APS 1016 Financial Management For Engineers

Company Valuation:
Royal Bank of Canada (RBC) and Toronto-Dominion Bank (TD)

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1.0 Executive Summary

The primary objective of this report is to conduct an equity valuation of two major Canadian banks: Royal Bank of Canada (RBC) and Toronto Dominion Canada Trust Bank (TD). These are Canada's two largest banks in terms of Assets and control a major market segment of the financial service industry in Canada (combined 45.7% of market share). This report provides an in-depth analysis of the two publically traded companies by evaluating their financial performance based on their financial statements, and forecasts future stock price values for valuation.

An industry analysis was conducted by using Porter's five forces methodology, which was used to determine an overview of the industry, barriers to entry, power of different stakeholders and the existing rivalry in the industry. Following this, the balance sheet and income statements for both banks were obtained for the past 3 years, and major financial ratios were computed, along with common-size statements. The sales were then forecasted to construct pro-forma statements for the next 3 years, and the stock price values were estimated using the P/E, P/CF, P/Sales, P/Book value ratios, the dividend growth model and DCF (Discounted Cash flow analysis). The P/E ratio was determined as the closest estimate of stock price forecasting and predicted a forecasted stock price of $65.28, $69.88 and $74.80 (2017-2019) for TD and forecasted share prices of $87.84, $91.80 and $96.07 (2017-2019) for RBC. The DCF and dividend growth model predictions proved to be inaccurate as elaborated in the report. A rise in sales of 7% for TD and 6% for RBC was assumed based on historical growth data obtained for the company's' financial reports.The forecasted prices show that RBC stock (RY-T) is expected to grow at 5% and TD stock (TD-T) at 7% with both stocks yielding a yearly dividend valued at ~3.5% of the market price. Accordingly, we would recommend a hold/buy ("outperform") for both stocks.

The ratios analysis showed that RBC is more leveraged than TD, the banks had similar liquidity values, however RBC was more profitable than TD, with higher Return on Assets and Return on Equity Values.

2.0 Industry Analysis

A successful organization should have not only have a comprehensive strategy defining the company's mission and objectives but also a deep understanding of the current and possible future competition faced by the organization in the industry it operates in. One of the methods to analyze the company's resources and capabilities against its competitors is using the Porter's Five Forces Analysis. It analyzes the "competitive intensity and, therefore, the attractiveness (or lack of it) of an industry in terms of its profitability". [A]

The five forces for the banking industry in Canada are listed and analyzed below:

2.1 Barriers to Entry

The threat of new entrants in the industry is extremely low. Any new entrants in the industry would find it extremely difficult to offer financial services comparable to the quality and range provided by established banks in the banking industry, such as TD and RBC, due to the significant amount of capital and brand recognition required in the industry.

2.2 Powers of Suppliers

The power of suppliers in the banking industry is also very low. The major suppliers for banks are the traditional depositors supplying the bank with the capital resources to lend out to their customers in the form of loans. As individuals, these customers have extremely low power, however, they do have some power as a collective that is rarely observed in practice. Similarly, certain corporate and high net worth clients do have more power than most customers, but their influence is also limited.

2.3 Power of Customers

The power of consumers is also very low in the banking industry. Individual consumer accounts have minimal impact on performance of the bank and thus they have limited power. Again, consumers do have some power as a collective that is rarely exercisable and there are certain corporate and high net worth clients do yield more influence than most customers, but again, their influence is still limited in the big picture.

2.4 Substitutes

The threat of substitutes is low in the banking industry. Traditionally in Canada, banks are viewed as safe investment options, second only to government bonds, since they are insured by the Canada Deposit Insurance Corporation (CDIC) [**B**]. Although Canadian commercial banks are faced with increasing competition in a few sectors by new companies providing specialized financial services that were traditionally provided by the banks, these substitutes, such as Venmo, Apple pay and digital currency, have limited reach and are not as safe as banks, and thus not a major threat.

2.5 Industry Rivalry

Competition within the banking industry is perhaps the **strongest of all forces** faced by the Canadian banking industry. The Canadian banks face fierce competition from each other and other upcoming Schedule 2 banks in Canada [**C**]. In the banks that we analyze, the TD bank differentiates itself by on client experience by integrating a large variety of banking services suited to the client [**D**] while RBC focuses on sustainable growth and community impact [**E**]. Both banks must be very aware of their competition and devise powerful competitive strategies to maintain their competitive advantages.

Based on the above 5 factors, the Canadian banking industry is seen as an attractive industry which is also substantiated by the fact that average YoY growth rate in the industry is 38.6% even though banking is viewed as a relatively safe investment. [**F**]

2.6 Company Profile

Royal Bank of Canada Bank (RBC)

Headquartered in Toronto and founded in 1901, Royal Bank of Canada (RBC) is Canada's largest bank by assets. RBC operates through five business segments: personal and commercial banking (36.7% earnings), wealth management, insurance, investor and treasury services and capital markets, in about 38 countries (Canada as 62% total revenue, 2016 data), serving 16 million clients through 80,000 employees.

Toronto-Dominion Canada Trust Bank (TD)

Headquartered in Toronto and founded in 1852, Toronto-Dominion Canada Trust Bank (TD) is the second-largest bank in Canada by assets. TD currently operates through three business segments: Canadian retail (37.6% earnings), US retail and wholesale banking in many countries (Canada as 65% total revenue, 2016 data), serving over 23 million clients through 85,000 employees.

Appendices B, C, D and E include detailed information on both banks financial statements pertinent to this evaluation for the past three years (2014 – 2016).

3.0 Financial Analysis

Financial ratios provide a good benchmark to compare companies against each other and the market. The values were taken from the financial statements, readily available in company annual reports and the Bloomberg terminals [**G, H**]. Graphs indicating the company's performance relative to the industry and detailed calculations are shown in Appendix A

3.1 Liquidity (or Short-term solvency) Ratio

3.1.1 Current Ratio

This indicates the efficiency of a company's operating cycle, or its ability to pay short term and long-term obligations [**I**]. Ratios 3.1.1-3.1.3 indicate a larger proportion of assets relative to liabilities, while values <1 gives a negative performance. For RBC and TD, the current ratio are at opposite sides of the three-year industrial average (3.00) from 2014 to 2015 with slight variance, but tallied in 2016 (3.14), possibly due to higher TD current liabilities for past 2 years.

3.1.2 Net Working Capital (NWC) / Total Assets (TA)

Likewise, NWC/TA measures the company's ability to cover financial obligations [**J**]. Both banks show an increasing trend which indicates company's liquidity is improving over time, with minimal deviation from the 3 year industry average (36%). Since a negative NWC/TA ratio indicates lack of funds to continue business operations, results from RBC and TD confidently shows continued sustainability for both banks as long as the NWC does not decrease yearly.

3.1.3 Cash Ratio

Relevant to creditors, cash ratio shows the company's ability to repay its short-term debt under forced conditions without liquidation or assets sale [**K**]. In comparison with the industry average (0.04), RBC shows an increasing trend, opposite to TD. Although, values <1 indicates insufficient cash, a probable reason for the industry is because banks generally operate with lower cash reserves and have several ways of financing (borrowing from other banks as common practice) when needed.

3.2 Financial Leverage (or Long-term solvency) Ratio

3.2.1 Total Debt Ratio

A measure of company's leverage liquidity, is interpreted as the proportion of company's assets financed by debt [**L**]. Both RBC and TD are at par with the industry average with a debt ratio of about 94%. Although high leverage ratio could imply greater financial risk, these values not abnormal to the banking sector could be explained by the fact that industry uses leverage to grow and finds sustainable uses for debt.

3.2.2 Debt to Equity Ratio

This measures the amount of debt and equity being used to finance a company's assets, and indicates potential financial risk [**M**]. Comparing with the Canadian banking industry average between 1 – 2, RBC shows higher debt to equity ratios due to larger liabilities incurred for the examined years, in contrast to TD which shows leverage ratios <1.

3.2.3 Equity Multiplier Ratio

This measures the amount of a company's assets financed by the shareholders [**N**]. A decreasing trend is shown for RBC and TD banks at par with the industry average. This means that for previous years, the banking sector relied more on financing from debt and other liabilities but is gradually having higher shareholders' involvement and asset financing. In relation to the individual banks, minimal deviation is shown from the industry average.

3.2.4 Cash Coverage Ratio

This is used in determining the amount of cash payable for a borrower's interest expense, expressed as a ratio of cash available to the amount of payable interest [**O, P**]. Since ratios higher than 2 are generally considered satisfactory, both institutions in good financial health, although RBC results shows higher cash coverage ratio than TD, in comparison with the industry average.

3.3 Profitability Ratio

3.3.1 Return on Assets (ROA) Ratio

ROA, indicates the profitability of a company relative to its total assets [**Q, R**]. In comparison with the Canadian banking industry average at 0.86% for the past 3 years, RBC shows a decreasing trend similar to TD, but with higher value and variance of about 13%.

3.3.2 Return on Equity (ROE) Ratio

This measures the profitability of a company in relation to the book value of shareholder equity. Important to investors, ROE accurately compares several companies' profitability in the same industry [**S, T**]. While the Canadian banking sector averages at 14%, over the 3-year period, RBC (16% average) shows a decreasing trend but still higher (and more profitable) than TD (13%). As expected, the current results show RBC owning more assets is more profitable than TD.

Although the industry ROE seems small (typically around 1%), because of banks large leverage, there is a significant difference between the ROA and ROE, and thus, small differences in ROA can result in much larger differences in ROE. [**U**]

3.4 Market Value Ratio

3.4.1 Price-earnings (P/E) ratio

The P/E ratio, also known as price or earnings multiple measures the current share price relative to its per-share earnings [**V**]. Similar to the high industry average, TD's current P-E ratio shows that any investor would expect higher earnings growth in the future when compared to RBC's investment.

3.4.2 Price-Earnings to Growth (PEG) ratio

This valuation metric determines the relative trade-off between the stock price, earnings generated per share and company's expected growth [**W, X**]. Since the stock price in the banking industry is largely unpredictable, wide variance in PEG ratios is expected, with RBC having higher PEG ratios that TD.

Although, investors would find RBC more attractive because of its lower P/E ratio, this however cannot be justified when compared to TD, with a higher growth rate. It is therefore evident that TD is trading at a discount to its growth rate and investors are paying less per unit of earnings growth.

3.5 Altman Z Score

The Altman-Z Score [**Y**] is a linear combination of weighted financial ratios that predicts the company's solvency and tendency towards liquidation within two years. Based on a three zone classification - safe (Z-score > 2.6), grey (1.1 < Z-score < 2.6) and distress (Z-score < 1.1) zones, this informs any investor if the company has a sound capital structure in place. Results indicates that TD recently switched from grey to safe zone, thus joining its counterpart RBC, which leads to affirmation that both banks are not to prone to bankruptcy within the next two years, provided the capital structure is maintained or continually improved.

4.0 Forecasting Stock Value

We can conclude from the Sections 2 and 3 of this report that the banking industry in Canada is an attractive industry and the two banks analyzed in this report, TD and RBC, are financially healthy. In this section, we attempt to forecast the stock value of both companies for the coming three years using various methods to verify if the market is correctly valuing the company's equity and derive whether investors should buy, hold or sell the stock based on this information.
Table 4.1 below lists the historic and forecasted share prices for both companies using a few different methods. Detailed calculations can be found in Appendix H:

					Forecasted Share Price		
TD Canada Trust	**2014**	**2015**	**2016**	**Average**	**2017**	**2018**	**2019**
Share Price	$ 55.47	$ 53.68	$ 60.86				
P/E Multiple	13.37	12.72	13.00	13.03	$ 65.28	$ 69.88	$ 74.80
P/OCF Multiple	3.95	2.82	2.56	3.11	$ 96.21	$ 125.23	$ 163.01
P/Sales Multiple	3.42	3.17	3.29	3.29	$ 64.90	$ 69.23	$ 73.85
P/BV Multiple	1.95	1.59	1.66	1.73	$ 68.40	$ 75.51	$ 83.36
Royal Bank of Canada							
Share Price	$ 80.01	$ 74.77	$ 83.80				
P/E	13.27	11.08	12.32	12.22	$ 87.64	$ 91.80	$ 96.07
P/OCF	7.60	4.47	4.63	5.57	$ 115.05	$ 131.49	$ 150.27
P/Sales	3.38	3.06	3.24	3.23	$ 87.21	$ 91.20	$ 95.37
P/Book Value	2.37	1.89	1.93	2.07	$ 96.23	$ 106.24	$ 117.25

4.1 P/E multiple

The price to earnings multiple for both companies was acquired by dividing the price of each share by the earnings per shares. The average value of the P/E ratio for TD is 13.03 leading to a forecasted price of $65.28, $69.88 and $74.80 for the upcoming three years 2017 to 2019. The ratio is similarly 12.22 for RBC with forecasted share prices of $87.84, $91.80 and $96.07 for years 2017 to 2019. As discussed in class, the P/E ratio can serve as one of the most reliable indicators of share price for a stable company with constant growth. Following our discussion in Section 2 and 3, we know that the two companies analyzed in this report are stable and the forecasted values of P/E ratio are quite reliable and we would recommend using these forecasted values to evaluate whether the stocks of TD and RBC should be a buy, hold or sell.

4.2 P/CF multiple

The price to cash flow multiple was similarly derived by dividing the price of each share by the operating cash flow per share for each company. The P/CF multiple for TD and RBC is 3.11 and 5.57 respectively leading to forecasted share prices of $96.21, $125.23 and $163.01 for TD and $96.21, $125.23 and $163.01 for RBC for the years 2017, 2018 and 2019. For most stable companies with no major changes to financing activities, the P/CF multiple would forecast a similar stock price as the P/E multiple. However, with commercial banks, the cash flows are slightly more complex since they are themselves financial institutions and their cash flows can vary depending on day-to-day activities. Thus, the P/CF ratio would be slightly less reliable for banks leading to slightly different results observed above.

4.3 P/Sales multiple

The price to sales multiple of 3.29 for TD and 3.23 for RBC was calculated by dividing the price of each share by the revenue per share for both companies. The forecasted share prices of using these multiples were found for the years 2017, 2018 and 2019 to be $64.90, $69.23 and $73.85 for TD and $87.21, $91.20 and $95.37 for RBC. Since both institutions are well established, leading to stable revenues and earnings, the values forecasted by the P/Sales and the P/E multiples are very close to each other.

4.4 P/Book Value

The price to book value multiple was obtained by dividing the price of each share by the book value per share for both companies. The P/BV multiple for TD is 1.73 while it is 2.07 for RBC. The forecasted share prices of TD using this method are $68.40, $75.50 and $83.37 and $96.23, $106.24 and $117.25 for RBC for the upcoming three years . The forecasted prices are clearly following expected trends although they do show some variance from previous results.

4.5 Dividend Growth Model

The WACC for TD and RBC was obtained to be 5.88% and 7.12% respectively (see Appendix F). The stock price for both companies, TD and RBC was forecasted using the dividend growth model. The forecasted prices, calculated in Appendix G, were found to be $(102.92), $(111.51) and $(120.82) for the case of TD and $1,256.50, $1,342.23 and $1,433.81 for RBC. It is clear from these numbers that this method is ill-suited to forecast the stock price for these banks because the dividend growth rate of both the firms is very close to or greater than the WACC, leading to misleading results.

4.6 DCF Analysis

Appendix I shows the DCF analysis used to determine a company's' stock price. The terminal values were calculated from the pro forma statements, as well as the projected working capital. Capital expenditure, depreciation and net income values. However, it was noted that the Free cash flow calculated for previous years was negative based on the prescribed formula owing to the large increases in the working capital values for both banks. This means that the banks are heavily investing in current assets, which is logical as they are acquiring large amount of cash and cash equivalents (securities, derivatives etc.) and thereby leading to the extraordinarily larger increases in net working capital. As a result, projection of future cash flows becomes very difficult, as is the typical case for Banks and financial institutions [Z]. Further, Banks have different regulatory frameworks in how they are capitalized and how they define capital expenditure and working capital values, thereby further decreasing the reliability of using this approach in valuing them [Z]. Therefore, the values predicted from this approach will not be considered in making a recommendation about the forecasted stock prices (calculations in Appendix I).

5.0 Weighted Average Cost of Capital

The weighted average cost of capital (WACC) for both banks was calculated as in Appendix F. It is interesting to note though that for the case of banks, the formula for the WACC only accounts for the cost of long-term debt [Z]. Adding the weighted average of the cost of equity, calculated using the Capital Asset Pricing Model, and the cost of preferred shares we find the WACC of 5.88% for TD and 7.12% for RBC.

6.0 Recommendation

Based on the analysis in Sections 2 and 3 it is clear that TD and RBC banks are “blue chip” stocks. The institutions are financially reliable, stable and well-established. In section 4.1, we established that the P/E multiple is a very reliable, perhaps the most accurate, method to calculate the future value of the stocks for RBC and TD and discovered that both companies are growing in a steady and healthy manner. The forecasted prices show that RBC stock (RY-T) is expected to grow at 5% and TD stock (TD-T) at 7% with both stocks yielding a yearly dividend valued at ~3.5% of the market price. Accordingly, we would recommend a hold/buy (“outperform”) for both stocks.

However, taking into account external economical and political factors such as the fact that the banking industry in Canada is growing yearly at more than 30% and the rapidly-growing Canadian economy [**AA**] aided a stable government providing economic stimulus to revive growth [**AB**] we would suggest a **buy** for both stocks.

7.0 Conclusions

In summary, two of the largest banks in the Canadian Financial services industry were analyzed to determine their respective financial positions and make forecasts regarding stock prices with the use of the pro-forma methodology and different multiples ratios.

The industry was found to be extremely competitive, however RBC and TD are dominant in the sector.

The recommendations based on the chosen method of forecasting was that buth companies are financially secure and a potential investor should hold/buy stocks for both companies as they are expected to show positive growth for the foreseeable future.

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Appendix A: Financial Ratios (RBC & TD)

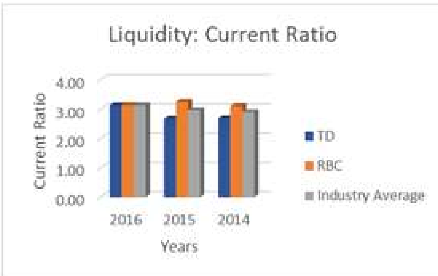
RBC Financial Ratios:

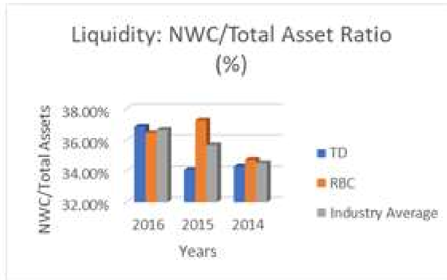
Ratios	RBC Bank		
For the Fiscal Period Ending Currency: In Millions of the Canadian dollars, except per share items.	October 31 2016	October 31 2015	October 31 2014
Liquidity or Short-Term Solvency Ratios			
Current Ratio = CA / CL	3.14	3.26	3.11
Current Assets	**$631,250**	$577,486	$481,622
Current Liabilities	**$200,859**	$177,168	$154,990
Net Working Capital to Total Assets = NWC / TA	0.36	0.37	0.35
	36.47%	37.27%	34.73%
Net Working Capital = (Current Assets - Current Liabilities)	**$430,391**	$400,318	$326,632
Total Assets	**$1,180,258**	$1,074,208	$940,550
Cash Ratio = C / CL	0.06	0.06	0.10
Cash and cash equivalents	**$11,629**	$9,852	$15,421
Current Liabilities	**$200,859**	$177,168	$154,990
Financial Leverage or Long-Term Solvency Ratios			
Total Debt Ratio = (TL) / TA	0.94	0.94	0.94
	93.93%	94.05%	94.21%
Total Liabilities	**$1,108,646**	$1,010,264	$886,047
Total Assets	**$1,180,258**	$1,074,208	$940,550
Debt / Equity = TD / TE	1.76	1.79	1.77
Total Debt	**$126,341**	$114,512	$96,641
Total Equity	**$71,612**	$63,944	$54,503
Equity Multiplier = TA / TE	16.48	16.80	17.26
Total Assets	**$1,180,258**	$1,074,208	$940,550
Total Equity	**$71,612**	$63,944	$54,503
Cash Coverage Ratio = (EBIT + Dep) / Int.	3.54	3.30	3.08
EBIT	**$18,766**	$18,346	$17,583
Depreciation	**$573**	$527	$499
Interest	**$5,467**	$5,723	$5,873
Profitability Ratios			
Return on Assets (ROA) = NI / TA	0.01	0.01	0.01
	0.89%	0.93%	0.96%
Net Income	**$10,458**	$10,026	$9,004
Total Assets	**$1,180,258**	$1,074,208	$940,550
Return on Equity (ROE) = NI / TE	0.15	0.16	0.17
	14.60%	15.68%	16.52%
Net Income	**$10,458**	$10,026	$9,004
Total Equity	**$71,612**	$63,944	$54,503
Market Value Ratios			
Price-Earnings Ratio (P/E) = Pps / Eps	12.32	11.08	13.27
Price per share	**$83.80**	$74.77	$80.01
Earnings per share	**$6.80**	$6.75	$6.03
PEG Ratio = PE / g	1663.68	92.77	160.02
Price-Earnings Ratio (PE)	12.32	11.08	13.27
Earnings growth rate (%)	0.7%	11.9%	8.3%
Atlman Z Score			
$Z = 6.56X_1 + 3.26X_2 + 6.72X_3 + 1.05X_4$	2.73	2.79	2.65
$X_1 =$	0.36	0.37	0.35
Net Working Capital = (Current Assets - Current Liabilities)	**$430,391**	$400,318	$326,632
Total Assets	**$1,180,258**	$1,074,208	$940,550
$X_2 =$	0.04	0.04	0.03
Retained Earnings	**$41,519**	$37,811	$31,615
Total Assets	**$1,180,258**	$1,074,208	$940,550
$X_3 =$	0.02	0.02	0.02
EBIT	**$18,766**	$18,346	$17,583
Total Assets	**$1,180,258**	$1,074,208	$940,550
$X_4 =$	0.11	0.11	0.13
Total Equity (Market Value)	**$124,516**	$107,888	$115,419
Total Liabilities (Book Value)	**$1,108,646**	$1,010,264	$886,047

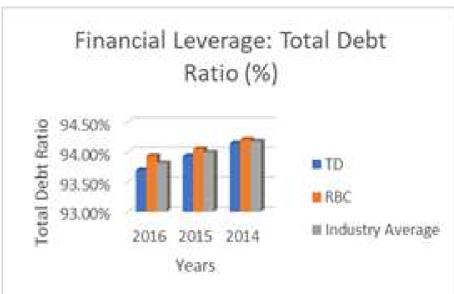
TD Financial Ratios:

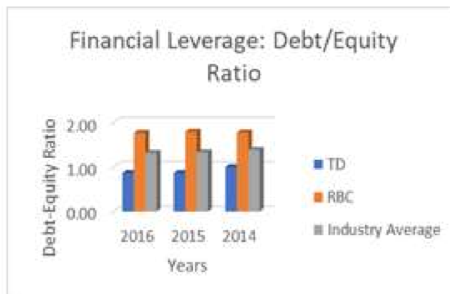
Ratios	TD Bank		
For the Fiscal Period Ending Currency: In Millions of the Canadian dollars, except per share items.	October 31 2016	October 31 2015	October 31 2014
Liquidity or Short-Term Solvency Ratios			
Current Ratio = CA / CL	3.13	2.67	2.69
Current Assets	**$637,493**	$601,140	$524,477
Current Liabilities	**$203,598**	$224,735	$194,991
Net Working Capital to Total Assets = NWC / TA	0.37	0.34	0.34
	36.87%	34.08%	34.30%
Net Working Capital = (Current Assets - Current Liabilities)	**$433,895**	$376,405	$329,486
Total Assets	**$1,176,967**	$1,104,373	$960,511
Cash Ratio = C / CL	0.02	0.01	0.01
Cash and cash equivalents	**$3,907**	$3,154	$2,781
Current Liabilities	**$203,598**	$224,735	$194,991
Financial Leverage or Long-Term Solvency Ratios			
Total Debt Ratio = (TL) / TA	0.94	0.94	0.94
	93.69%	93.93%	94.15%
Total Liabilities	**$1,102,753**	$1,037,345	$904,280
Total Assets	**$1,176,967**	$1,104,373	$960,511
Debt / Equity = TD / TE	0.87	0.87	1.00
Total Debt	**$64,247**	$57,993	$56,028
Total Equity	**$74,214**	$67,028	$56,231
Equity Multiplier = TA / TE	15.86	16.48	17.08
Total Assets	**$1,176,967**	$1,104,373	$960,511
Total Equity	**$74,214**	$67,028	$56,231
Cash Coverage Ratio = (EBIT + Dep) / Int.	2.76	2.66	2.56
EBIT	**$17,716**	$15,653	$15,739
Depreciation	**$629**	$588	$533
Interest	**$6,637**	$6,106	$6,344
Profitability Ratios			
Return on Assets (ROA) = NI / TA	0.01	0.01	0.01
	0.76%	0.81%	0.82%
Net Income	**$8,936**	$8,936	$7,883
Total Assets	**$1,176,967**	$1,104,373	$960,511
Return on Equity (ROE) = NI / TE	0.12	0.12	0.14
	12.04%	11.97%	14.02%
Net Income	**$8,936**	$8,024	$7,883
Total Equity	**$74,214**	$67,028	$56,231
Market Value Ratios			
Price-Earnings Ratio (P/E) = Pps / Eps	13.00	12.72	13.37
Price per share	**$60.85**	$53.68	$55.47
Earnings per share	**$4.68**	$4.22	$4.15
PEG Ratio = PE / g	119.28	754.14	67.03
Price-Earnings Ratio (PE)	13.00	12.72	13.37
Earnings growth rate (%)	10.9%	1.7%	19.9%
Atlman Z Score			
$Z = 6.56X_1 + 3.26X_2 + 6.72X_3 + 1.05X_4$	2.73	2.53	2.57
X_1 =	0.37	0.34	0.34
Net Working Capital = (Current Assets - Current Liabilities)	**$433,895**	$376,405	$329,486
Total Assets	**$1,176,967**	$1,104,373	$960,511
X_2 =	0.03	0.03	0.03
Retained Earnings	**$35,452**	$32,053	$27,585
Total Assets	**$1,176,967**	$1,104,373	$960,511
X_3 =	0.02	0.01	0.02
EBIT	**$17,716**	$15,653	$15,739
Total Assets	**$1,176,967**	$1,104,373	$960,511
X_4 =	0.10	0.10	0.11
Total Equity (Market Value)	**$113,011**	$99,582	$102,320
Total Liabilities (Book Value)	**$1,102,753**	$1,037,345	$904,280

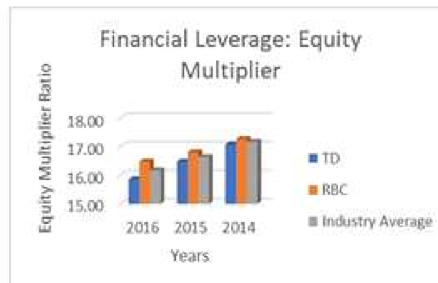
Ratio Comparisons:

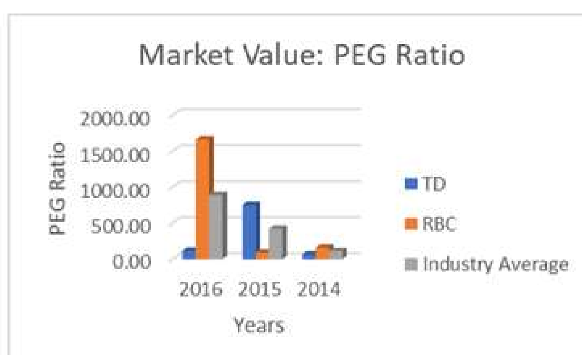












Appendix B: RBC Income Statement with pro forma

In Millions of the reported currency, except per share items.	Income Statement			Common Size			Pro forma		
For the Fiscal Period Ending	October 31 2016	October 31 2015	October 31 2014	October 31 2016	October 31 2015	October 31 2014	October 31 2017	October 31 2018	October 31 2019
Currency	*CAD*	*CAD*	*CAD*	*CAD*	*CAD*	*CAD*	*CAD*	*CAD*	*CAD*
Interest income									
Loans	17876	16882	16979	47%	48%	50%	19,583.57	20,786.75	22,063.86
Securities	4593	4,519	3,993	12%	13%	12%	4,954.31	5,258.69	5,581.78
Assets purchased under reverse repurchase agreements and securities borrowed	1816	1,251	971	5%	4%	3%	1,510.62	1,603.43	1,701.95
Deposits and other	167	77	76	0%	0%	0%	118.99	126.30	134.06
	24,452	22,729	22,019	64%	64%	65%	26,167.48	27,775.18	29,481.64
Interest expense Deposits and other	5,467	5,723	5,873	14%	16%	17%	6,475.69	6,873.55	7,295.85
Other liabilities	2,227	1,995	1,784	6%	6%	5%	2,266.15	2,405.38	2,553.16
Subordinated debentures	227	240	246	1%	1%	1%	270.65	287.28	304.93
	7,921	7,958	7,903	21%	23%	23%	9,012.49	9,566.20	10,153.94
Net interest income	16,531	14,771	14,116	43%	42%	41%	17,154.99	18,208.97	19,327.70
Non-interest income				0%	0%	0%	-	-	-
Insurance premiums, investment and fee income (Note 15)	4,868	4,436	4,957	13%	13%	15%	5,403.72	5,735.71	6,088.11
Trading revenue	701	552	742	2%	2%	2%	755.98	802.43	851.73
Investment management and custodial fees	4,240	3,778	3,355	11%	11%	10%	4,290.17	4,553.75	4,833.53
Mutual fund revenue	2,887	2,881	2,621	8%	8%	8%	3,173.97	3,368.97	3,575.95
Securities brokerage commissions	1,429	1,436	1,379	4%	4%	4%	1,607.41	1,706.17	1,810.99
Service charges	1,756	1,592	1,494	5%	5%	4%	1,828.94	1,941.30	2,060.57
Underwriting and other advisory fees	1,876	1,885	1,809	5%	5%	5%	2,109.60	2,239.22	2,376.79
Foreign exchange revenue, other than trading	964	814	827	3%	2%	2%	983.69	1,044.13	1,108.28
Card service revenue	889	798	689	2%	2%	2%	896.02	951.07	1,009.51
Credit fees	1,239	1,184	1,080	3%	3%	3%	1,324.12	1,405.48	1,491.83
Net gains on available-for-sale securities (Note 4)	76	145	192	0%	0%	1%	159.16	168.94	179.32
Share of profit in joint ventures and associates (Note 12)	176	149	162	0%	0%	0%	184.13	195.44	207.45
Other	773	900	685	2%	3%	2%	892.63	947.47	1,005.68
	21,874	20,550	19,992	57%	58%	59%	23,609.55	25,060.09	26,599.74
Total revenue (Net interest income + non-interest income)	38,405	35,321	34,108	100%	100%	100%	40,764.55	43,269.06	45,927.44
Provision for credit losses (Note 5)	1,546	1,097	1,164	4%	3%	3%	1,432.74	1,520.76	1,614.20
Insurance policyholder benefits, claims and acquisition expense (Note 15)	3,424	2,963	3,573	9%	8%	10%	3,774.77	4,006.69	4,252.86
Non-interest expense									
Human resources (Note 17 and 22)	12,201	11,583	11,031	32%	33%	32%	13,167.52	13,976.51	14,835.21
Equipment	1,438	1,277	1,147	4%	4%	3%	1,457.00	1,546.52	1,641.53
Occupancy	1,568	1,410	1,330	4%	4%	4%	1,627.07	1,727.03	1,833.14
Communications	945	888	847	2%	3%	2%	1,013.41	1,075.67	1,141.75
Professional fees	1,078	932	763	3%	3%	2%	1,043.92	1,108.06	1,176.14
Amortization of other intangibles (Note 10)	970	712	666	3%	2%	2%	882.43	936.65	994.20
Other	1,936	1,836	1,877	5%	5%	6%	2,139.07	2,270.49	2,409.99
	20,136	18,638	17,661	52%	53%	52%	21,330.43	22,640.94	24,031.96
Income before income taxes	13,299	12,623	11,710	35%	36%	34%	14,226.61	15,100.67	16,028.43
Income taxes (Note 24)	2,841	2,597	2,706	7%	7%	8%	3,082.30	3,271.67	3,472.68
Net income	10,458	10,026	9,004	27%	28%	26%	11,144.31	11,829.00	12,555.75
Net income attributable to:									
Shareholders	10,405	9,925	8,910	27%	28%	26%	11,049.25	11,728.10	12,448.66
Non-controlling interests	53	101	94	0%	0%	0%	95.06	100.90	107.09
	10,458	10,026	9,004	27%	28%	26%	11,144.31	11,829.00	12,555.75
Basic earnings per share (in dollars) (Note 25)	6.78	6.75	6.03				7.17	7.51	7.86

Appendix C: RBC Balance Sheet with pro forma

In Millions of the reported currency, except per share items.	Balance Sheet			Common Size			Pro forma		
For the Fiscal Period Ending	October 31 2016	October 31 2015	October 31 2014	October 31 2016	October 31 2015	October 31 2014	October 31 2017	October 31 2018	October 31 2019
Currency	*CAD*	*CAD*	*CAD*	*CAD*	*CAD*	*CAD*	*CAD*	*CAD*	*CAD*
Assets				0%	0%	0%	-	-	-
Cash and due from banks	$14,929	$12,452	$17,421	1%	1%	2%	18,849.57	21,119.34	23,662.43
Interest-bearing deposits with banks	27,851	22,690	8,399	2%	2%	1%	23,648.45	26,496.08	29,686.61
Securities				0%	0%	0%	-	-	-
Trading	151,292	158,703	151,380	13%	15%	16%	192,570.74	215,759.15	241,739.80
Available-for-sale	84,801	56,805	47,768	7%	5%	5%	77,366.95	86,683.10	97,121.05
	236,093	215,508	199,148	20%	20%	21%	269,937.69	302,442.25	338,860.85
Assets purchased under reverse repurchase agreements and securities borrowed	186,302	174,723	135,580	16%	16%	14%	204,814.92	229,477.72	257,110.30
Loans				0%	0%	0%	-	-	-
Retail	369,470	348,183	334,269	31%	32%	36%	437,517.44	490,201.13	549,228.72
Wholesale	154,369	126,069	102,954	13%	12%	11%	157,633.74	176,615.22	197,882.35
Allowance for loan losses	-2,235	-2,029	-1,994	0%	0%	0%	- 2,601.79	- 2,915.09	- 3,266.11
Loans net of allowance	521,604	472,223	435,229	44%	44%	46%	592,549.39	663,901.26	743,844.96
Segregated fund net assets	981	830	675	0%	0%	0%	1,023.30	1,146.52	1,284.58
Customers' liability under acceptances	12,843	13,453	11,462	1%	1%	1%	15,688.55	17,577.69	19,694.30
Derivatives	118,944	105,626	87,402	10%	10%	9%	128,726.36	144,226.96	161,594.05
Premises and equipment, net	2,836	2,728	2,684	0%	0%	0%	3,436.45	3,850.25	4,313.88
Goodwill	11,156	9,289	8,647	1%	1%	1%	12,030.57	13,479.24	15,102.34
Other intangibles	4,648	2,814	2,775	0%	0%	0%	4,191.12	4,695.79	5,261.23
Other assets	42,071	41,872	31,128	4%	4%	3%	47,482.45	53,200.06	59,606.14
Other	193,479	176,612	144,773	16%	16%	15%	212,578.81	238,176.50	266,856.53
				0%	0%	0%	-	-	-
Total Assets	$1,180,258	$1,074,208	$940,550	100%	100%	100%	1,322,378.83	1,481,613.15	1,660,021.68
				0%	0%	0%	-	-	-
Liabilities				0%	0%	0%	-	-	-
Personal	250,550	220,566	209,217	21%	21%	22%	282,131.36	316,104.22	354,167.93
Business and goevernment	488,007	455,578	386,660	41%	42%	41%	550,409.64	616,687.24	690,945.67
Bank	19,032	21,083	18,223	2%	2%	2%	24,299.45	27,225.47	30,503.83
Deposits	757,589	$697,227	$614,100	64%	65%	65%	856,840.45	960,016.94	1,075,617.43
Segragated fund net liabilities	981	$830	$675	0%	0%	0%	1,023.30	1,146.52	1,284.58
Accptance	12,843	$13,453	$11,462	1%	1%	1%	15,688.55	17,577.69	19,694.30
Obligations related to securities sold short	50,369	$47,658	$50,345	4%	4%	5%	61,961.90	69,423.04	77,782.62
Obligations related to assets sold under repurchase agreements and securities loaned	103,441	$83,288	$64,331	9%	8%	7%	102,957.88	115,355.56	129,246.11
Derivatives	116,550	$107,860	$88,982	10%	10%	9%	129,489.45	145,081.93	162,551.98
Insurance claims and policy benefit liabilities	9,164	$9,110	$2,420	1%	1%	0%	8,294.86	9,293.68	10,412.78
Other liabilities	47,947	$43,476	$37,309	4%	4%	4%	53,231.92	59,641.84	66,823.62
Other	341,295	305,675	264,088	29%	28%	28%	376,661.41	422,017.11	472,834.33
Subordinated debentures	9,762	7,362	7,859	1%	1%	1%	10,349.93	11,596.21	12,992.57
Total Liabilities	1,108,646	1,010,264	886,047	94%	94%	94%	1,243,851.78	1,393,630.26	1,561,444.33
Preferred shares	6,713	5,098	4,075	1%	0%	0%	6,508.81	7,292.57	8,170.70
Common shares	17,859	14,611	14,511	2%	1%	2%	19,465.99	21,809.98	24,436.23
Retained earnings	41,519	37,811	31,615	4%	4%	3%	45,838.13	51,357.73	57,541.98
Other components of equity	4,926	4,626	2,418	0%	0%	0%	4,871.17	5,457.73	6,114.93
Equity attributable to shareholders	71,017	62,146	52,690	6%	6%	6%	76,717.37	85,955.30	96,305.61
Non-controlling interest	595	1,798	1,813	0%	0%	0%	1,809.68	2,027.59	2,271.75
Total equity	71,612	63,944	54,503	6%	6%	6%	78,527.05	87,982.89	98,577.36
Total liabilities and equity	$1,180,258	$1,074,208	$940,550	100%	100%	100%	1,322,378.83	1,481,613.15	1,660,021.68

Appendix D: TD Income Statement with pro forma

Income Statement	Income Statement			Common Size Analysis			Pro forma Expansion		
For the Fiscal Period Ending	October 31 2016	October 31 2015	October 31 2014	October 31 2016	October 31 2015	October 31 2014	October 31 2017	October 31 2018	October 31 2019
Currency (million of Canadian dollars, except per share items)	*CAD*	*CAD*	*CAD*	*CAD*	*CAD*	*CAD*	*CAD*	*CAD*	*CAD*
REVENUE									
Interest Income	0.091930249	0.048896899	0.070413574	31900.67					
Loans	$21,751	$20,319	$19,716	63.39%	64.66%	65.81%	$23,734	$25,406	$27,194
Securities									
Interest	3,672	3,155	2,913	10.70%	10.04%	9.72%	$3,730	$3,992	$4,274
Dividends	912	1214	1173	2.66%	3.86%	3.92%	$1,278	$1,368	$1,464
Deposit with banks	225	142	126	0.66%	0.45%	0.42%	$187	$200	$214
Total Interest Income	$26,560	24,830	23,928	77.40%	79.01%	79.86%	$28,929	$30,966	$33,146
Interest Expense									
Deposit with banks	4,758	4,242	4,313	13.87%	13.50%	14.40%	$5,113	$5,473	$5,858
Securitization liabilities	452	593	777	1.32%	1.89%	2.59%	$710	$760	$813
Subordinated notes and debentures	395	390	412	1.15%	1.24%	1.38%	$461	$494	$528
Other	1,032	881	842	3.01%	2.80%	2.81%	$1,056	$1,130	$1,209
	6,637	6,106	6,344	19.34%	19.43%	21.17%	$7,340	$7,856	$8,410
Net interest income	19,923	18,724	17,584	58.06%	59.58%	58.69%	$21,589	$23,110	$24,737
Non-interest income									
Investment and securities services	4,143	3,833	3,496	12.07%	12.20%	11.67%	$4,400	$4,710	$5,042
Credit fees	1,048	925	845	3.05%	2.94%	2.82%	$1,080	$1,156	$1,237
Net securities gain (loss) (Note 7)	54	79	173	0.16%	0.25%	0.58%	$121	$129	$138
Trading income (loss) (Note 22)	395	-223	-349	1.15%	-0.71%	-1.16%	($89)	($95)	($101)
Service charges	2,571	2,376	2,152	7.49%	7.56%	7.18%	$2,722	$2,914	$3,119
Card services	2,313	1,766	1,552	6.74%	5.62%	5.18%	$2,148	$2,299	$2,461
Insurance revenue (Note 23)	3,796	3,758	3,883	11.06%	11.96%	12.96%	$4,405	$4,716	$5,048
Other income (loss)	72	188	625	0.21%	0.60%	2.09%	$354	$379	$406
	14,392	12,702	12,377	41.94%	40.42%	41.31%	$15,142	$16,208	$17,349
Total Revenue (Net Interest income + Non-Interest income)	$34,315	$31,426	$29,961	100.00%	100.00%	100.00%	$36,731	$39,318	$42,086
EXPENSES									
Provision for credit losses	2,330	1,683	1,557	6.79%	5.36%	5.20%	$2,123	$2,273	$2,433
Insurance claims and related expenses (Note 23)	2,462	2,500	2,833	7.17%	7.96%	9.46%	$3,010	$3,222	$3,449
Non-interest expenses									
Salaries and employee benefits (Note 25)	9,298	9,043	8,451	27.10%	28.78%	28.21%	$10,294	$11,019	$11,795
Occupancy, including depreciation	1,825	1,719	1,549	5.32%	5.47%	5.17%	$1,954	$2,091	$2,239
Equipment, including depreciation	944	892	810	2.75%	2.84%	2.70%	$1,015	$1,087	$1,163
Amortization of other intangibles	708	662	598	2.06%	2.11%	2.00%	$755	$808	$865
Marketing and business development	743	728	756	2.17%	2.32%	2.52%	$858	$918	$983
Restructuring charges (Notes 11)	($18)	686	29	-0.05%	2.18%	0.10%	$273	$292	$312
Brokerage-related fees	316	324	321	0.92%	1.03%	1.07%	$370	$396	$424
Professional and advisory services	1,232	1,032	991	3.59%	3.28%	3.31%	$1,247	$1,334	$1,428
Other	3,829	2,987	2,991	11.16%	9.50%	9.98%	$3,752	$4,016	$4,299
	18,877	18,073	16,496	55.01%	57.51%	55.06%	$20,518	$21,963	$23,509
Income before income taxes and equity in net income of an investment in TD Ameritrade	10,646	9,170	9,075	31.02%	29.18%	30.29%	$11,080	$11,860	$12,695
Provision for (recovery of) income taxes (Note 28)	2,143	1,523	1,512	6.25%	4.85%	5.05%	$1,976	$2,115	$2,264
Equity in net income of an investment in TD Ameritrade (Note	433	377	320	1.26%	1.20%	1.07%	$432	$463	$495
Net income	8,936	8,024	7,883	26.04%	25.53%	26.31%	$9,536	$10,208	$10,926
Preferred dividends	141	99	143	0.41%	0.32%	0.48%	$147	$158	$169
Net income available to common shareholders and non-controlling interests in subsidiaries	$8,795	$7,925	$7,740	25.63%	25.22%	25.83%	$9,389	$10,050	$10,757
Attributable to:									
Common shareholders	$8,680	$7,813	$7,633	25.30%	24.86%	25.48%	$9,260	$9,912	$10,610
Non-controlling interests in subsidiaries	115	112	107	0.34%	0.36%	0.36%	$128	$137	$147
Earnings per share (dollars) (Note 27)	$8,565	2%		3.46%					
Basic EPS	$4.68	$4.22	$4.15	0.01%	0.01%	0.01%	$5.01	$5.36	$5.74
Diluted EPS	4.67	4.21	4.14	0.01%	0.01%	0.01%	$5.00	$5.35	$5.73
Dividends per share (dollars)	2.16	2	1.84	0.01%	0.01%	0.01%	$2.30	$2.46	$2.64

Appendix E: TD Balance Sheet with pro forma

Balance Sheet	Balance Sheet			Common Size Analysis			Pro forma expansion		
For the Fiscal Period Ending	October 31 2016	October 31 2015	October 31 2014	October 31 2016	October 31 2015	October 31 2014	October 31 2017	October 31 2018	October 31 2019
Currency (million of Canadian dollars, except as noted)	*CAD*	*CAD*	*CAD*	*CAD*	*CAD*	*CAD*	*CAD*	*CAD*	*CAD*
ASSETS									
Cash And Equivalents	$3,907	$3,154	$2,781	0.33%	0.29%	0.29%	$3,942	$4,367	$4,837
Interest-bearing deposits with banks	53,714	42,483	43,773	4.56%	3.85%	4.56%	56,358	$62,431	$69,158
	$57,621	$45,637	$46,554	4.90%	4.13%	4.85%	$60,300	$66,798	$73,995
Trading loans, securities, and other (Notes 5, 7)	99,257	95,157	101,173	8.43%	8.62%	10.53%	$119,875	$132,792	$147,101
Derivatives (Notes 5, 11)	72,242	69,438	55,796	6.14%	6.29%	5.81%	$79,247	$87,786	$97,245
Financial assets designated at fair value through profit or loss (Note 5)	4,283	4,378	4,745	0.36%	0.40%	0.49%	$5,451	$6,039	$6,689
Available-for-sale securities (Notes 5, 7)	107,571	88,782	63,008	9.14%	8.04%	6.56%	$103,167	$114,284	$126,599
Total financial Assets	$283,353	$257,755	$224,722	24.07%	23.34%	23.40%	$307,740	$340,900	$377,634
Held-to-maturity securities (Note 7)	84,395	74,450	56,977	7.17%	6.74%	5.93%	$86,241	$95,534	$105,828
Term (within 1 year)_Govt, Govt related + other debt securities	11,877	6,741	3,510	1.01%	0.61%	0.37%	$8,626	$9,556	$10,586
Term (after 1 year)_Govt, Govt related + other debt securities	82,518	67,709	53,467	7.01%	6.13%	5.57%	$81,307	$90,068	$99,773
Securities purchased under reverse repurchase agreements	86,052	97,364	82,556	7.31%	8.82%	8.60%	$107,444	$119,021	$131,846
Loans (Note 8)									
Residential mortgages	217,336	212,373	198,912	18.47%	19.23%	20.71%	$253,826	$281,177	$311,475
Consumer instalment and other personal	144,531	135,471	123,411	12.28%	12.27%	12.85%	$162,518	$180,031	$199,430
Credit card	31,914	30,215	25,570	2.71%	2.74%	2.66%	$35,244	$39,042	$43,249
Business and government	194,074	167,529	131,349	16.49%	15.17%	13.67%	$197,020	$218,249	$241,767
Debt securities classified as loans	1,674	2,187	2,695	0.14%	0.20%	0.28%	$2,698	$2,989	$3,311
(Loans Past due)	12,192	12,017	10,543	1.04%	1.09%	1.10%	$14,001	$15,510	$17,181
(Loans Past due + impaired)	3,509	3,244	2,731	0.30%	0.29%	0.28%	$3,808	$4,218	$4,673
	589,529	547,775	481,937	50.09%	49.60%	50.18%	$651,306	$721,488	$799,232
Allowance for loan losses (Note 8)	-3,873	-3,434	-3,028	-0.33%	-0.31%	-0.32%	($4,152)	($4,599)	($5,094)
Loans, net of allowance for loan losses	585,656	544,341	478,909	49.76%	49.29%	49.86%	$647,155	$716,889	$794,137
Other	25,917								
Customers' liability under acceptances	15,706	16,646	13,080	1.33%	1.51%	1.36%	$18,268	$20,237	$22,417
Investment in TD Ameritrade (Note 12)	7,091	6,683	5,569	0.60%	0.61%	0.58%	$7,768	$8,605	$9,532
Goodwill (Note 14)	16,662	16,337	14,233	1.42%	1.48%	1.48%	$19,021	$21,071	$23,342
Other intangibles (Note 14)	2,639	2,671	2,680	0.22%	0.24%	0.28%	$3,238	$3,587	$3,974
Land, buildings, equipment, and other depreciable assets (Note 15)	5,482	5,314	4,930	0.47%	0.48%	0.51%	$6,346	$7,030	$7,787
Deferred tax assets (Note 26)	2,084	1,931	2,008	0.18%	0.17%	0.21%	$2,438	$2,701	$2,992
Amounts receivable from brokers, dealers, and clients	17,436	21,996	17,130	1.48%	1.99%	1.78%	$22,845	$25,307	$28,033
Other assets (Note 16)	12,790	13,248	11,163	1.09%	1.20%	1.16%	$14,987	$16,602	$18,391
	79,890	84,826	79,708	6.79%	7.68%	8.30%	$98,946	$109,607	$121,418
Current Assets	$637,483	$601,140	$524,477	54.16%	54.43%	54.60%	$709,265	$785,692	$870,354
Total Assets	$1,176,967	$1,104,373	960,511	100.00%	100.00%	100.00%	1,303,790.9	1,444,280.8	1,599,909.1
LIABILITIES									
Trading deposits (Notes 5, 17)	$79,786	$74,759	$59,334	6.78%	6.77%	6.18%	$85,727	$94,965	$105,197
Term (within 1 year)	$76,677	$72,408	$57,655	6.51%	6.56%	6.00%	$82,894	$91,826	$101,721
Term (after 1 year)	$3,109	$2,351	$1,679	0.26%	0.21%	0.17%	$2,833	$3,138	$3,476
Derivatives (Notes 5, 11)	65,425	57,218	51,209	5.56%	5.18%	5.33%	$69,845	$77,371	$85,708
Trading Derivatives	–								
Hedging Derivative (within 1 year)	–								
Hedging Derivative (after 1 year)	–								
Securitization liabilities at fair value (Notes 5, 9)	12,490	10,986	11,198	1.06%	0.99%	1.17%	$14,002	$15,511	$17,182
Other financial liabilities designated at fair value through profit or loss (Not	190	1,415	3,250	0.02%	0.13%	0.34%	$2,098	$2,324	$2,574
Term (within 1 year)	$176	$1,226	$1,849	0.01%	0.11%	0.19%	$1,384	$1,533	$1,698
Term (after 1 year)	$14	$189	$1,401	0.00%	0.02%	0.15%	$713	$790	$875
	157,891	144,378	124,991	13.42%	13.07%	13.01%	171,671.6	190,170.1	210,661.9
Deposits (Note 17)									
	773,660	695,576	600,716	65.73%	62.98%	62.54%	$831,203	$920,770	$1,019,987
Other									
Acceptances	15,706	16,646	13,080	1.33%	1.51%	1.36%	$18,268	$20,237	$22,417
Obligations related to securities sold short (Note 5)	33,115	38,803	39,465	2.81%	3.51%	4.11%	$45,354	$50,241	$55,655
Obligations related to securities sold under repurchase agreements (Note	48,973	67,156	53,112	4.16%	6.08%	5.53%	$68,542	$75,928	$84,109
Securitization liabilities at amortized cost (Note 9)	17,918	22,743	24,960	1.52%	2.06%	2.60%	$26,860	$29,754	$32,960
Amounts payable to brokers, dealers, and clients	17,857	22,664	18,195	1.52%	2.05%	1.89%	$23,745	$26,304	$29,138
Insurance-related liabilities	7,046	6,519	6,079	0.60%	0.59%	0.63%	$7,918	$8,771	$9,716
Other Liabilities (Note 18)	19,696	14,223	15,897	1.67%	1.29%	1.66%	$20,063	$22,225	$24,619
	160,311	188,754	170,788	13.62%	17.09%	17.78%	$210,750	$233,459	$258,615
Current Liabilities	203,598	224,735	194,991	17.30%	20.35%	20.30%	$251,844	$278,981	$309,043
Subordinated notes and debentures	10,891	8,637	7,785	0.93%	0.78%	0.81%	$10,943	$12,122	$13,428
Total Liabilities	1,102,753	1,037,345	904,280	93.69%	93.93%	94.15%	$1,224,568	$1,356,521	$1,502,693
EQUITY									
Common Shares	20,711	20,294	19,811	1.76%	1.84%	2.06%	$24,598	$27,248	$30,184
Preferred Shares	4,400	2,700	2,200	0.37%	0.24%	0.23%	$3,683	$4,079	$4,519
Treasury Shares - common	($31)	-49	-54	0.00%	0.00%	-0.01%	($55)	($61)	($68)
Treasury Shares - preferred	($5)	-3	-1	0.00%	0.00%	0.00%	($3)	($4)	($4)
Contributed surplus	203	214	205	0.02%	0.02%	0.02%	$252	$279	$309
Retained Earnings	35,452	32,053	27,585	3.01%	2.90%	2.87%	$38,186	$42,300	$46,858
Accumulated other comprehensive income (loss)	11,834	10,209	4,936	1.01%	0.92%	0.51%	$10,621	$11,765	$13,033
	72,564	65,418	54,682	6.17%	5.92%	5.69%	$77,280	$85,607	$94,831
Non-controlling interests in subsidiaries	1,650	1,610	1,549	0.14%	0.15%	0.16%	$1,944	$2,153	$2,385
Total Equity	74,214	67,028	56,231	6.31%	6.07%	5.85%	$79,223	$87,760	$97,217
Total Liabilities And Equity	$1,176,967	1,104,373	960,511	100.00%	100.00%	100.00%	$1,303,790.9	$1,444,280.8	$1,599,909.1

Appendix F: WACC Calculations

Cost of Common Equity:

We calculate the cost of common equity by using the CAPM model. The current risk free rate (2.1%) and market premium (4.75%) can be found from [**AC**]. The beta coefficients of TD (0.91) and RBC (1.28) are found in [**AD**] using their symbols TD-T and RY-T respectively.

All the numerical values are retrieved from the balance sheet and the income statement found in the annual report of TD and RBC respectively. A link to the reports can be found in the references [**G**] and [**H**]

The common equity in RBC is worth $64,304 mil., TD is worth $68,164.

Using the above information, we calculate the cost of equity for TD:

$$
\begin{aligned}
R_e &= r_f + \beta\,(R_M - R_F) \\
&= 2.1 + 0.91\,(4.75) \\
&= 6.4225\ \%
\end{aligned}
$$

And the cost of equity for RBC:

$$
\begin{aligned}
R_e &= r_f + \beta\,(R_M - R_F) \\
&= 2.1 + 1.28\,(4.75) \\
&= 8.18\ \%
\end{aligned}
$$

Cost of Preferred Shares:

The cost of preferred shares for both the companies can be calculated as follows:

The preferred equity in TD is worth $4,400 mil.
Preferred Share Dividend = $141 mil
Preferred Share yield = 3.21%
R_p = 3.21%

The preferred equity in RBC is worth $6,713 mil.
Preferred share dividend = $294 mil.
Preferred Share yield = 4.38%
R_p = 4.38%

Cost of Debt:

The cost of debt before taxes to RBC due to bonds is reported, on pages 108 and 206 of the annual report, as 2.54% for 9,762 mil.
$R_d = 2.54\%$

Similarly, the tax rate for RBC, found by dividing the taxes paid by the net income as
T_C = \$2,841m/\$13,299m = 21.36%

The cost of debt before taxes to TD due to bonds is reported, on pages 17 and 119 of the annual report, as 4.50% for \$10,891 mil.
$R_d = 4.50\%$

Similarly, the tax rate for TD, found by dividing the taxes paid by the net income as
T_C = \$2,143m/\$10,646m = 20.13%

WACC Calculation:

$WACC_{TD}$ = 68,164*6.4225 + 4,400*3.21 + 10,891*4.5 (1-.2013) / (68,164 + 4,400 + 10,891)

= 5.884%

$WACC_{RBC}$ = 64,304*8.18 + 6,713*4.38 + 9,762*2.54 (1-.2136) / (64,304 + 6,713 + 9,762)

= 7.117%

Appendix G: Dividend Growth Model

The following equations were used to forecast the stock prices using the Dividend Growth Model. The growth rate g was computed as the average percentage dividend change over the last 3 years (2014-2016).

$$P_t = \frac{D_t(1+g)^t}{WACC-g}$$

$$g = \frac{1}{n}\sum_{t=1}^{n}\frac{D_{t+1}-D_t}{D_t}$$

The table below lists the results. The dividends and stock prices were obtained using the annual reports of both companies. WACC was calculated in Appendix F above.

TD Canada Trust							
	2014	**2015**	**2016**		**2017**	**2018**	**2019**
Dividend Per Share	$ 1.84	$ 2.00	$ 2.16		$ 2.34	$ 2.54	$ 2.75
Growth Rate		8.70%	8.00%	8.35%	8.35%	8.35%	8.35%
Price Per Share	$ 55.47	$ 53.68	$ 60.86				
Forecasted Share Price					$ (102.92)	$ (111.51)	$ (120.82)
WACC	5.88%						
Royal Bank of Canada							
	2014	**2015**	**2016**	**Average**	**2017**	**2018**	**2019**
Dividend Per Share	$ 2.84	$ 3.08	$ 3.24		$ 3.46	$ 3.70	$ 3.95
Growth Rate		8.45%	5.19%	6.82%	6.82%	6.82%	6.82%
Price Per Share	$ 80.01	$ 74.77	$ 83.80				
Forecasted Share Price					$1,256.50	$1,342.23	$1,433.81
WACC	7.12%						

Appendix H: Multiples Analysis

The following section contains the calculations for deriving the price-to-earnings (P/E), price-to-cash-flow (P/CF), price-to-sales (P/S) and price-to-book-value (P/BV) for both TD and RBC

P/E Multiple:

$$\frac{P}{E} = \frac{Price\ per\ Share}{Earnings\ per\ Share}$$

$$Forecasted\ Price\ per\ Share = (\tfrac{P}{E})_{average\ of\ 2014,2015,2016} * Future\ Earnings\ per\ share$$

TD Canada Trust							
	2014	2015	2016		2017	2018	2019
Outstanding Shares (millions)	1,844.60	1,855.10	1,857.20		1,863.50	1,869.90	1,876.30
Earnings per Share	$ 4.15	$ 4.22	$ 4.68		$ 5.01	$ 5.36	$ 5.74
Share Price	$ 55.47	$ 53.68	$ 60.86				
P/E Ratio	13.37	12.72	13.00	13.03			
Forecasted Share Price					$ 65.28	$ 69.84	$ 74.79
Royal Bank of Canada							
	2014	2015	2016		2017	2018	2019
Outstanding Shares (millions)	1,442.23	1,443.42	1,485.39		1,508.18	1,530.82	1,553.80
Earnings per Share	$ 6.03	$ 6.75	$ 6.80		$ 7.17	$ 7.51	$ 7.86
Share Price	$ 80.01	$ 74.77	$ 83.80				
P/E Ratio	13.27	11.08	12.32	12.22			
Forecasted Share Price					$ 87.64	$ 91.80	$ 96.07

P/CF Multiple:

$$Operating\ Cash\ Flow = EBIT + Dep\ and\ Amort - Taxes$$

$$\frac{P}{CF} = \frac{Price\ Per\ Share}{Operating\ Cash\ Flow\ per\ Share}$$

$$Forecasted\ Price\ per\ Share = \left(\frac{P}{CF}\right)_{average\ of\ 2014,2015,2016} * Future\ Operating\ cash\ Flow\ per\ Share$$

TD Canada Trust							
	2014	2015	2016		2017	2018	2019
Outstanding Shares (millions)	1,844.60	1,855.10	1,857.20		1,863.50	1,869.90	1,876.30
Operating Cash Flow (millions)	$ 25,913.00	$ 35,273.00	$ 44,125.00		$57,631.00	$75,271.00	$98,310.00
OCF/Share	$ 14.05	$ 19.01	$ 23.76		$ 30.93	$ 40.25	$ 52.40
Share Price	$ 55.47	$ 53.68	$ 60.86				
P/CF Ratio	3.95	2.82	2.56	3.11			
Forecasted Share Price					$ 96.21	$ 125.23	$ 163.01

Royal Bank of Canada							
	2014	2015	2016		2017	2018	2019
Outstanding Shares (millions)	1,442.23	1,443.42	1,485.39		1,508.18	1,530.82	1,553.80
Operating Cash Flow (millions)	$ 15,174.00	$ 24,149.00	$ 26,856.00		$31,154.00	$36,140.00	$41,923.00
OCF/Share	$ 10.52	$ 16.73	$ 18.08		$ 20.66	$ 23.61	$ 26.98
Share Price	$ 80.01	$ 74.77	$ 83.80				
P/CF Ratio	7.60	4.47	4.63	5.57			
Forecasted Share Price					$ 115.05	$ 131.49	$ 150.27

P/S Multiple:

$$\frac{P}{Sales} = \frac{Price\ per\ Share}{Total\ Revenue\ per\ Share}$$

$$Forecasted\ Price\ Per\ Share = \left(\frac{P}{Sales}\right)_{Average\ of\ 2014,2015,\ 2016} * Future\ Sales\ Per\ share$$

TD Canada Trust							
	2014	2015	2016		2017	2018	2019
Outstanding Shares (millions)	1,844.60	1,855.10	1,857.20		1,863.50	1,869.90	1,876.30
Total Revenue (millions)	$29,961.00	$31,426.00	$34,315.00		$36,731.00	$39,318.00	$42,086.00
Sales/Share	$ 16.24	$ 16.94	$ 18.48		$ 19.71	$ 21.03	$ 22.43
Share Price	$ 55.47	$ 53.68	$ 60.86				
P/Sales Ratio	3.42	3.17	3.29	3.29			
Forecasted Share Price					$ 64.90	$ 69.23	$ 73.85
Royal Bank of Canada							
	2014	2015	2016		2017	2018	2019
Outstanding Shares (millions)	1,442.23	1,443.42	1,485.39		1,508.18	1,530.82	1,553.80
Total Revenue (millions)	$34,108.00	$35,321.00	$38,405.00		$40,764.55	$43,269.06	$45,927.44
Sales/Share	$ 23.65	$ 24.47	$ 25.86		$ 27.03	$ 28.27	$ 29.56
Share Price	$ 80.01	$ 74.77	$ 83.80				
P/Sales Ratio	3.38	3.06	3.24	3.23			
Forecasted Share Price					$ 87.21	$ 91.20	$ 95.37

P/BV Multiple:

$$\frac{P}{Book\ Value} = \frac{Price\ Per\ Share}{Book\ Value\ Per\ Share}$$

$$Forecasted\ Price\ Per\ Share = \left(\frac{Price}{Book\ Value}\right)_{Average\ of\ 2014,2015,2016} * Future\ Book\ Value\ per\ Share$$

TD Canada Trust							
	2014	**2015**	**2016**		**2017**	**2018**	**2019**
Outstanding Shares (millions)	1,844.60	1,855.10	1,857.20		1,863.50	1,869.90	1,876.30
Book Value Per Share	$ 28.45	$ 33.81	$ 36.71		$ 39.50	$ 43.60	$ 48.14
Market Value Per Share	$ 55.47	$ 53.68	$ 60.86				
P/Book Value Ratio	1.95	1.59	1.66	1.73			
Forecasted Share Price					$ 68.40	$ 75.50	$ 83.37

Royal Bank of Canada							
	2014	**2015**	**2016**		**2017**	**2018**	**2019**
Outstanding Shares (millions)	1,442.23	1,443.42	1,485.39		1,508.18	1,530.82	1,553.80
Book Value Per Share	$ 33.69	$ 39.51	$ 43.32		$ 46.55	$ 51.39	$ 56.72
Market Value Per Share	$ 80.01	$ 74.77	$ 83.80				
P/Book Value Ratio	2.37	1.89	1.93	2.07			
Forecasted Share Price					$ 96.23	$ 106.24	$ 117.25

Appendix I: Discounted Cash Flow (DCF) Analysis

Free Cash Flow = Net Income + Depreciation and Amortization - CAPEX - ∆ Net Working Capital

Net Income = EBIT (1-Tax Rate)

EBITDA = Operating Income + (Depreciation and Amortization)

EBIT = EBITDA - Depreciation and Amortization

Net Working Capital = Current Assets - Current Liabilities

The above formulas were utilized in computing the future free cash flows and to conduct a discounted cash flow analysis for RBC and TD. The common size statements from Appendices B-E were utilized to forecast future CAPEX, Working Capital, Net Income and Depreciation values for the next 3 years.

$$Ptv = \frac{FCTtv\,(1+g_{tv})}{WACC - g_{tv}}$$

The terminal value was computed using the above formula where P_{tv} is the terminal free cash flow, and g_{tv} is the terminal growth rate. This was then used to find the NPV as follows

$$NPV = \sum_{n=1}^{3} \frac{FCTn}{(1+WACC)^n} + \frac{Ptv}{(1+WACC)^3}$$

As can be observed, the Free Cash Flow values calculated were negative for RBC (as well as eventually TD) due to the trend of increasing net Working Capital. As explained in section 4.6, this may be due to the difficulty in accurately projecting Free Cash flow for banks, which appear to be negative due to increasing investments in current assets. Furthermore, there is limited data as what the terminal growth rate of the FCFs will be when they become positive.

RBC Discounted Free Cashflow Analysis	2017	2018	2019
Revenue (6% growth rate)	**40,764.55**	**43,269.06**	**45,927.44**
Net Income	**11,144.31**	**11,829.00**	**12,555.75**
Depreciation/Amortization	**1,780.22**	**2,049.93**	**2,360.50**
CAPEX	- 1,275.74	- 1,275.74	- 1,275.74
Working Capital	**462,723.17**	**497,484.22**	**534,856.61**
Δ Working Capital	32,332.17	34,761.05	37,372.40
Free Cash Flow	- 20,683.38	- 22,157.86	- 23,731.88
Terminal Value (=8 %)			2,902,653.90
Total Cash Flow	- 20,683.38	- 22,157.86	2,878,922.02
number of years (n) =	1.00	2.00	3.00
A = $(FCF_{TV}) / (1 + WACC)^n$	- 19,309.14	- 19,311.28	2,342,365.69
B = $(P_{TV}) / (1 + WACC)^3$			
Net Present Value (NPV) millions=			2,303,745.27
Outstanding shares			1,485,876,000
Forecasted Share Price			**1,550.43**

TD Discounted Free Cashflow Analysis	2017	2018	2019
Net Income	**9,536.04**	**10,207.50**	**10,926.25**
Depreciation/Amortization	**884.11**	**855.20**	**827.23**
CAPEX	- 801.01	- 805.05	- 809.10
Working Capital	**457,421.40**	**506,710.78**	**561,311.34**
Δ Working Capital	23,526.40	49,289.39	54,600.56
Free Cash Flow	- 13,907.26	- 39,031.73	- 43,656.18
Terminal Value (=6.6 %)			6,499,648.57
Total Cash Flow	- 13,907.26	- 39,031.73	6,455,992.39
number of years (n) =	1.00	2.00	3.00
A = $(FCF_{TV}) / (1 + WACC)^n$	- 13,134.43	- 34,814.26	5,438,410.57
B = $(P_{TV}) / (1 + WACC)^3$			
Net Present Value (NPV) millions=			5,390,461.88
Outstanding shares			1,857.20
Forecasted Share Price			**2,902.47**

Therefore, the terminal growth rate was assumed to be same as growth of historical net income. Due to the uncertainty in accurately predicting Future Cash Flow, the results of this method are not reliable in valuation RBC and TD banks.

Appendix H: Other Formulas

Altman Z Score

Z = 6.56 * X1 + 3.26*X2 + 6.72*X3 + 1.05*X4,
where,
X1 measures the net liquid asset of a company relative to the total assets
= working capital / total assets = (current asset – current liabilities) / total asset
X2 measures the financial leverage level of a company
= retained earnings / total assets
X3 measures productivity of a company's total assets
= earnings before interests and taxes (EBIT) / total assets
X4 measures portion of company's assets that can decline in value before liabilities exceed assets
= market value of equity / book value of total liabilities
For non-manufacturing, bankruptcy tendency based on results of analysis are – safe zone (Z-score > 2.6), grey zone (1.1 < Z-score < 2.6), and distress zone (Z-score < 1.1).

WACC

WACC = (Cost of Debt*Weight of Debt) + (Cost of Common Equity*Weight of Common Equity) + (Cost of Preferred Equity*Weight of Preferred Equity)

Cost of Debt

$$R_D = r_D * (1 - T_C)$$

Cost of Common Equity

$$R_{CE} = R_F + \beta (R_M - R_F)$$

where
β is the beta coefficient
R_F is the long term risk free rate of government bonds
R_M is the average return on the market and
R_M - R_F is the market risk premium