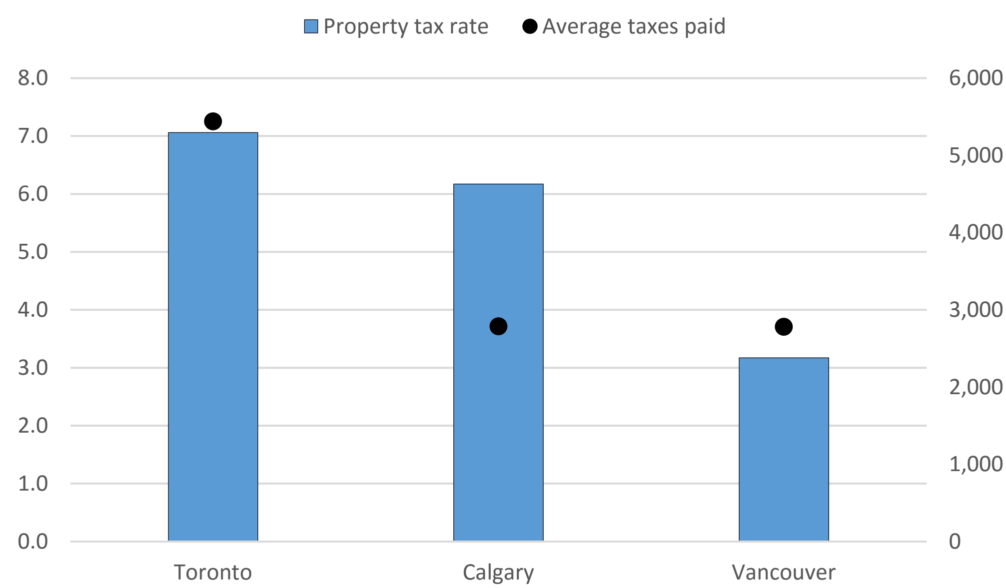
(average home price, 000s – right scale; average housing price as multiple of income – left scale)



Sources: The Conference Board of Canada; CREA, Statistics Canada.

Chart 24 – Calgary Has Lower Residential Property Taxes than Toronto

(Average property taxes per $1,000 in assessed value – left scale; property taxed paid on average home, dollars – right scale)



Sources: The Conference Board of Canada, cities' property tax websites.

These results should also be considered relative to income levels. The average residential property taxes paid on the average house in Calgary is equivalent to just 3.8 per cent of average income. In Vancouver, although the tax assessment is roughly equivalent to Calgary in level terms, workers in the city would spend roughly 5.9 per cent of their gross income on property taxes because they are paid less. In Toronto, the difference is even more stark as property taxes account for more than 10 per cent of the average worker's pay.

All in all, housing affordability is a key factor that workers would likely consider when choosing whether to relocate and Calgary offers substantial benefits to its population, in terms of lower housing prices generally, but especially relative to the elevated income levels earned by its workforce. Indeed, other research has shown that residents in Vancouver pay, on average, 92 per cent of median pre-tax income to service mortgage payments, property taxes, and utilities for residential housing. In Toronto, they pay 63.7 per cent, which although considerably lower than Vancouver, is still more than the Canadian average of 44.3 per cent. In Calgary however, residents can expect to spend just 33.6 per cent of the median pre-tax income on their homes, which is the second lowest of any major metropolitan area in Canada, trailing only Winnipeg.[35,36]

The results in Table 8 suggest that Calgary affords a massive advantage to individuals in terms of housing affordability. Housing is significantly less expensive on average, particularly in light of the elevated wages in Calgary relative to the other two cities.

Table 8: Summary of Housing Affordability Indicators

Indicator	Calgary	Toronto	Vancouver	Calgary	Toronto	Vancouver
	Value			Rank		
Average housing price ($000)	462.2	724.0	991.2	1	2	3
Average house price as a multiple of average wage per employee	6.3	13.9	19.9	1	2	3
All-in residential property tax per $1,000 in value ($)	6.10	7.06	3.17	2	3	1
Average property tax paid on average house ($)	2,786	5,438	2,780	2	3	1
Average property tax paid as a share of average wages (%)	3.8	10.5	5.9	1	3	2

Sources: CREA, Statistics Canada, city websites, The Conference Board of Canada.

[35] Based on 2016q3 data. (RBC Economics, 2016).

[36] Major metropolitan areas here include: Toronto, Montreal, Calgary, Ottawa, Edmonton, Winnipeg, and Vancouver.

Future Impact of Expanding Financial Services in a City

Financial services is a highly-productive industry that typically employs well-educated people and pays significantly above-average wages. As such, attracting financial service firms to locate within a metro area can have sizeable near-term economic benefits in terms of direct employment and output, and secondary and tertiary effects related to supply-chain and incomes. Moreover, the industry can have positive long-term impacts as well, since educated and skilled workers tend to be attracted to cities that already have sizeable numbers of other educated and skilled individuals. In turn, firms tend to be attracted to these locations because they are assured access to individuals with the skills that they need. This suggests that the more firms and workers a city can attract today, the more that will come willingly in the future. When this process occurs within a single industry or set of related economic activities, this is the beginning of an industrial cluster.

Industrial clusters emerge over time for a variety of reasons and comparative advantage can be an important consideration. The most obvious of these are low-cost manufacturing or traded-service clusters. These types of clusters begin in low-wage regions, often close to major consuming markets. However, as low wages are usually the driving force behind these clusters, they are ultimately unsustainable unless low wage rates prevail indefinitely.

In other cases, a nascent industry has only one or two anchor employers. As the new industry expands, new or related firms spring up and locate in the same geographic area as the anchor employer because this is where the industry's talent and expertise is concentrated. This is the case for Silicon Valley in California, which has been the world's largest high-tech cluster for more than four decades. Large anchor employers like Hewlett-Packard and Intel, along with several government research institutions and the proximity of a world class research university in Stanford, were the basis for the area at the beginning. But as computing and ICT have grown exponentially in importance over the last several decades, thousands of start-up companies came to the region in search of talent and to provide ancillary services and products to the anchor firms. Eventually, some of these start-ups became new anchor firms like Apple, Google, and Facebook.

An important benefit inherent in ICT is that transportation costs are generally low. Things like research and development, or software and computer services have very few inputs outside of labour, and firms do not need to be close to their customers to keep costs down. And yet, despite low transaction costs associated with high-tech activities, an increasing number of firms continue to cluster in Silicon Valley despite high property prices.[37] This suggests that, when it comes to new and emerging industries (particularly service-producing ones that can, in theory, locate anywhere), the earlier a city develops a critical mass of talent and firms, the better chance that a self-sustaining cluster will emerge over time.

Clusters can also emerge around a valued natural resource. Ft. McMurray in Alberta is a world class energy cluster for example, with many of the world's largest oil and natural gas firms having a significant presence in the region. This stems from a competitive advantage that the area has that other regions do not – vast amounts of oil and natural gas reserves. Over time, the cluster has expanded as oil production has increased, attracting tens of thousands of skilled workers to the region. It has also drawn in firms that provide related services to producers, like machinery manufacturing and geophysical mapping services, to the region. From just a handful of firms 25 years ago, there are now dozens of companies

[37] (The Economist, 2009).

operating in the oil sands. Today, these companies are world-leaders and sell their expertise to countries all over the world.

History also plays a role in how industries cluster. Today, modern communication technology and the internet allows anyone to connect to anyone else anywhere in the world. But before modern communications, geographic distance was a key consideration for people and firms. This is directly applicable to the financial services industry. In Canada for example, a disproportionate number of head offices have been established over time in Toronto and this made the city an attractive location for banks and other financial firms. Over time, the city developed more and more expertise, which spurred start-ups, partnerships, and drew more financial service firms to the region.

In fact, many of the world's largest financial centres have evolved because the city was historically the main population centre, and growth engine, of the country. For example, New York, London, and Tokyo are the world's three largest financial clusters and have all evolved in a similar way to Toronto. In essence, these financial service firms clustered close to their clients and built on their expertise over time. As financial services grew more complex and branched into related activities, it made sense for new firms to also locate in the same area to keep transaction costs as low as possible and to accelerate the flow of information.

How firms cluster, particularly in highly-productive industries like financial services, can have meaningful economic consequences for a region. For example, because Toronto is the largest cluster and is head office to most major banks, the city touches virtually every financial transaction in the country. Financial services is a key input into any industry in the modern economy and the vast majority of Canadian families use financial service firms to receive their wages and pay their bills. Thus, Toronto captures an outsized amount of economic activity across the country thanks to its financial services cluster.

While incumbent clusters in financial services have the inherent advantage of starting first, there are two related reasons why other cities looking to establish themselves domestically or globally in this industry can be hopeful. The first is the industry's growth potential.

Financial services have always been an integral part of economies, but never more so than today. Thanks to the growing interconnectedness of the global economy, capital now moves more quickly and efficiently across borders than ever before. Financial services are expanding in breadth and complexity every day, as they adapt to changing market conditions and adopt new technologies. This is good news for cities like Calgary that are already well-positioned in global financial markets, as the changes in the industry continue to create new opportunities and niches for growth.

The city already has considerable expertise across a wide-variety of financial service related activities. It is a world leader in energy-financing, a specialist in investment banking and managing foreign direct investment, and is on the leading edge of private equity and venture capital investments in Canada. Each of these success stories have developed over time, and have set a solid base for the industry to expand upon going forward.

The other reason that Calgary is well-positioned to grow as a financial centre comes from technological advances. As we noted above, historical financial clusters have developed over time because there was a need to locate close to clients. Then to lower vertical transaction costs, ancillary and related services clustered in these same areas. But thanks to modern ICT infrastructure, that no longer need be the case.

Information flows more easily than ever before and a large share of financial service activity has little or no direct contact with the client. For example, cheque clearing or transactions processing usually occurs at, or close to, a bank's head office. Historically that promoted the easy flow of information to other divisions at the bank. Today, it makes little difference if those activities are conducted in the same building, same city, or in some cases the same country. Indeed, financial institutions today, particularly large ones, operate across the globe.

Thus, there are large segments of the financial services industry which no longer "need" to be in any particular place to promote vertically-integrated efficiency. In the future, then, where these activities take place will depend on other competitive factors like access to key skillsets, affordable and readily-available office space, robust domestic and international travel infrastructure, and tax rates.

In the near-term, these choices are easier for new firms as they may not have established operations. For large incumbents, who would incur costs when undertaking any movement of their staff or operations , the process may take longer to play out. Nevertheless, long-term, as the potential economic benefit from relocating moves beyond the transactional costs associated with the move itself, more and more established firms will be attracted to Calgary.

Calgary's labour force is highly educated and has the right skill set for financial services, the city is already an established global financial centre, and it currently has very cost-effective office space relative to other major urban centres in Canada. Moreover, it offers favourable tax rates for both firms and their employees. The case for firms locating their operations in Calgary is strong as it offers many potential benefits to prospective employers. The main difficulty is that these benefits will accrue to the firm over time, whereas the costs associated with relocation are felt immediately. Strategies taken to induce new firms to the area must bear this in mind and find a way to balance the long-term and short-term value propositions that Calgary offers.

Conclusion

The main purpose of this report was to outline the value proposition that Calgary provides to firms in highly skilled industries like financial services. Calgary is already a globally-recognized financial centre with specific expertise in investment banking, managing foreign direct investment, private-equity, and wealth management services and this provides the existing critical mass of talent and firms for the industry to expand upon going forward.

This report looked at a number of different indicators with the goal of identifying factors that are important to prospective firms and individuals when choosing where to locate, and compared Calgary's performance on these indicators to two other financial centres in Canada – Toronto and Vancouver. The results show that the city's population is young, educated, and diverse and its workforce is highly productive and comprised of a high share of occupations that financial services firms need. For financial service firms, where labour is the dominant input, access to a highly skilled workforce is essential and Calgary meets all the necessary requirements.

But Calgary really shines on different measures of the cost of doing business. The city has prime and readily-available office space and the average commercial lease rates in the city are extremely cost-effective relative to the situation in Toronto or Vancouver. Moreover, different measures of effective corporate tax rates show that Calgary is first or second between the three cities depending on the calculation. Therefore, even though average wages in the city to be higher, there are still substantial benefits to being located in the city.

The city also has a lot to offer potential workers as well. Not only does it pay above-average wages, but the relative tax burden (particularly for high-income earners) is lower as well, resulting in considerably more buying power for those located in the city. This is very apparent when housing affordability is compared across the three cities and is an area where Calgary excels. Public transportation infrastructure is extensive and expanding, and individuals spend considerably less time getting back and forth from work every day. The population is young and educated, which tends to draw more young and educated people over time, and combined with easy access to entertainment and recreation, makes the city a fun place to live.

Thus, Calgary is an attractive city for firms and individuals and has considerable experience and talent in financial services. This represents a prime opportunity to further develop the city's financial cluster by attracting one or more new anchor employers to the city. Historically, financial centres have emerged in population centres with a high density of firms, particularly headquarters. But modern communications technology allows information to flow rapidly and accurately across large distances which lessens the need to locate close to the clients.

Furthermore, the complexity and reach of financial services is greater today than ever before. Its services are required by virtually every firm and individual in the country and is a key facilitator of global trade which continues to expand. As such, activities like electronic payment systems, transactions processing, clearing house activities, and risk management have grown exponentially over time. As financial services have moved increasingly online, related activities like data management, cyber-security, and information systems have also grown in importance. One key trait these activities all share is that physical proximity to clients is not a requirement of success.

Taken as a whole, the results of this analysis suggest that expanding Calgary's existing financial services cluster offers significant potential benefits to both the city and prospective firms. Given that a growing share of financial services activity no longer needs to be located close to the client or head office, where firms locate themselves in the future will depend increasingly on other competitive factors like access to key skillsets, affordable and available office space, and taxes – all areas where Calgary is extremely competitive relative to other major financial centres in Canada. But these benefits will generally accrue to a firm over time, whereas relocation and reorganization costs are felt immediately. Balancing these factors will be crucial to any strategies taken to attract new firms to the city.

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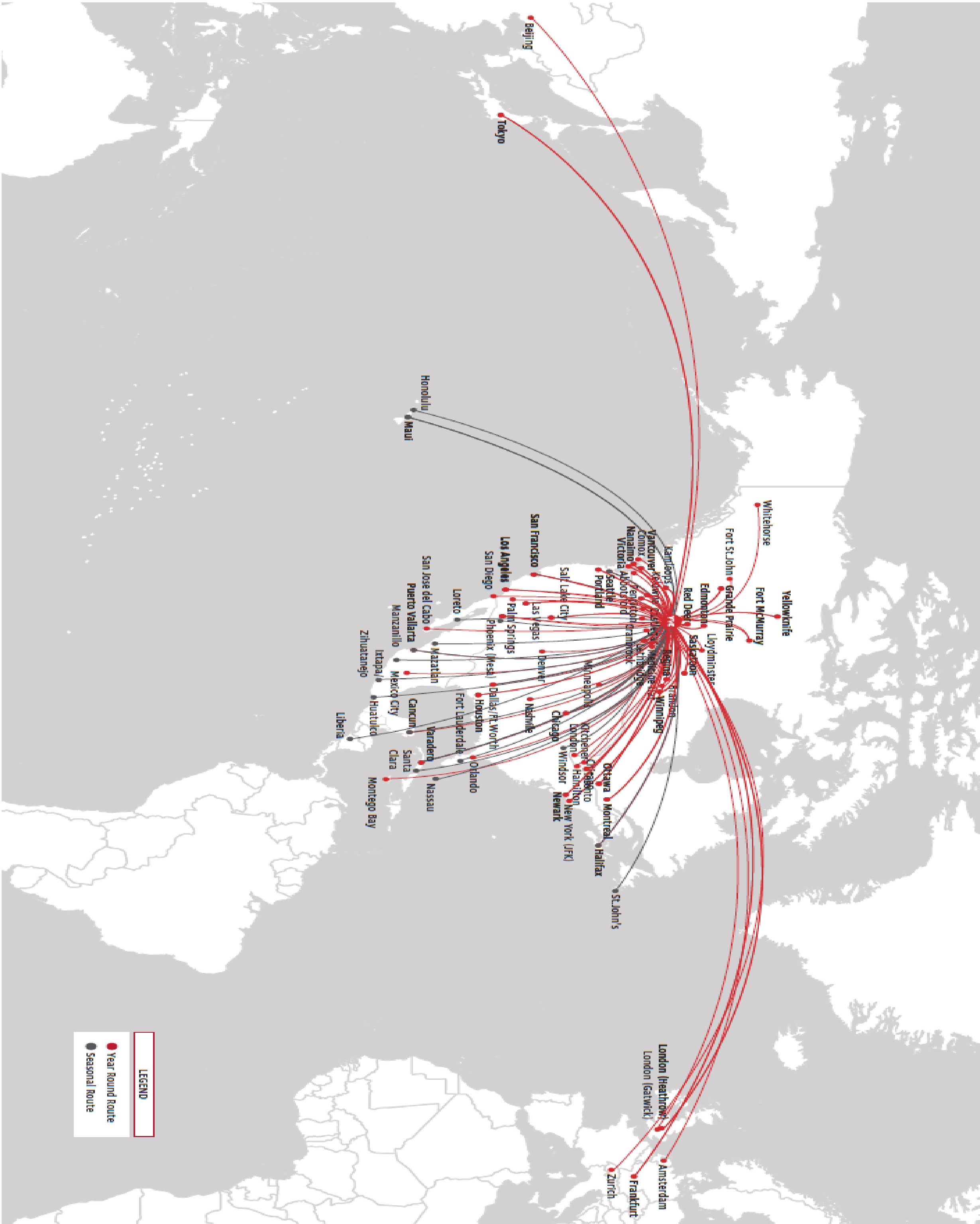
Appendix A: Canada's Largest Energy Firms

Company	HQ location	Revenues (bils of $)
Enbridge Inc.	Calgary	33.8
Suncor Energy Inc.	Calgary	29.3
Imperial Oil Ltd.	Calgary	26.8
Husky Energy Inc.	Calgary	16.4
Cenovus Energy Inc.	Calgary	13.1
Canadian Natural Resources Ltd.	Calgary	12.4
TransCanada Corp.	Calgary	11.3
Valero Energy Inc.	Montreal	9.8
Parkland Fuel Corp.	Red Deer	6.3
Tervita Corp.	Calgary	5.8
Encana Corp.	Calgary	5.7
Gibson Energy Inc.	Calgary	5.6
Pembina Pipeline Corp.	Calgary	4.6
CST Canada Co.	Montreal	4.3
Pacific Exploration & Production Corp.	Toronto	3.6
Crescent Point Energy Corp.	Calgary	3.2
Repsol Oil & Gas Canada Inc.	Calgary	2.9
ConocoPhillips Canada Resources Corp.	Calgary	2.7
Keyera Corp.	Calgary	2.5
AltaGas Ltd.	Calgary	2.2
MEG Energy Corp.	Calgary	1.9
ShawCor Ltd.	Toronto	1.8
Inter Pipeline Ltd.	Calgary	1.7
Enerflex Ltd.	Calgary	1.6
Precision Drilling Corp.	Calgary	1.6
Calfrac Well Services Ltd.	Calgary	1.5
ARC Resources Ltd.	Calgary	1.4
Ensign Energy Services Inc.	Calgary	1.4
Secure Energy Services Inc.	Calgary	1.3
Devon Canada Corp.	Calgary	1.3

Source: Financial Post 500

Appendix B: Map of International Connections from Calgary International Airport



Source: Calgary International Airport, Calgary Economic Development.

Appendix C:

Top Commercial and Investment Banks with presence in Calgary

15 Top Investment Banks in the World 2017 (ranked by Market Capitalization)

14 of Top 15 World Investment Banks have a presence in Calgary*.

* Missing Bank: Sumitomo Mitsui Financial Group

Company	Market capitalization (US$b, March 2017)
JP Morgan	323.9B
Wells Fargo	293.6B
Bank of America Merrill Lynch	248.9B
Citigroup	166.9B
HSBC Holdings	162.6B
Royal Bank of Canada	107.1B
Goldman Sachs	101.9B
Morgan Stanley	84.0B
BNP Paribas	80.8B
UBS Group	61.8B
Sumitomo Mitsui Financial Group	53.7B
Barclays	48.2B
Mizuho Financial Group	47.9B
Credit Suisse	32.3B
Deutsche Bank	26.2B

Source: http://www.relbanks.com/worlds-top-banks/top-investment-banks

Top 10 World's Largest Commercial and Investment Banks (ranked by Market Capitalization)

6 of Top 10 World's Largest Banks have a presence in Calgary*.

* Missing Banks: Industrial & Commercial Bank of China (ICBC), China Construction Bank, Agricultural Bank of China, and Commonwealth Bank of Australia

Rank	Bank	Country	Market cap, US$b (January 20, 2017)
1	JP Morgan Chase & Co	US	299.393
2	Wells Fargo & Co	US	276.578
3	Industrial & Commercial Bank of China (ICBC)	China	229.700
4	Bank of America	US	228.778
5	China Construction Bank	China	186.818
6	HSBC Holdings	UK	165.839
7	Citigroup Inc	US	159.898
8	Agricultural Bank of China	China	148.100
9	Bank of China	China	145.729
10	Commonwealth Bank of Australia	Australia	106.355

Source: [*http://www.relbanks.com/worlds-top-banks/market-cap*](http://www.relbanks.com/worlds-top-banks/market-cap)