ARMILLARY
PRIVATE CAPITAL

Return on Capital Employed

Review of 2017 Returns

June 2018

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Disclaimer

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Foreword

We are delighted to present the eighth Armillary Private Capital Return on Capital Employed (ROCE) report. This year the total number of entities in our data set of NZX, NZAX, NXT, USX, and selected Crown entities is 156. We have also included a sample of 245 private companies, although we have not identified these entities individually.

The ROCE methodology we use in this report was developed by Du Pont Corporation and is therefore not proprietary to us, although we are proponents. As it is simple to apply, anyone who understands the methodology can use it. We regularly use this methodology as a tool in our client engagements and in our financial training curriculum.

A benefit of the ROCE methodology is that the performance of an entity can be broken down into its components of profitability and activity, for deeper analysis. Profitability, as measured by EBIT margin, provides an indication of operational efficiency; activity, as measured by asset turn-over, provides an indication of balance-sheet efficiency. Combined the two give overall ROCE with a full explanation provided in Appendix 2.

Again, this year's report includes an overview of the major sectors in the economy to demonstrate the effect that differences in business models have on profitability, activity and overall ROCE performance.

Following the recent financial distress of a number of retailers in Australasia, our spotlight this year is on the impact that IFRS 16 and the capitalisation of leases could have on the balance sheets of retail businesses in New Zealand.

We continue to advocate the ROCE methodology in our work with businesses as a simple to use and easily understood tool for measuring business performance, identifying improvement strategies, creating incentive remuneration programs, and for testing budgets and forecasts, especially those applied in valuations. We also see the data and results in this report as providing useful benchmarks for business performance in the New Zealand market.

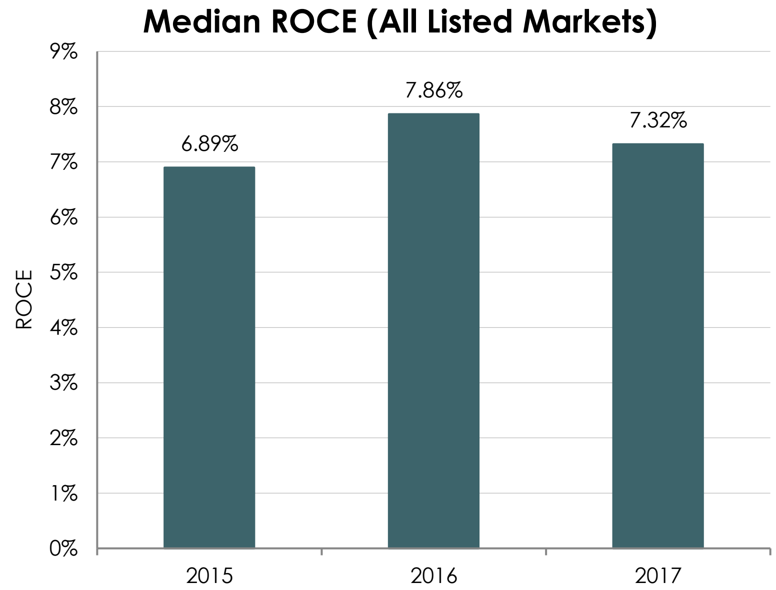
We trust that the insights contained in this report provide value to investors, business owners and managers alike.

Armillary Private Capital

Executive Summary

This year's ROCE review of the 2017 financial results included 110 companies with primary listings on the NZX, 17 NZAX & NXT listed companies, 14 companies from USX, and 15 Crown Entities. This has resulted in a total sample size of 156 Crown and Listed firms for 2017. For this report we have grouped the NZAX and NXT companies. In addition to our sample of listed and Crown entities, we have included a sample of 245 private companies. These have been reviewed separately and compared to the main sample.

The median 2017 ROCE performance across all NZ Listed Markets (including the Crown Entities) has dipped slightly to 7.32% compared to 7.86% in 2016. This result remains shy of common estimates for the market average weighted cost of capital of around 9%.



- The a2 Milk Company, listed on the NZX, was the top performer with a ROCE of 153.6%. This result was due to an improvement in profit margins while still maintaining high activity. A2 Milk's share price performance over the year mirrored the company's improvement in ROCE.

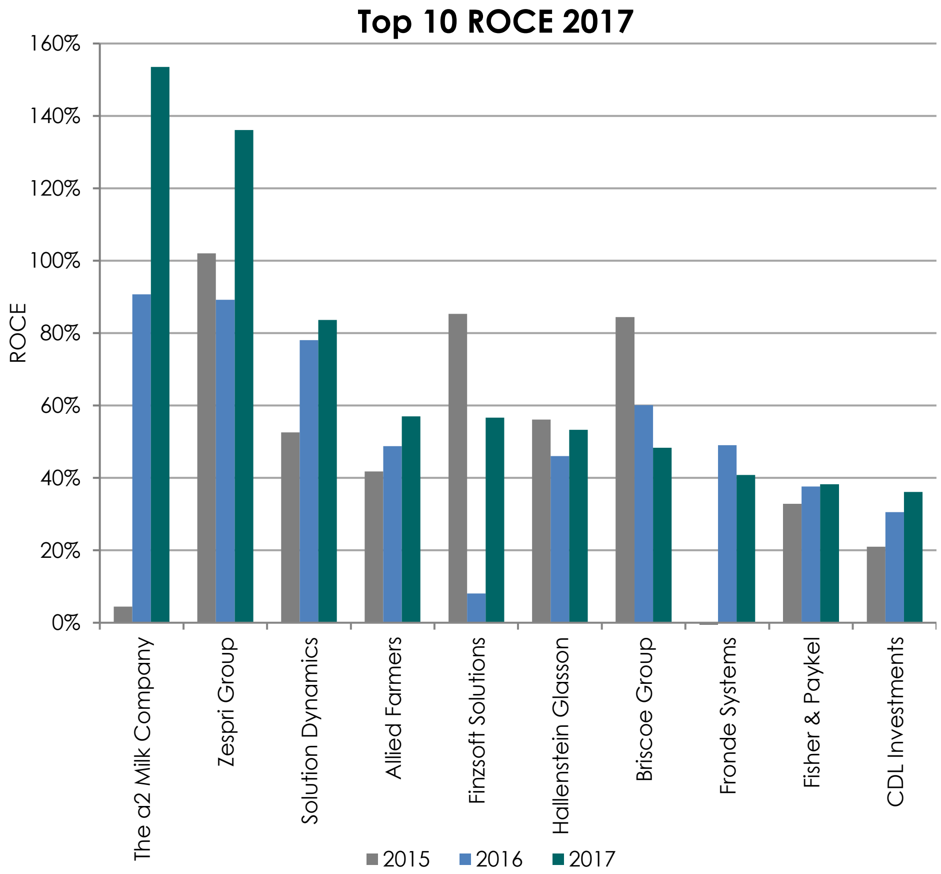
- Eight of the top ten performers in 2017 were from the Consumer Staples, Information Technology and Consumer Discretionary sectors. The Consumer Discretionary sector was the best performing sector (median ROCE of 14.2%) whilst the Healthcare and Information Technology sectors as a whole had the worst median ROCE in 2017 (1.62% and 1.61% respectively).

- The median ROCE of NZX50 constituent companies was 8.5%, behind the median for companies in the EUROSTOXX 50 index (9.5%), the S&P 500 (14.8%), and the S&P/ASX 200 (12.8%). Compared to these international markets the NZX50 was the only index in which the constituent companies median ROCE declined on 2016 results.

- For the Crown Entities the 2017 median ROCE was 7.3% (down from 9.6% in 2016), with Airways Corporation recording the best performance in that group with a ROCE of 20.9%.

Top Performers

The top 10 entities by 2017 ROCE performance are dominated by businesses that have high levels of activity (revenue/ total net operating assets).



The top performer in 2017, The a2 Milk Company, had a 25.7% profitability ratio (up from 15.0% in 2016 and 1.4% in 2015) and a 5.97x activity ratio in 2017 (down from 6.07x in 2016). Zespri Group and Solution Dynamics both posted solid ROCE improvements in 2017 with 136.1% for Zespri Group (a 46.9% improvement on 2016) and 83.7% for Solution Dynamics (a 5.6% improvement on 2016).

Zespri Group, the second highest performer, has increased its ROCE over the past three years and has the highest activity ratios recorded in our listed sample (31.3x in 2017) and an improved profitability ratio (4.4% in 2017 up from 2.1% in 2016). Both Briscoe Group and Hallenstein Glasson Holdings feature again in the top ten, but it should be noted these companies have a lot of leases that are off-balance sheet and are thus not included in the calculation of Capital Employed. Our Retail Sector Spotlight on page 11 makes an allowance for this feature by calculating a ROCE figure adjusted for leases.

The top three ROCE performers in 2017 for each of the three markets analysed were as follows:

- NZX market: The a2 Milk Company (153.6%), Allied Farmers (57.1%) and Finzsoft (56.6%).
- NZAX/NXT markets: Solution Dynamics (83.7%), Enprise Group (24.3%) and G3 Group (23.7%).
- USX market: Zespri Group (136.1%), Fronde Systems (40.8%) and Skyline Enterprises (23.2%).
- Of the Crown Entities sampled the top performers were Airways Corporation (20.9%), The Institute of Environmental Science (15.7%) and The Institute of Geological and Nuclear Sciences (15.3%).

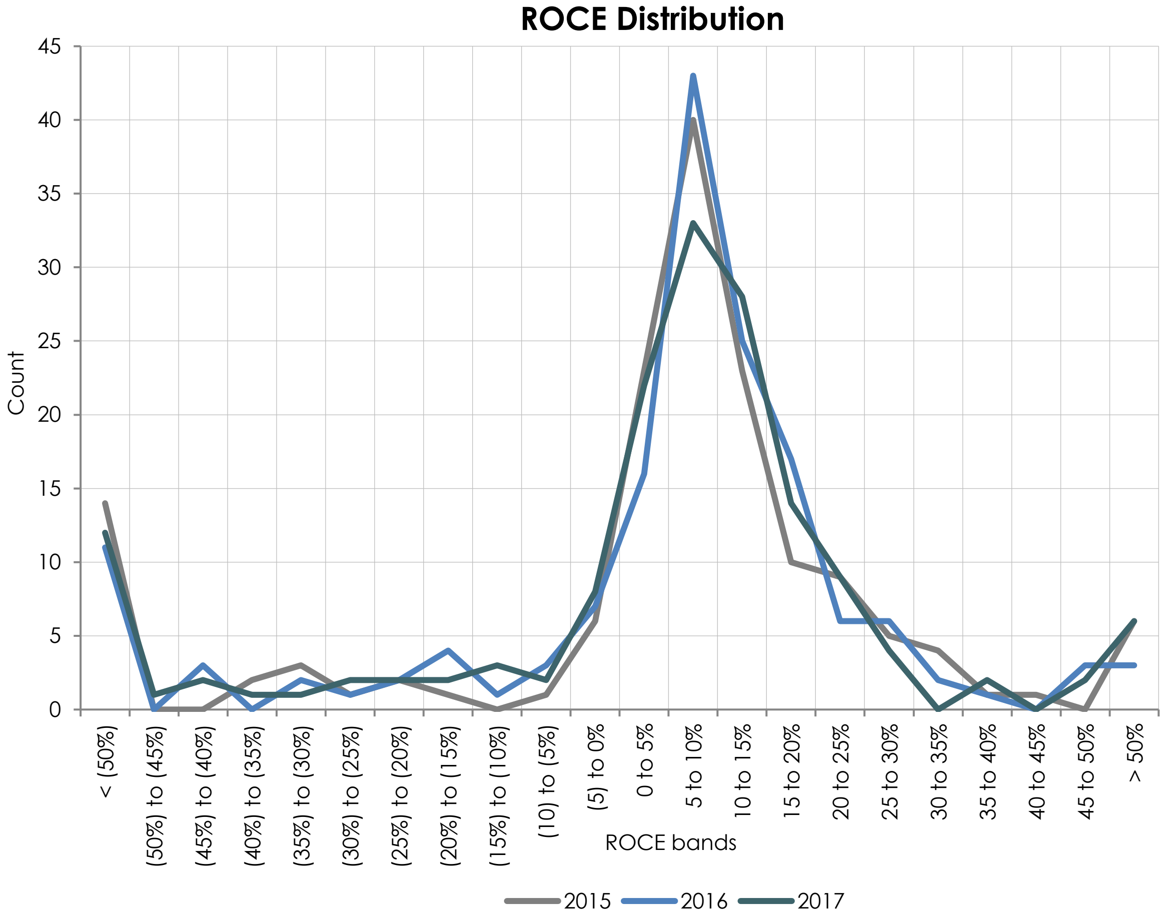
Distribution of Results

The ROCE returns for the last three years follow a normal distribution, with outliers at either side of a bell-shaped curve. A notable change in the 2017 distribution compared to 2016 is the decrease in the number of firms posting ROCE around the 5-10% mark with an increase in the number of firms posting values in the 50% and above level.

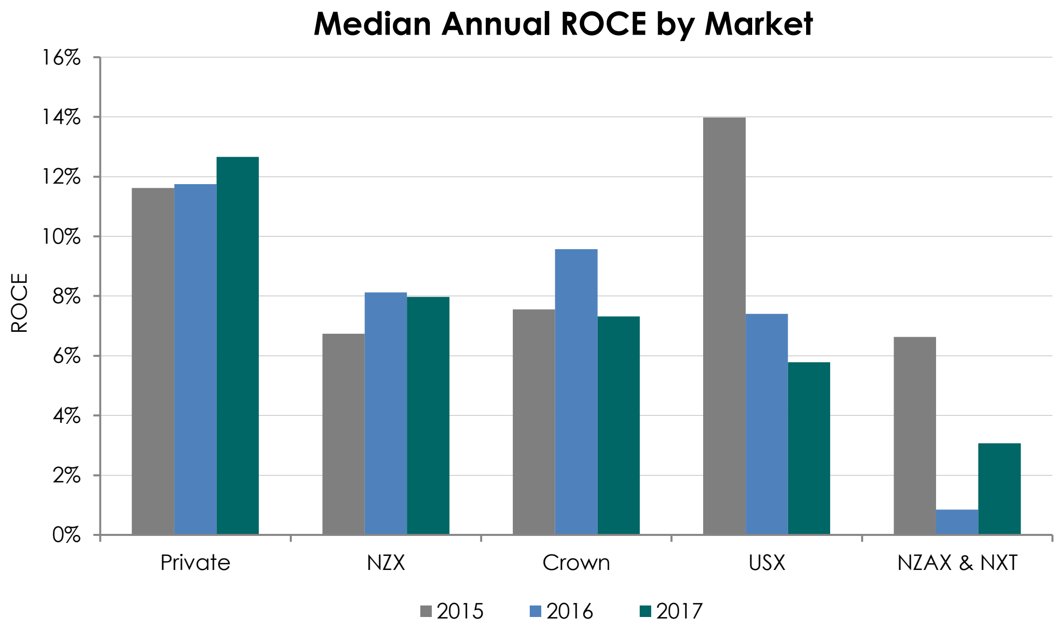
44% of the listed companies in New Zealand achieved a ROCE greater than 9% (being a common estimate of the market weighted average cost of capital), outperforming the previous years' results of 42% in 2016 and 40% in 2015.

36 companies had a ROCE less than zero in 2017. A negative ROCE implies negative profitability, or a net operating loss. Just under 8% of the sample (12 firms) had a ROCE of less than negative 50%. Not surprisingly, 4 of these 12 firms were in the technology sector where, more often than not, these companies are focused on growth at the expense of short term profitability.

12% of private companies sampled reported a negative ROCE which is about half the 23% of the NZ listed contingent reporting a negative ROCE in 2017.



Market



The performance by market for the last three years shows:

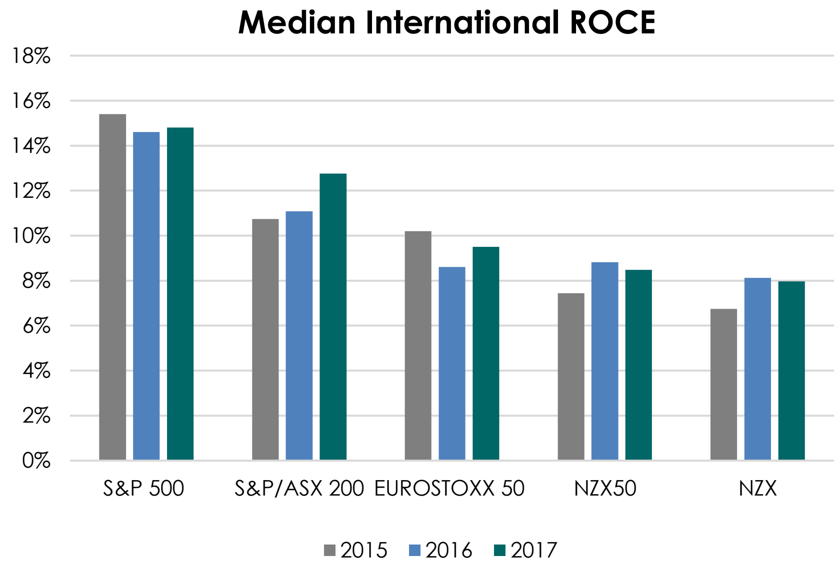
The NZX main board companies posted a 0.1% decrease on the 2016 median ROCE at just under 8.0%. The NZAX and NXT recovered well following a sharp dip in ROCE from 2015 to 2016 – the median for that segment of the market standing at 3.1% in 2017 (0.8% in 2016).

The Crown entities reversed their upward trend posting a median ROCE in 2017 at 7.3%, down from 9.6% in 2016.

The median USX result for companies dropped again compared to the previous year with a 5.8% median ROCE for 2017 (although due to the small sample size even medians of this segment are prone to be skewed by outliers). USX issuers' median performance has decreased from 14.0% in 2015 to 5.8% in 2017. Due to their smaller size and higher cost of capital relative to their NZX listed counterparts, USX firms as segment would struggle to generate shareholder value at this ROCE level.

Our sample of private companies posted an improved median ROCE of 12.7%, up from 11.7% in 2016. Whilst this is a welcome trend, it should be noted that the weighted average cost of capital (WACC) for private companies will be higher than the listed and Crown entities, thus require a higher ROCE compared to their larger counterparts to surpass WACC and generate economic value.

International Comparisons



To benchmark New Zealand's performance, we have also reviewed the performance of companies in the European, Australian and US markets, as represented by the EUROSTOXX 50, S&P/ASX 200 and S&P 500 indices respectively. For comparability, we have isolated the performance of the NZX50 index constituents from that of the entire group of NZX main board listed entities. Note that the average cost of capital in the comparison markets will vary from that of New Zealand. In general, companies in the offshore markets tend to be larger and the cost of debt in each of the markets is currently lower therefore they will have a lower weighted average cost of capital.

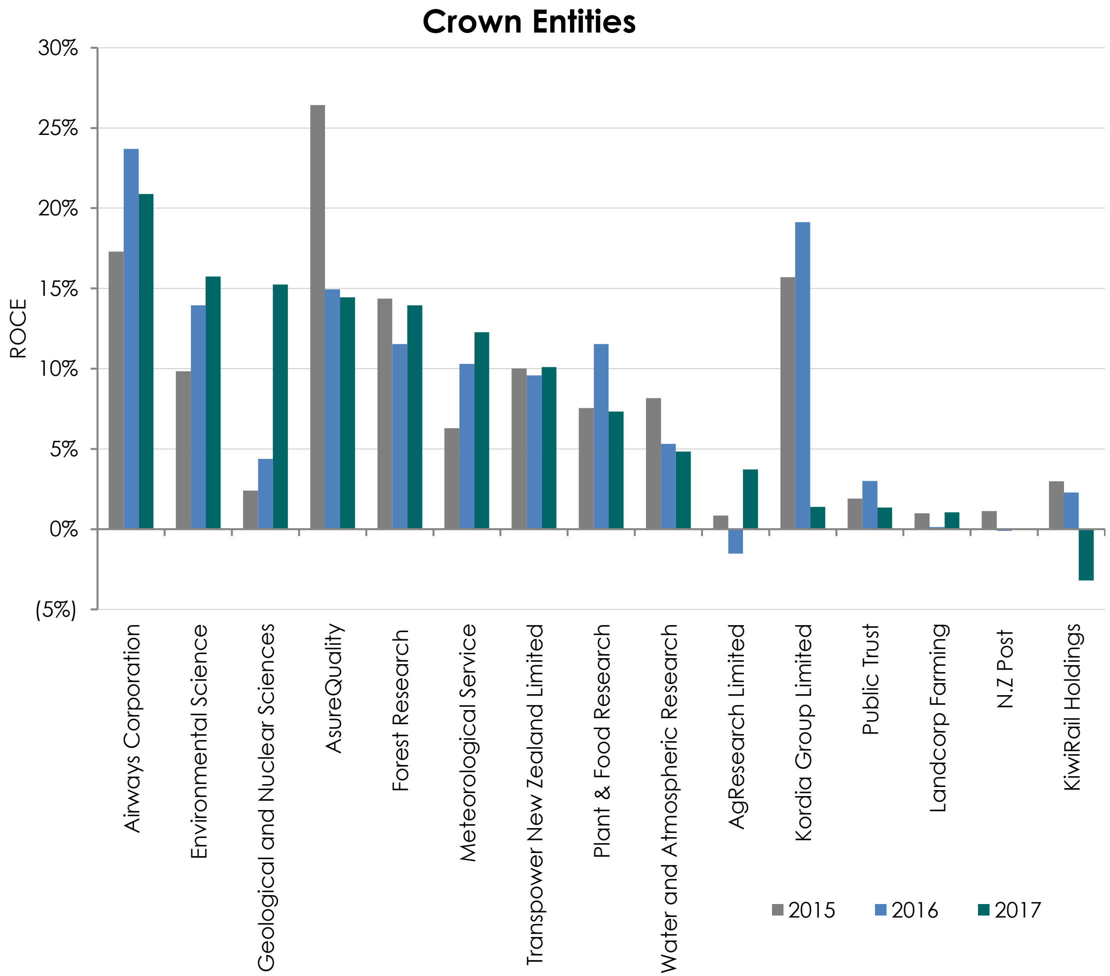
The **NZX50** index group of companies once again had a higher median performance than the overall NZX main board in 2017. The NZX50 companies represent more than 92% of the NZ listed equity market capitalisation. Of the international exchanges analysed, both the NZX and NZX50 were the only markets to see declines in 2017 relative to 2016 performance. The NZX50 saw a reduction of 0.3% on 2016 to finish the year with an 8.5% median ROCE (8.8% in 2016), whilst a 0.1% decrease on 2016 for the main board saw median ROCE finish up at 8.0% (8.1% in 2016).

The **EUROSTOXX 50** index covers 50 blue-chip stocks from 12 Eurozone countries. It represents more than 50% of the entire free-float market capitalisation of all Eurozone listed equities. This index outperformed both the NZX and NZX50 in 2017 with a median ROCE of 9.5% (8.6% in 2016) whereas in 2016 the NZX50 recorded a higher median ROCE.

The **S&P/ASX 200** index is recognised as the institutional investable benchmark in Australia. The index covers approximately 80% of the equity market capitalisation in Australia. Median ROCE performance improved again in 2017, increasing from 11.1% to 12.8%, which is noticably higher than that of the NZX and European companies. The increase in median ROCE was largely driven by a significant performance improvement in the Materials (13% in 2017 up from 10% in 2016) and Energy sectors (8% in 2017 up from 3% in 2016).

The **S&P 500** index captures approximately 80% of the total US listed equity market capitalisation. The companies in this index have consistently produced a significantly higher ROCE than the other markets examined. In line with previous years the S&P500 returned a median ROCE of 14.8% in 2017 (14.6% in 2016 and 15.4% in 2015).

Crown Entities



The fifteen Crown Entities in our analysis have been selected as they are generally considered the more commercially run entities in the Crown's portfolio.

The overall performance of the Crown Entities declined in 2017 with the median ROCE down 2.3% to finish at 7.3%. Compared to the listed companies, the notable feature of the Crown Entities is a tighter range of returns with the highest at just over 20% and only one of the 15 having a negative ROCE.

Eight of the fifteen Crown Entities reported improved ROCE in 2017 compared to 2016.

The Research Institutes (GNS, Environmental Science, Forest Research, Plant & Food, Water and Atmospheric Research, and AgResearch) continue to show improved ROCE performance with three of the five improving their 2016 results.

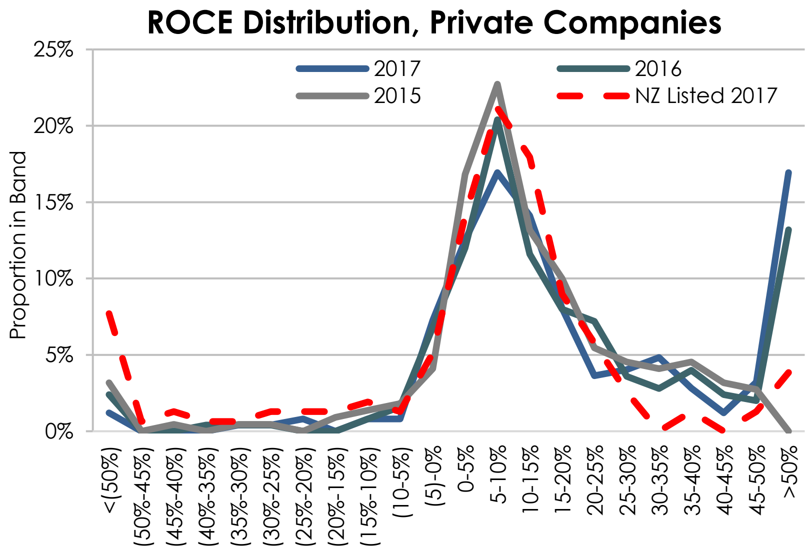
GNS Science recorded a substantial improvement in ROCE following a moderate gain in 2016. Revenues grew by $4.1 million (5% increase) with EBIT improving by $3.31 million (235% increase), resulting in an 3.75% improvement in its Profitability Ratio. Combined with an improved Activity Ratio (2.79x vs. 2.56x) resulted +10% improvement in ROCE (15.3% in 2017 compared to 4.4% in 2016).

The decline in performance by Kordia Group is in stark contrast to its strong performance in the preceding two years. A $19 million decrease in EBIT caused by the completion of large contracts the year before, and a delay in the commencement of new ones, meant both Profit Margin and Activity Ratios fell, leading to decline in ROCE from 19.1% in 2016 to just 1.4% in 2017.

Private Companies

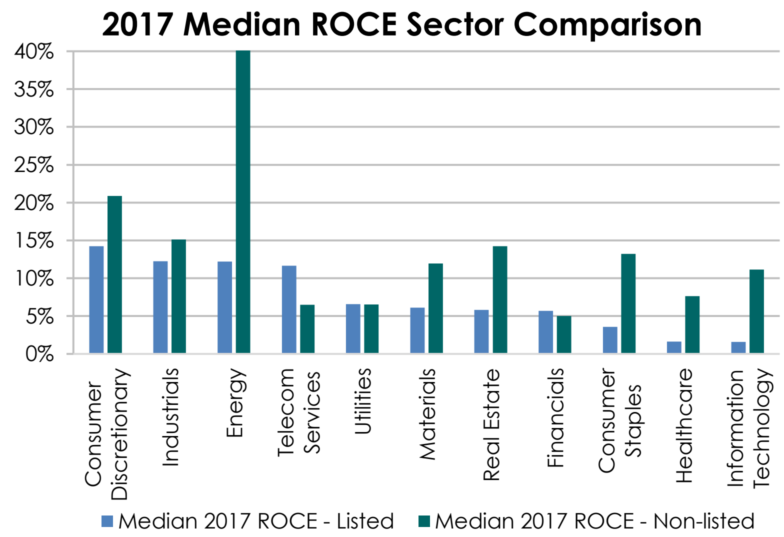
The private company database increased from 130 companies in 2016 to 245 companies in 2017. These 245 companies are reviewed to see how they compare with their listed peers with the larger sample size improving the statistical power of our analysis.

Of the sample of private companies, 67 are in the Industrials sector, 49 in Consumer Discretionary, 33 in Consumer Staples and 25 in each of the IT and Materials sector. The rest are spread over the six other sectors. The distribution of ROCE for the private companies is bi-modal with the majority of companies falling in the 10-15% ROCE bracket with the right side of the distribution skewed by a number of relative outliers with very high ROCE. These firms make up the second peak of the bi-modal distribution which we see is much higher for private firms when compared to their listed counterparts.



All private companies in the top quartile achieved a ROCE of greater than 32%, while those in the lowest quartile were all lower than 5%. This compares to an upper and lower quartile cut-off of 15% and 1% respectively for Listed NZ firms.

Private companies outperformed listed firms in 8 of the 11 sectors analysed. The Energy sector showed the biggest variance with a 42.5% ROCE for private companies in 2017 compared to 12.2% for listed firms.



ROCE needs to be judged against the weighted average cost of capital of the entity. In the case of non-listed companies, the capital weighting will typically be biased towards equity rather than debt. In addition to equity being more expensive than debt, the cost of equity for private companies is significantly higher than that of listed companies due to investors requiring a premium for the higher levels of risk. The higher risk derives from the private companies often being smaller, less mature firms potentially with less depth and/or quality of management, lower quality of information disclosure and lack of liquidity or marketability for the shares. Therefore the 2017 median ROCE of 12.7% would suggest that many of the private companies reviewed are performing at around their weighted average cost of capital, which for public companies is around 9% and for private companies would be in the double digits.

Listed Companies - Performance by Sector

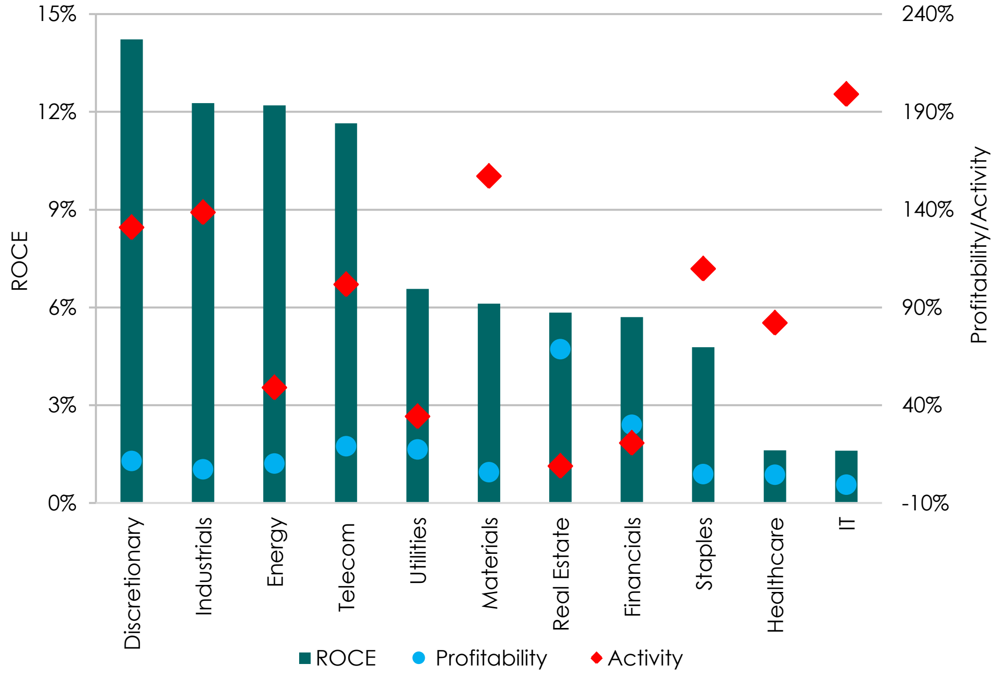
The outcome of different business models and market conditions can be examined by comparing the median performance of companies in different sectors. For this analysis, we have used the 2017 median Profitability, Activity and ROCE performance of each sector for all listed and Crown companies.

The top three performing sectors based on 2017 ROCE are Consumer Discretionary, Industrials and Energy (14.2%, 12.3% and 12.2% respectively). Each sector has Profitability Ratios of roughly 10% and Activity Ratios which are generally greater than 1x.

The Real Estate and Financial sectors both exhibit high Profitability Ratios (68.6% and 30.0% respectively) but are dragged down by low levels of Activity due to the capital-intensive nature of the sectors (around 0.1x for Real Estate and 0.2x for Financials).

Conversely, the Materials and IT sectors show high levels of Activity (1.57x and 1.99x respectively) yet have relatively low median ROCEs as a result of lower median Profitability Ratios (5.7% and -0.6% respectively). Companies in the Materials sector include forestry, steel and construction material suppliers which overall have high sales volumes but lower profit margins while, as already noted, IT companies will often have a focus on growth at the expense of short term profitability. The fall in ROCE for the IT sector, from 6.3% in 2016 down to 1.6% in 2017, the biggest out of the 11 industries analysed.

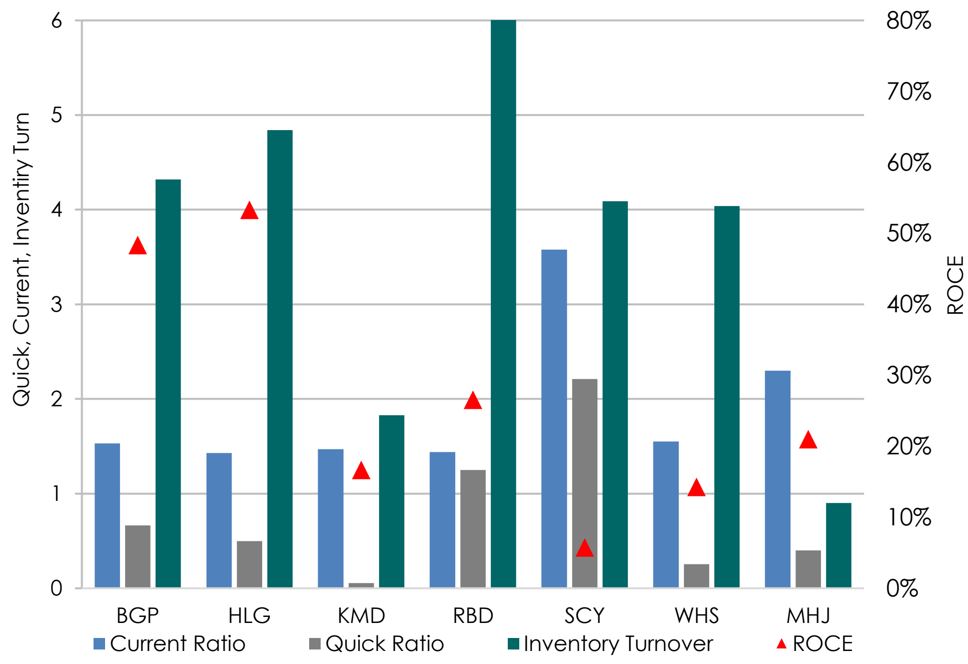
Sector Performance, 2017 Median ROCE



	Profitability	Activity	ROCE
Consumer Discretionary	11.5%	1.31 x	14.2%
Industrials	7.3%	1.39 x	12.3%
Energy	10.2%	0.49 x	12.2%
Telecom Services	19.0%	1.02 x	11.7%
Utilities	17.5%	0.34 x	6.6%
Materials	5.7%	1.57 x	6.1%
Real Estate	68.6%	0.09 x	5.8%
Financials	30.0%	0.21 x	5.7%
Consumer Staples	4.7%	1.10 x	4.8%
Healthcare	4.5%	0.82 x	1.6%
Information Technology	(0.6%)	1.99 x	1.6%

Spotlight: Retail

This year we have chosen to examine the performance of 7 listed NZ retail companies: Briscoe Group (BGP), Hallenstein Glasson (HLG), Kathmandu (KMD), Michael Hill (MHJ), The Warehouse (WHS), Restaurant Brands (RBD) and Smiths City Group (SCY) and in particular looked at how ROCE may differ once IFRS 16 is introduced with its requirement to bring what are currently off balance-sheet lease exposures on to the balance sheet.



Firstly, though we examine more traditional measures of performance. More than 7,000 stores closed in the U.S during 2017 (up more than 200% on the previous year) with the rise in online shopping often blamed for this decline. Whilst the growth of online sales is undoubtably a factor in the changing retail landscape, that change in and of itself is rarely the reason behind the demise of bricks & mortar retailers. According to the Retail Owners Institute, poor cash flow and inventory management along with an inability to manage gross margins, will kill a retailing business long before declining sales.

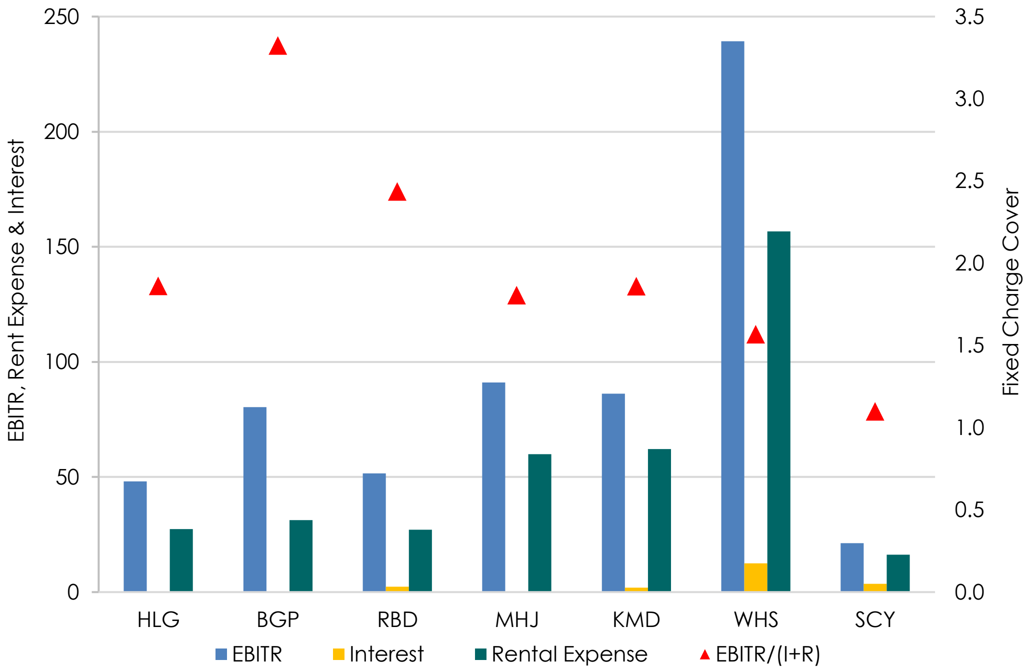
One of the key points of friction in the retail industry is cash flow management. Quick Ratio (which is defined as cash and marketable securities over current liabilities) and Current Ratio (which is defined as current assets over current liabilities) are graphed alongside Inventory Turnover to illustrate how effective cash flow and inventory management lead to profitability and returns in a retail business. Of the seven listed retailers in New Zealand, Hallenstein Glasson has done the best job of managing the balance between cash flow and inventory turn and has achieved the highest ROCE in the group at 53.3%. At the other end of the scale, Smiths City has the lowest ROCE of the seven at 5.8% with the business moving through a repositioning phase. Although with a large exposure to financial services care must be taken before drawing any definitive conclusions.

Conventional wisdom is that a company should maintain a Quick Ratio of around 1.0x although for retailers this is typically slightly lower. Kathmandu's low Quick Ratio of 0.06x compared to the sample median of 0.4x is of some concern, as the imbalance of the Current and Quick ratios could be interpreted as an early warning sign of future cash flow problems. One of the issues that led to the demise of Pumpkin Patch was the inability to pay short term liabilities due to an overstocked inventory position, which then had to be discounted heavily to generate cash. While the specifics in every case are different, Kathmandu's high Current Ratio relative to its Quick Ratio points to an increased risk of a similar issue occurring.

Michael Hill is interesting in that it also has a high Current Ratio relative to its Quick Ratio in turn suggesting it is more reliant on future sales to generate cash for its commitments than others in the sample. While its product mix is quite different to the other retailers it also has the lowest inventory turnover of the seven firms analysed.

Fixed Charge Cover

Analysing Fixed Charge Cover (defined as EBIT / (Rent + Interest) provides insights into the capabilities of a business to meet its fixed expenses. This measure calculates how many times a firm could cover its interest and rental payments as a quick gauge of financial health. Here we see the ranking of companies change relative to ROCE scores as Briscoe is most able to meet its interest and rental obligations with Restaurant Brands ranking second. Overall, what is shown by this analysis is that companies that at first glance look to have low, or even negative, leverage (e.g. with minimal interest expense or net cash on the balance sheet) do in fact carry substantial leverage in the form of operating leases.

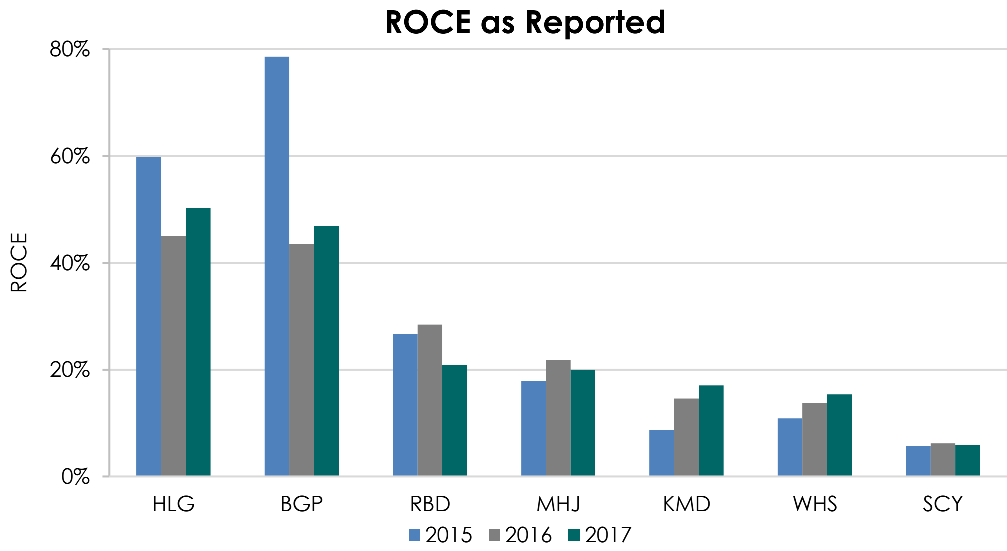


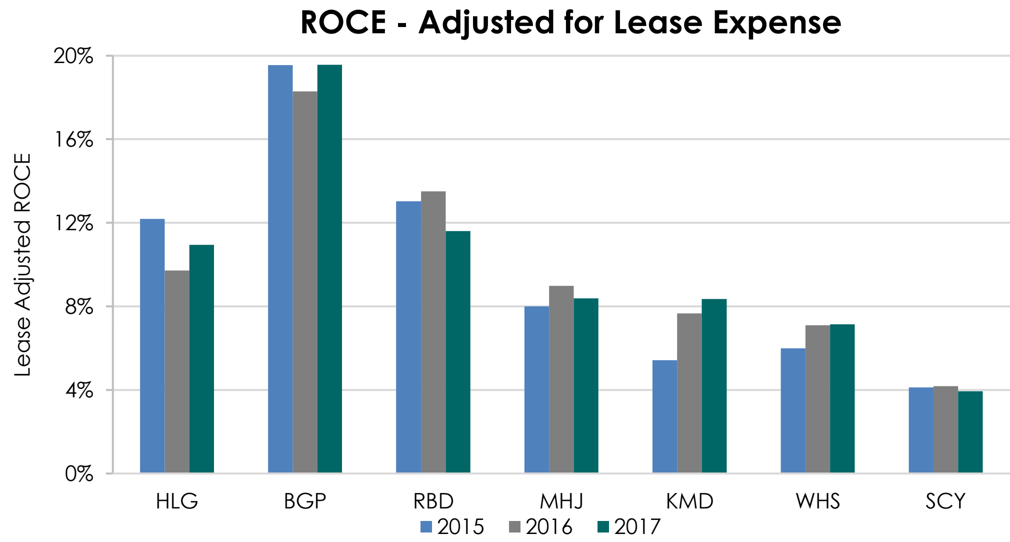
IFRS 16

IFRS 16 requires firms to bring lease liabilities and the underlying leased assets onto their balance sheets with what is currently all an Operating Lease Expense being split into Depreciation and Interest expense. While pre-tax cashflows are unchanged IFRS 16 will, as shown on the graphs, impact ROCE. While there is little change in the relative ROCE rankings amongst the sector the absolute level and dispersion of ROCE returns is substantially reduced. This adjustment effectively removes the distorting effect and often benefit of leasing rather than owning assets. At present, companies which own their properties will have a significant amount of capital tied up in these land and building assets whereas those that lease will have lower Capital Employed on their balance sheets - thus increasing their Activity and ROCE measure.

By multiplying rental expense by 8x (a common estimate for this adjustment) and increasing EBIT by the estimated interest portion of the current rental expense we are able to estimate what returns would be like if those firms that lease their premises were to own the buildings.

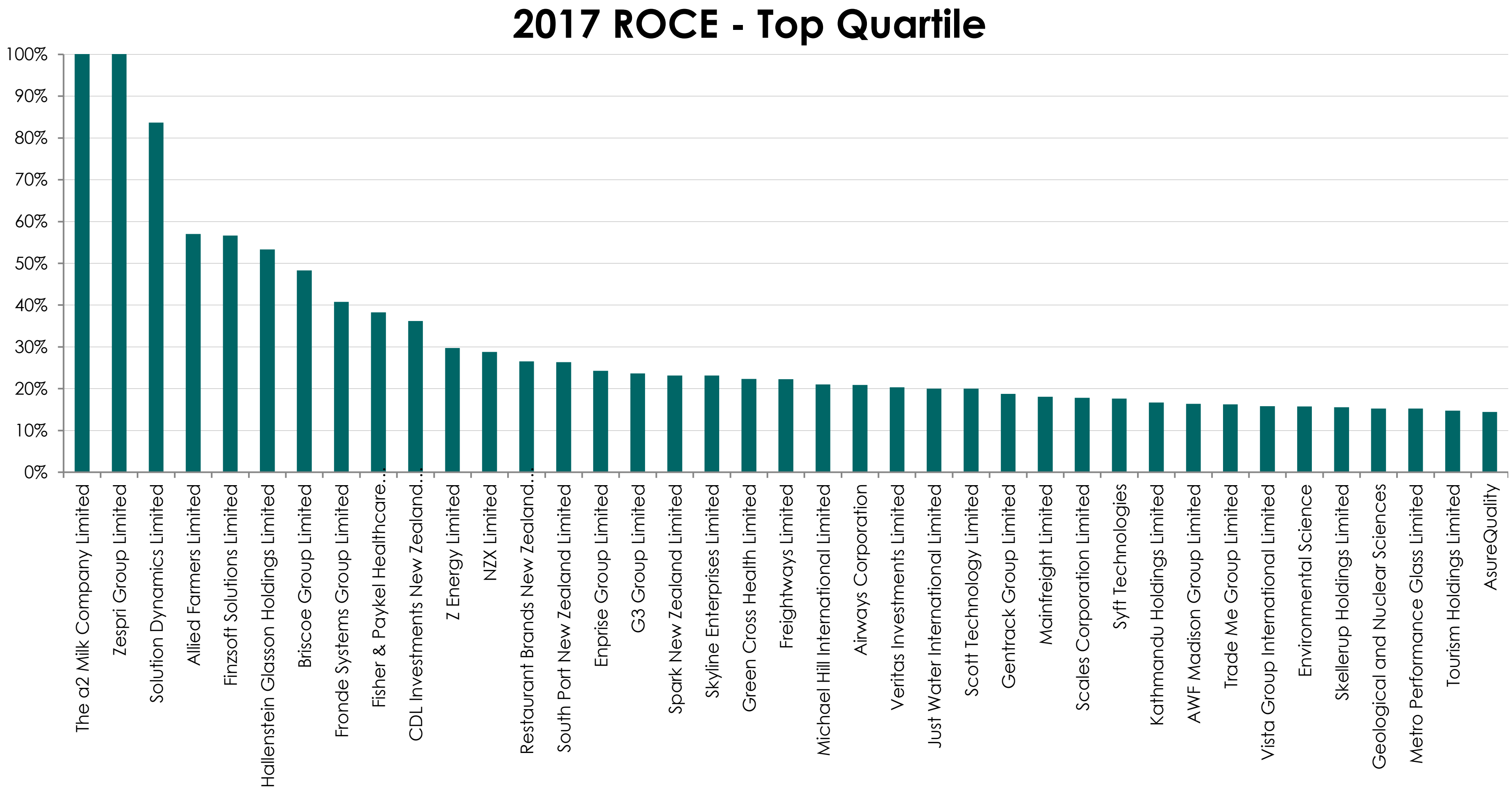
We trust this insight serves as an indication of what to expect once IFRS16 takes effect.



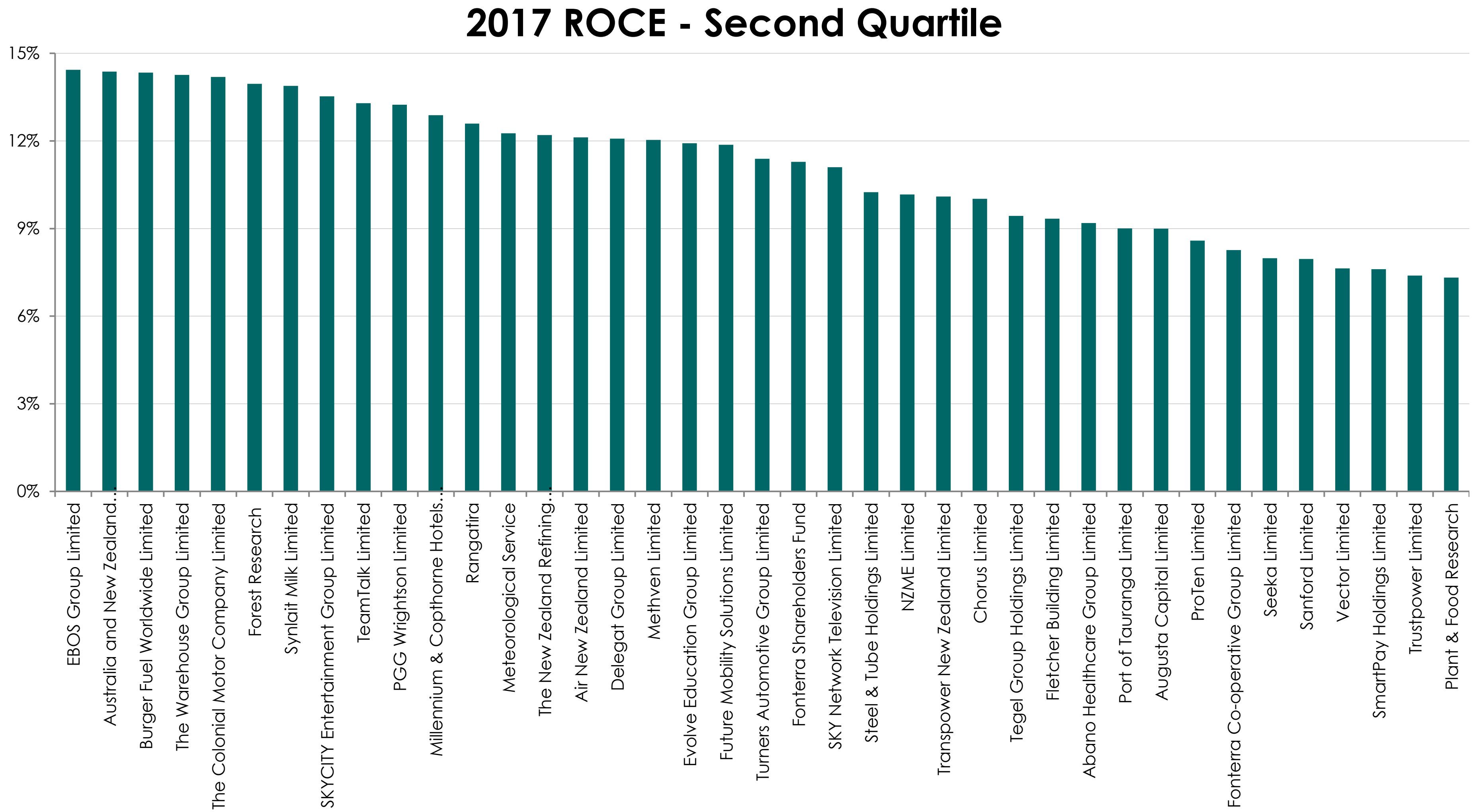


Individual Entities

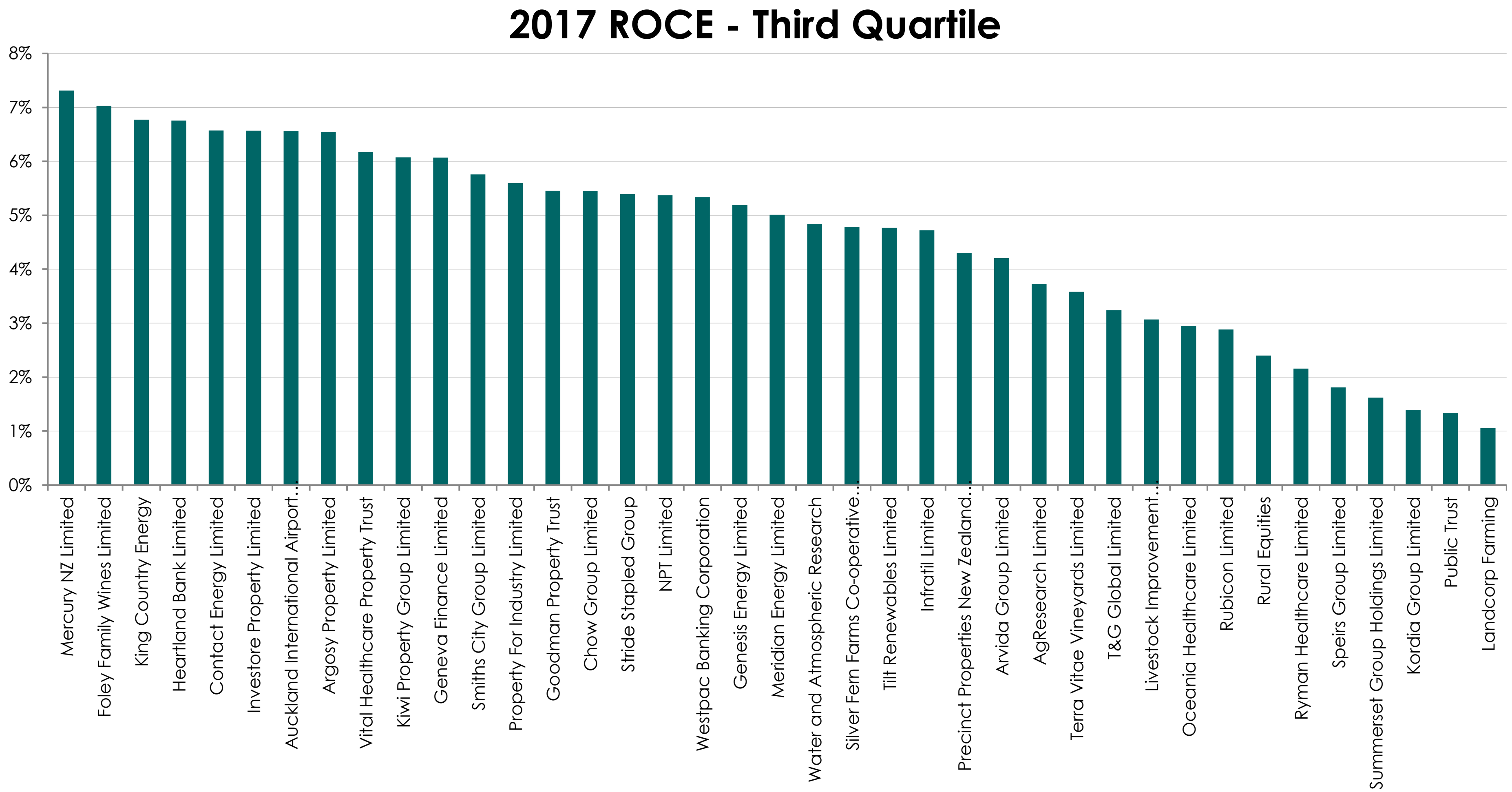
The following four charts show the individual ROCE performance for each of the 156 listed and Crown Entities reviewed in 2017. Note that for the purposes of presenting this chart, entities with ROCE greater than 100% have been capped at that level. The 39 entities in the top quartile are dominated by the Industrials, Consumer Discretionary and Consumer Staples sectors, which combined make up 70% of this top quartile. Top quartile ROCE performance ranges from 14.4% to 153.5%.



The 39 entities in the second quartile had 2017 ROCE ranging between 14.4% and 7.3%. At these levels we estimate that most are trading at or above their individual weighted average cost of capital.

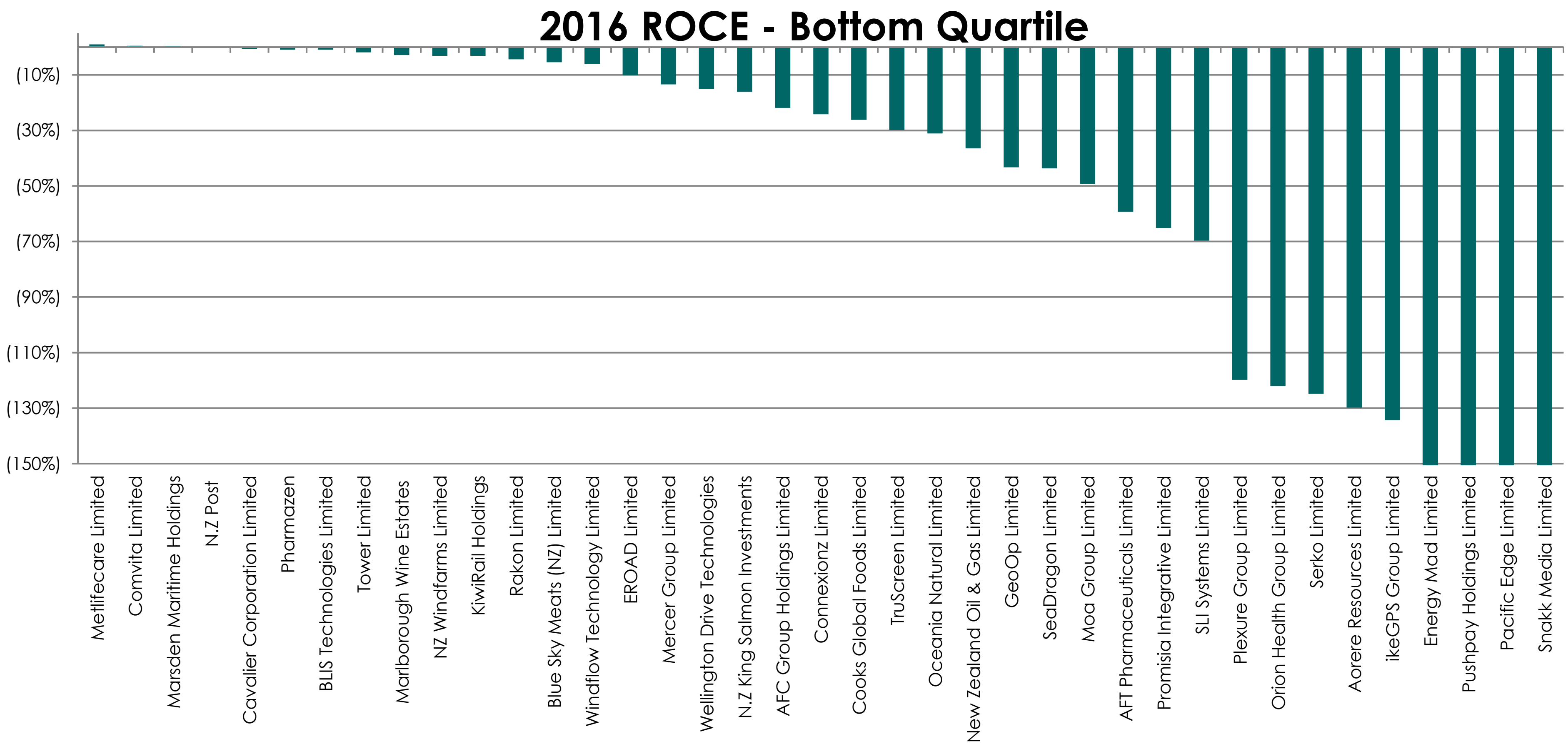


The third quartile ranges from 7.3 to 1.1%. At face value this level of returns would suggest that the companies are earning below their individual weighted average cost of capital. However, low risk Utility companies make up the largest portion of this quartile (20% of these companies are Utilities and fully 72% of all the Utility companies in the entire data set fall in this quartile) so their lower reported returns could still be matching, or exceeding, their individual WACC.



The bottom quartile mostly consists of entities with a negative ROCE, ranging from 1.0% to negative 608.6%. Note that for the purposes of this chart, those entities with a ROCE of less than negative 150% have been constrained at that level. By definition any entity with a negative ROCE reported a negative EBIT.

35% of firms in the Consumer Staples sector fall into this quartile. While Consumer Staples is typically seen as a profitable industry, and for many companies it is, the ones in this quartile tend to be small and/or focused on more volatile agricultural/horticultural based earnings. Others within this bottom quartile are focused on a significant growth strategy at the expense of short-term profitability. In contrast, those mature businesses with negative ROCE may need to reconsider the viability of their business models if their negative results are a recurring theme.



About Armillary Private Capital

Armillary Private Capital is an investment bank providing investment banking, advisory and asset management services focused on the New Zealand capital markets. Our purpose is enabling success for businesses, business owners and investors.

Our approach is based on a combination of influences grounded in our culture, methodology and experiences. We have worked with a range of New Zealand businesses through all stages of the business lifecycle from start-up to maturity. Be they private, listed or government-related, we have seen and experienced the roller-coaster rides business owners and managers endure. These experiences allow us to quickly identify clients' needs and find the right solution(s).

An important part of our approach is the use of proven financial tools and methodologies to provide a concise but comprehensive view of business performance. A key methodology that underpins our work is the DuPont method. This powerful but highly practical method of analysis allows us to develop a rapid understanding of the underlying performance of a business and to identify key business drivers. This disciplined approach helps us with quality decision making in our work.

Armillary Private Capital is the manager of Efficient Market Services Limited, operator of the Unlisted market.

Sources of Data

The data for this analysis and report has been compiled by Armillary Private Capital from annual reports and data obtained through S&P Capital IQ. We note that we are reliant on the categorisation used by S&P Capital IQ for this analysis and such categorisation may vary from the categorisation we have applied to those companies for which we have sourced the data directly from their annual reports.

Appendix 1 – Detailed Results

Appendix 1 contains a table of individual entity results of 2016 and 2017 Profitability and Activity Ratios along with ROCE for the last three years.

	Market	2016 EBIT Margin	2017 EBIT Margin	2016 Activity Ratio	2017 Activity Ratio	ROCE 2015	ROCE 2016	ROCE 2017	3 Year Average ROCE
Abano Healthcare Group Limited	NZX	8.2%	9.4%	0.99 x	0.98 x	7.4%	8.2%	9.2%	8.2%
AFC Group Holdings Limited	NZAX	(39.8%)	(5.5%)	1.43 x	3.98 x	-	(57.0%)	(21.9%)	(39.5%)
AFT Pharmaceuticals Limited	NZX	(13.5%)	(21.9%)	3.09 x	2.75 x	(36.1%)	(41.8%)	(59.4%)	(45.8%)
AgResearch Limited	Crown	(1.8%)	4.5%	0.84 x	0.82 x	0.9%	(1.5%)	3.7%	1.0%
Air New Zealand Limited	NZX	13.8%	10.7%	1.23 x	1.13 x	12.9%	16.9%	12.1%	14.0%
Airways Corporation	Crown	15.9%	15.6%	1.49 x	1.34 x	17.3%	23.7%	20.9%	20.6%
Allied Farmers Limited	NZX	13.1%	15.7%	3.72 x	3.63 x	41.8%	48.8%	57.1%	49.2%
Aorere Resources Limited	NZX	NA	(673.9%)	NA	0.19 x	(4.2%)	NA	(129.8%)	(67.0%)
Argosy Property Limited	NZX	73.2%	73.2%	0.09 x	0.09 x	6.6%	6.7%	6.5%	6.6%
Arvida Group Limited	NZX	17.6%	16.9%	0.32 x	0.25 x	3.6%	5.6%	4.2%	4.5%
AsureQuality	Crown	5.2%	6.1%	2.90 x	2.37 x	26.4%	14.9%	14.4%	18.6%
Auckland International Airport	NZX	62.8%	63.2%	0.11 x	0.10 x	6.7%	6.7%	6.6%	6.7%
Augusta Capital Limited	NZX	45.3%	57.3%	0.18 x	0.16 x	6.4%	8.1%	9.0%	7.8%
Australia and New Zealand Bank	NZX	30.1%	33.3%	0.40 x	0.43 x	16.5%	12.0%	14.4%	14.3%
AWF Madison Group Limited	NZX	4.2%	4.1%	3.81 x	4.02 x	19.1%	15.9%	16.4%	17.1%
BLIS Technologies Limited	NZX	(7.9%)	(0.4%)	2.04 x	2.25 x	(39.7%)	(16.0%)	(1.0%)	(18.9%)
Blue Sky Meats (NZ) Limited	USX	(1.8%)	(2.2%)	2.62 x	2.52 x	4.3%	(4.6%)	(5.5%)	(1.9%)
Briscoe Group Limited	NZX	11.6%	12.6%	5.20 x	3.85 x	84.4%	60.1%	48.3%	64.3%
Burger Fuel Worldwide Limited	NZAX	(6.2%)	4.5%	3.15 x	3.20 x	10.3%	(19.4%)	14.3%	1.7%
Cavalier Corporation Limited	NZX	4.7%	(0.5%)	1.68 x	1.46 x	2.0%	7.9%	(0.7%)	3.1%
CDL Investments New Zealand	NZX	49.2%	54.1%	0.62 x	0.67 x	21.0%	30.5%	36.2%	29.2%
Chorus Limited	NZX	26.5%	30.1%	0.34 x	0.33 x	10.0%	9.1%	10.0%	9.7%
Chow Group Limited	NZAX	30.4%	43.1%	0.10 x	0.13 x	(4.7%)	3.1%	5.4%	1.3%
Comvita Limited	NZX	12.0%	0.6%	1.02 x	0.71 x	11.5%	12.3%	0.4%	8.1%
Connexionz Limited	USX	2.8%	(12.6%)	2.15 x	1.92 x	61.3%	6.0%	(24.2%)	14.4%
Contact Energy Limited	NZX	14.9%	13.9%	0.46 x	0.47 x	6.6%	6.8%	6.6%	6.7%
Cooks Global Foods Limited	NZAX	(52.5%)	(43.5%)	0.56 x	0.60 x	(51.3%)	(29.5%)	(26.2%)	(35.7%)

	Market	2016 EBIT Margin	2017 EBIT Margin	2016 Activity Ratio	2017 Activity Ratio	ROCE 2015	ROCE 2016	ROCE 2017	3 Year Average ROCE
Delegat Group Limited	NZX	31.1%	27.8%	0.47 x	0.43 x	15.0%	14.6%	12.1%	13.9%
EBOS Group Limited	NZX	2.8%	2.8%	5.23 x	5.20 x	12.7%	14.6%	14.4%	13.9%
Energy Mad Limited	NZX	(9.0%)	(41.7%)	4.55 x	4.42 x	(213.6%)	(40.8%)	(184.2%)	(146.2%)
Enprise Group Limited	NZAX	8.1%	10.1%	2.05 x	2.41 x	10.7%	16.6%	24.3%	17.2%
Environmental Science	Crown	7.4%	9.1%	1.89 x	1.73 x	9.8%	13.9%	15.7%	13.2%
EROAD Limited	NZX	(6.9%)	(15.3%)	0.70 x	0.66 x	1.4%	(4.8%)	(10.2%)	(4.5%)
Evolve Education Group Limited	NZX	16.6%	16.4%	0.74 x	0.73 x	1.3%	12.2%	11.9%	8.5%
Finzsoft Solutions Limited	NZX	2.5%	20.5%	3.20 x	2.76 x	85.3%	8.1%	56.6%	50.0%
Fisher & Paykel Healthcare	NZX	25.9%	26.8%	1.46 x	1.43 x	32.8%	37.7%	38.3%	36.3%
Fletcher Building Limited	NZX	7.4%	5.3%	1.71 x	1.77 x	11.8%	12.7%	9.3%	11.3%
Foley Family Wines Limited	NZAX	25.0%	21.7%	0.31 x	0.32 x	3.8%	7.8%	7.0%	6.2%
Fonterra Co-operative Group	NZX	7.7%	5.6%	1.28 x	1.48 x	6.3%	9.9%	8.3%	8.1%
Fonterra Shareholders Fund	NZX	100.0%	100.0%	0.26 x	0.11 x	(26.9%)	26.0%	11.3%	3.5%
Forest Research	Crown	6.4%	7.3%	1.80 x	1.92 x	14.4%	11.5%	14.0%	13.3%
Freightways Limited	NZX	17.0%	16.1%	1.33 x	1.39 x	21.7%	22.6%	22.3%	22.2%
Fronde Systems Group Limited	USX	2.7%	2.9%	18.12 x	14.01 x	(88.7%)	49.0%	40.8%	0.4%
Future Mobility Solutions Limited	NZX	2.4%	4.3%	3.01 x	2.78 x	(24.6%)	7.1%	11.9%	(1.9%)
G3 Group Limited	NZAX	8.0%	7.9%	2.09 x	2.99 x	20.4%	16.7%	23.7%	20.2%
Genesis Energy Limited	NZX	10.3%	8.1%	0.71 x	0.64 x	6.7%	7.4%	5.2%	6.4%
Geneva Finance Limited	NZAX	26.2%	32.9%	0.18 x	0.18 x	4.0%	4.7%	6.1%	4.9%
Gentrack Group Limited	NZX	27.2%	26.5%	0.92 x	0.71 x	20.7%	25.1%	18.7%	21.5%
Geological and Nuclear Sciences	Crown	1.7%	5.5%	2.56 x	2.79 x	2.4%	4.4%	15.3%	7.4%
GeoOp Limited	NZAX	(195.8%)	(107.5%)	0.34 x	0.40 x	(184.5%)	(66.3%)	(43.3%)	(98.0%)
Goodman Property Trust	NZX	75.8%	75.7%	0.08 x	0.07 x	6.3%	5.7%	5.5%	5.8%
Green Cross Health Limited	NZX	6.5%	7.0%	3.37 x	3.18 x	25.5%	22.0%	22.3%	23.3%
Hallenstein Glasson Holdings Limited	NZX	8.4%	9.9%	5.49 x	5.38 x	56.1%	46.1%	53.3%	51.8%
Heartland Bank Limited	NZX	28.4%	30.8%	0.23 x	0.22 x	5.5%	6.4%	6.8%	6.2%
ikeGPS Group Limited	NZX	(110.6%)	(188.4%)	1.34 x	0.71 x	(144.9%)	(148.0%)	(134.4%)	(142.4%)
Infratil Limited	NZX	14.8%	13.8%	0.35 x	0.34 x	6.3%	5.2%	4.7%	5.4%
Investore Property Limited	NZX	94.6%	83.6%	0.11 x	0.08 x	-	10.1%	6.6%	8.4%

	Market	2016 EBIT Margin	2017 EBIT Margin	2016 Activity Ratio	2017 Activity Ratio	ROCE 2015	ROCE 2016	ROCE 2017	3 Year Average ROCE
Just Water International Limited	NZAX	14.8%	17.8%	1.31 x	1.13 x	12.6%	19.3%	20.0%	17.3%
Kathmandu Holdings Limited	NZX	12.0%	12.8%	1.16 x	1.30 x	9.0%	13.9%	16.7%	13.2%
King Country Energy	USX	15.1%	22.2%	0.60 x	0.31 x	-	9.0%	6.8%	7.9%
Kiwi Property Group Limited	NZX	67.5%	69.3%	0.09 x	0.09 x	6.6%	5.9%	6.1%	6.2%
KiwiRail Holdings	Crown	2.3%	(4.0%)	0.99 x	0.80 x	3.0%	2.3%	(3.2%)	0.7%
Kordia Group Limited	Crown	8.2%	0.7%	2.33 x	2.06 x	15.7%	19.1%	1.4%	12.1%
Landcorp Farming	Crown	1.1%	8.0%	0.12 x	0.13 x	1.0%	0.1%	1.1%	0.7%
Livestock Improvement Corporation	NZAX	1.0%	4.1%	0.84 x	0.76 x	9.3%	0.8%	3.1%	4.4%
Mainfreight Limited	NZX	5.9%	6.6%	2.86 x	2.74 x	18.2%	16.9%	18.1%	17.7%
Marlborough Wine Estates	NZAX	(6.8%)	(17.6%)	0.29 x	0.17 x	28.0%	(2.0%)	(2.9%)	7.7%
Marsden Maritime Holdings	NZX	2.2%	12.7%	0.03 x	0.03 x	(0.2%)	0.1%	0.4%	0.1%
Mercer Group Limited	NZX	(20.0%)	(9.1%)	1.06 x	1.48 x	(4.2%)	(21.1%)	(13.4%)	(12.9%)
Mercury NZ Limited	NZX	19.9%	20.9%	0.34 x	0.35 x	6.9%	6.7%	7.3%	7.0%
Meridian Energy Limited	NZX	16.8%	13.5%	0.40 x	0.37 x	6.6%	6.6%	5.0%	6.1%
Meteorological Service	Crown	7.1%	7.5%	1.45 x	1.63 x	6.3%	10.3%	12.3%	9.6%
Methven Limited	NZX	7.3%	8.7%	1.45 x	1.38 x	13.4%	10.5%	12.0%	12.0%
Metlifecare Limited	NZX	13.1%	13.5%	0.09 x	0.07 x	1.4%	1.1%	1.0%	1.2%
Metro Performance Glass Limited	NZX	16.0%	13.9%	0.98 x	1.10 x	14.1%	15.7%	15.2%	15.0%
Michael Hill International Limited	NZX	8.7%	8.3%	2.47 x	2.52 x	17.8%	21.5%	21.0%	20.1%
Millennium & Copthorne Hotels	NZX	36.7%	38.9%	0.35 x	0.33 x	9.3%	13.0%	12.9%	11.7%
Moa Group Limited	NZX	(35.3%)	(22.6%)	1.71 x	2.18 x	(110.7%)	(60.3%)	(49.3%)	(73.4%)
N.Z King Salmon Investments	NZX	(19.2%)	(17.1%)	0.90 x	0.94 x	(21.7%)	(17.3%)	(16.1%)	(18.4%)
N.Z Post	Crown	(1.9%)	0.2%	0.06 x	0.09 x	1.1%	(0.1%)	0.0%	0.3%
New Zealand Oil & Gas Limited	NZX	(99.0%)	(74.6%)	0.31 x	0.49 x	(17.2%)	(30.2%)	(36.5%)	(28.0%)
NPT Limited	NZX	54.5%	54.1%	0.10 x	0.10 x	6.1%	5.6%	5.4%	5.7%
NZ Windfarms Limited	NZX	(3.6%)	(33.0%)	0.13 x	0.09 x	0.4%	(0.4%)	(3.1%)	(1.1%)
NZME Limited	NZX	11.3%	10.5%	0.66 x	0.97 x	5.5%	7.4%	10.2%	7.7%
NZX Limited	NZX	22.7%	29.2%	1.07 x	0.99 x	39.4%	24.3%	28.8%	30.8%
Oceania Healthcare Limited	NZX	11.0%	8.9%	0.38 x	0.33 x	2.8%	4.1%	2.9%	3.3%

	Market	2016 EBIT Margin	2017 EBIT Margin	2016 Activity Ratio	2017 Activity Ratio	ROCE 2015	ROCE 2016	ROCE 2017	3 Year Average ROCE
Oceania Natural Limited	NZAX	7.7%	(47.4%)	2.40 x	0.66 x	11.8%	18.4%	(31.1%)	(0.3%)
Orion Health Group Limited	NZX	(26.7%)	(16.5%)	9.65 x	7.41 x	(217.7%)	(257.5%)	(122.0%)	(199.1%)
Pacific Edge Limited	NZX	(258.5%)	(232.9%)	1.50 x	1.54 x	(628.8%)	(386.6%)	(358.4%)	(457.9%)
PGG Wrightson Limited	NZX	5.2%	4.7%	3.03 x	2.80 x	16.5%	15.7%	13.2%	15.1%
Pharmazen	USX	10.6%	(2.0%)	0.58 x	0.46 x	8.6%	6.1%	(0.9%)	4.6%
Plant & Food Research	Crown	6.7%	4.8%	1.71 x	1.51 x	7.6%	11.5%	7.3%	8.8%
Plexure Group Limited	NZX	(124.8%)	(91.2%)	1.29 x	1.31 x	(187.8%)	(161.0%)	(119.9%)	(156.2%)
Port of Tauranga Limited	NZX	43.2%	44.5%	0.20 x	0.20 x	9.7%	8.8%	9.0%	9.2%
Precinct Properties New Zealand	NZX	64.7%	63.9%	0.09 x	0.07 x	6.6%	5.6%	4.3%	5.5%
Promisia Integrative Limited	NZX	(15.6%)	(35.0%)	3.54 x	1.86 x	(147.1%)	(55.1%)	(65.1%)	(89.1%)
Property for Industry Limited	NZX	85.7%	88.9%	0.07 x	0.06 x	5.9%	5.8%	5.6%	5.8%
ProTen Limited	USX	41.1%	44.1%	0.21 x	0.19 x	10.5%	8.7%	8.6%	9.3%
Public Trust	Crown	21.4%	10.0%	0.14 x	0.13 x	1.9%	3.0%	1.3%	2.1%
Pushpay Holdings Limited	NZX	(136.5%)	(72.8%)	1.49 x	3.97 x	(205.8%)	(203.2%)	(289.0%)	(232.7%)
Rakon Limited	NZX	0.3%	(4.1%)	1.19 x	1.08 x	(4.7%)	0.3%	(4.4%)	(2.9%)
Rangatira	USX	32.4%	11.7%	0.91 x	1.07 x	14.0%	29.4%	12.6%	18.6%
Restaurant Brands New Zealand	NZX	8.5%	8.6%	3.34 x	3.09 x	29.5%	28.5%	26.6%	28.2%
Rubicon Limited	NZX	4.4%	7.0%	0.34 x	0.41 x	2.5%	1.5%	2.9%	2.3%
Rural Equities	USX	36.3%	42.9%	0.05 x	0.06 x	2.2%	1.6%	2.4%	2.1%
Ryman Healthcare Limited	NZX	16.7%	16.7%	0.15 x	0.13 x	2.3%	2.5%	2.2%	2.3%
Sanford Limited	NZX	13.1%	12.4%	0.66 x	0.64 x	6.5%	8.7%	8.0%	7.7%
Scales Corporation Limited	NZX	14.6%	11.5%	1.76 x	1.55 x	26.2%	25.6%	17.8%	23.2%
Scott Technology Limited	NZX	9.8%	9.9%	1.76 x	2.03 x	11.7%	17.2%	20.0%	16.3%
SeaDragon Limited	NZX	(97.0%)	(144.0%)	0.43 x	0.30 x	(34.2%)	(42.0%)	(43.7%)	(39.9%)
Seeka Limited	NZX	6.5%	7.3%	1.35 x	1.10 x	6.9%	8.9%	8.0%	7.9%
Serko Limited	NZX	(48.1%)	(23.8%)	3.92 x	5.25 x	(224.2%)	(188.6%)	(124.8%)	(179.2%)
Silver Fern Farms Co-operative	USX	(0.2%)	0.7%	7.32 x	7.25 x	26.4%	(1.7%)	4.8%	9.8%
Skellerup Holdings Limited	NZX	14.1%	14.0%	1.24 x	1.11 x	20.5%	17.4%	15.6%	17.8%
SKY Network Television Limited	NZX	25.7%	21.2%	0.54 x	0.52 x	16.0%	14.0%	11.1%	13.7%
SKYCITY Entertainment Group	NZX	24.1%	22.8%	0.64 x	0.59 x	14.4%	15.4%	13.5%	14.4%

	Market	2016 EBIT Margin	2017 EBIT Margin	2016 Activity Ratio	2017 Activity Ratio	ROCE 2015	ROCE 2016	ROCE 2017	3 Year Average ROCE
Skyline Enterprises Limited	USX	34.6%	37.8%	0.59 x	0.61 x	20.4%	20.5%	23.2%	21.4%
SLI Systems Limited	NZX	(0.6%)	(4.2%)	16.08 x	16.70 x	(356.8%)	(9.2%)	(69.7%)	(145.2%)
SmartPay Holdings Limited	NZX	11.3%	13.6%	0.58 x	0.56 x	13.1%	6.5%	7.6%	9.1%
Smiths City Group Limited	NZX	2.8%	2.5%	2.02 x	2.34 x	5.6%	5.6%	5.8%	5.7%
Snakk Media Limited	NZAX	(5.0%)	(29.1%)	16.92 x	20.91 x	(786.0%)	(84.5%)	(608.6%)	(493.0%)
Solution Dynamics Limited	NZAX	9.0%	8.6%	8.72 x	9.72 x	52.5%	78.1%	83.7%	71.4%
South Port New Zealand Limited	NZX	34.5%	33.3%	0.84 x	0.79 x	30.3%	29.1%	26.4%	28.6%
Spark New Zealand Limited	NZX	15.6%	16.3%	1.42 x	1.42 x	22.5%	22.2%	23.2%	22.6%
Speirs Group Limited	USX	0.6%	0.6%	3.09 x	3.08 x	16.6%	1.9%	1.8%	6.8%
Steel & Tube Holdings Limited	NZX	5.9%	6.2%	2.02 x	1.66 x	14.7%	12.0%	10.2%	12.3%
Stride Stapled Group	NZX	81.4%	76.3%	0.06 x	0.07 x	6.5%	5.3%	5.4%	5.7%
Summerset Group Holdings Limited	NZX	12.8%	15.5%	0.11 x	0.10 x	1.1%	1.4%	1.6%	1.4%
Syft Technologies	NZX	20.5%	8.6%	2.39 x	2.06 x	34.0%	49.2%	17.6%	33.6%
Synlait Milk Limited	NZX	11.3%	8.7%	1.21 x	1.61 x	6.8%	13.6%	13.9%	11.5%
T&G Global Limited	NZX	2.8%	1.6%	1.81 x	2.07 x	7.5%	5.0%	3.2%	5.2%
TeamTalk Limited	NZX	20.6%	21.6%	0.54 x	0.62 x	9.6%	11.2%	13.3%	11.4%
Tegel Group Holdings Limited	NZX	8.4%	8.8%	1.05 x	1.07 x	9.1%	8.8%	9.4%	9.1%
Terra Vitae Vineyards Limited	USX	37.3%	25.6%	0.16 x	0.14 x	5.4%	6.1%	3.6%	5.0%
The a2 Milk Company Limited	NZX	15.0%	25.7%	6.07 x	5.97 x	4.5%	90.8%	153.5%	82.9%
The Colonial Motor Company	NZX	3.8%	4.2%	3.44 x	3.40 x	13.3%	13.0%	14.2%	13.5%
The N.Z Refining Company Limited	NZX	22.5%	29.4%	0.35 x	0.42 x	21.4%	7.9%	12.2%	13.9%
The Warehouse Group Limited	NZX	3.8%	3.7%	3.52 x	3.91 x	11.6%	13.5%	14.3%	13.1%
Tilt Renewables Limited	NZX	34.6%	28.7%	0.32 x	0.17 x	-	11.0%	4.8%	7.9%
Tourism Holdings Limited	NZX	13.9%	14.1%	1.04 x	1.04 x	12.4%	14.5%	14.8%	13.9%
Tower Limited	NZX	(2.6%)	(1.9%)	0.87 x	0.96 x	(7.4%)	(2.2%)	(1.9%)	(3.8%)
Trade Me Group Limited	NZX	56.5%	56.8%	0.27 x	0.29 x	14.7%	15.0%	16.2%	15.3%
Transpower New Zealand Limited	Crown	48.1%	48.4%	0.20 x	0.21 x	10.0%	9.6%	10.1%	9.9%
Turners Automotive Group Limited	NZX	19.3%	14.3%	0.65 x	0.80 x	16.1%	12.6%	11.4%	13.4%

	Market	2016 EBIT Margin	2017 EBIT Margin	2016 Activity Ratio	2017 Activity Ratio	ROCE 2015	ROCE 2016	ROCE 2017	3 Year Average ROCE
Vector Limited	NZX	29.1%	27.8%	0.24 x	0.27 x	6.4%	7.0%	7.6%	7.0%
Veritas Investments Limited	NZX	18.4%	24.6%	0.78 x	0.83 x	24.4%	14.3%	20.3%	19.6%
Vista Group International Limited	NZX	17.7%	19.3%	0.99 x	0.82 x	22.0%	17.6%	15.8%	18.5%
Vital Healthcare Property Trust	NZX	69.7%	68.0%	0.10 x	0.09 x	7.4%	6.7%	6.2%	6.8%
Water and Atmospheric Research	Crown	3.8%	3.5%	1.39 x	1.38 x	8.2%	5.3%	4.8%	6.1%
Wellington Drive Technologies	NZX	(4.3%)	(2.9%)	4.38 x	5.30 x	(30.8%)	(18.8%)	(15.1%)	(21.5%)
Westpac Banking Corporation	NZX	36.2%	39.7%	0.14 x	0.13 x	6.7%	5.1%	5.3%	5.7%
Windflow Technology Limited	NZAX	(300.8%)	(100.9%)	0.03 x	0.06 x	(31.0%)	(9.5%)	(6.0%)	(15.5%)
Z Energy Limited	NZX	5.2%	10.2%	3.06 x	2.91 x	4.7%	16.0%	29.8%	16.8%
Zespri Group Limited	USX	2.1%	4.4%	41.73 x	31.25 x	102.0%	89.2%	136.1%	109.1%

Appendix 2 – ROCE explained

What is Return on Capital Employed and what does it show?

Return on Capital Employed (ROCE) is a measure of business effectiveness and capital efficiency. ROCE is a function of profitability, how much profit a business generates before interest and tax (EBIT) and activity, how much a business has invested in operating assets to generate that level of profitability.

In the 1920's Du Pont Corporation developed what is commonly known as Du Pont accounting and ROCE as a measure of business performance to enable it to compare the performance of its many different business units. The Du Pont accounting method is a powerful and relatively simple approach to determine the impact of management decisions on financial performance. The advantage of this method is that it provides a consistent form of evaluation for a business to use when measuring performance.

At an individual business level ROCE:

- allows comparison between business units of different size over time;
- shows where to invest further and where to cut back;
- shows whether it is worth borrowing further to invest;
- shows if expectations of shareholders are being met;
- indicates the maximum sustainable growth of a business; and
- is used to track whether a project is performing according to plan.

ROCE can be used to test operational efficiency, balance sheet management efficiency and the adequacy of return on total capital employed to assess a business's performance.

ROCE can be used to help management improve both the profitability (EBIT) and balance sheet management. Improvements in these areas will lead to improvements in the Return on Capital Employed.

Calculating ROCE

It is important to note that some changes need to be made to traditional thinking to gain the benefits of this dynamic approach. To achieve this there are two concepts that need to be considered:

Concepts

(i) The separation of funding from operating decisions

Consider the traditional formula for presenting financial statements.

EQUITY = (Current Assets + Cash - Current Liabilities) + Non-current Assets – Debt – Non-current non-interest bearing Liabilities

In order to calculate ROCE, all forms of funding need to be removed from the right-hand side of the equation. Total Net Assets should exclude any external funding or debt thereby representing the true value of scarce resources employed in the business.

The financial analysis format can now be structured as follows.

DEBT - CASH + EQUITY = (Current Assets - Current Liabilities) + Non-Current Assets – Non-current non-interest bearing Liabilities

CAPITAL EMPLOYED (CE) = TOTAL NET OPERATING ASSETS (TNA)

The movement in TNA reflects operating changes made to the employment of scarce resources, whilst Net Debt (i.e. Debt – Cash) and Equity reflects how these changes are funded. It should be noted that where the directors of a business elect to retain minimum levels of cash this cash should be included in TNA.

(ii) Balance sheet efficiency – ACTIVITY RATIO.

Definition: A measurement of how well the business manages its scarce resources

Formula: $\frac{\text{Revenue}}{\text{Capital Employed}}$

The Activity Ratio is a measure of how many times a business turns over its CE in a financial year.

By way of example, an Activity Ratio of 2.50x means that for every $1.00 invested in Capital Employed the business produces $2.50 in sales. It answers the question of whether the net operating assets are being utilised efficiently in the production of income.

The activity drivers are:

- Raw Materials, Work in Progress, and Finished Goods: the value of raw materials, work in progress and finished goods the business holds;
- Trade Debtors: how much the business has tied up in receivables;
- Trade Creditors: how much the business owes to its suppliers for goods and services provided; and
- Non-Current Assets: how much is invested in plant and equipment and intangible assets which are required to operate the business and produce the goods sold.

Other current assets and liabilities such as prepayments and accruals are included in trade debtors and creditors. Non-current non-interest bearing Liabilities, while typically a relatively small number, are also levers that management can use to influence the Activity Ratio.

Adjusting one or more of the activity drivers will increase or decrease the Activity Ratio and therefore improve or worsen ROCE.

(iii) Operational Efficiency – PROFITABILITY MARGIN.

Definition: A measurement of the Return on Sales purely from an operating perspective.

Formula:

$$\frac{\text{Earnings before interest \& tax}}{\text{Revenue}}$$

The above formula ignores the impact of funding and concentrates on the entity's ability to produce a return from revenue.

The four key profitability drivers are:

- Price: how much a business receives for the goods it sells;
- Volume: how many goods the business sells;
- Cost of Goods Sold: how much it costs the business to produce the goods it sells; and
- Expenses: the overhead expenses of the business including depreciation.

Adjusting one or more of the profitability drivers will increase or decrease the Profitability Ratio and therefore improve or worsen ROCE.

(iv) Return on Capital Employed – ROCE

The link between the Balance Sheet and Profit & Loss is dynamically reflected in ROCE.

Definition: The percentage return yielded from the employment of scarce resources in the form of profit before interest and tax

Formula:

$$\frac{\text{EBIT}}{\text{CE}}$$

OR

Profitability Ratio x Activity Ratio

The interactive nature of this ratio is seen in the alternative formula as the product of the Profitability and Activity ratios. Operational and Balance Sheet efficiency are brought to life in one single ratio. This should be the first area of review in the process of corporate performance assessment and it should be determined as to whether or not ROCE is adequate and which of its components contribute to both the strengths and weaknesses of the operational strategy.

Irrespective of the type of industry ROCE should at least be equal to or greater than the weighted average cost of capital (WACC) in order for a business to create shareholder value.

Example ROCE calculation:

Revenue	100,000
EBIT	10,000
Profitability Ratio	10%
Capital Employed	50,000
Activity Ratio	2x
ROCE	10% x 2 = 20%

It is worth noting that average Capital Employed for the period over that which Revenue and EBIT are derived will give a better result than just considering Capital Employed at the end of the period being measured.

It should also be noted that ROCE does not change when EQUITY is substituted for DEBT. This highlights the impact of ROCE being a true operational performance measurement.

(v) Interfacing Profit and Loss with the Balance Sheet

The Balance Sheet is just a snapshot of the assets and liabilities of a business at a point in time. However, its interaction with profit and loss, through Earnings before Interest and Tax (EBIT), provides the platform for developing a completely dynamic analytical structure.

Two businesses, producing the same sales and return on sales can be viewed from an operational point of view as being identical even if one were funded by debt and the other by equity. This is because the cost of borrowing is purely a financial issue.

ROCE Uses

ROCE can be used in many ways by organisations and management teams as a performance measure and as a tool when preparing budgets and valuations.

One of these ways is that the management team may set ROCE goals for either the entire organisation or its sub-units and decision making in respect of investing in new projects to ensure that the business is performing at a level that is greater than WACC.

ROCE is also able to be used to set up a performance remuneration plan for management and employees. As it is simple to calculate, ROCE provides a transparent model for such programs.

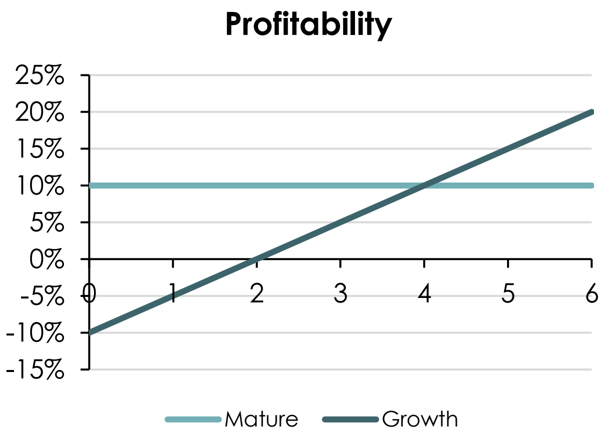
Budgeting and Valuation

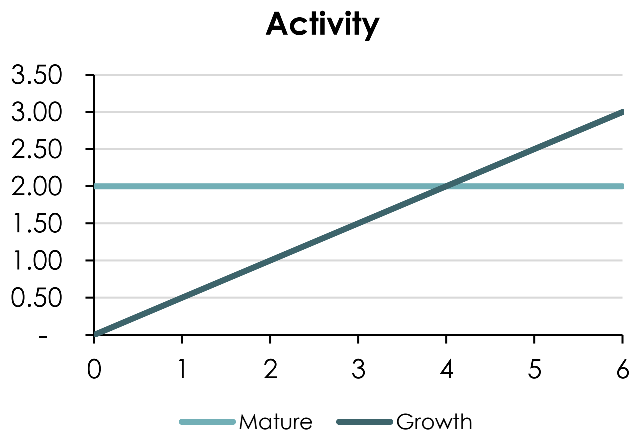
Businesses and analysts can often make an underlying error in budgeting or forecasting business performance that impacts a business valuation. When undertaking a valuation, the biggest error usually arises from utilising overly optimistic forecasts. Discount rates are generally less susceptible to such errors.

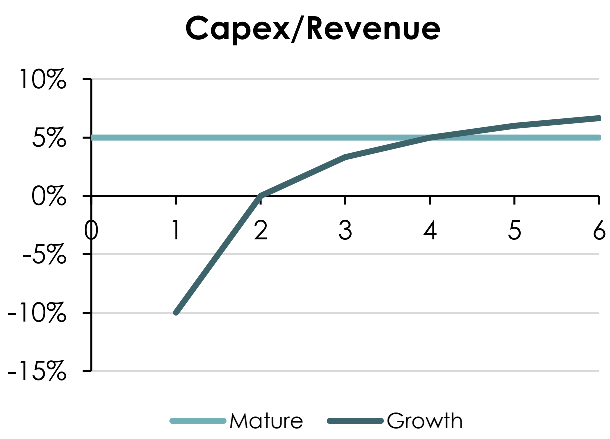
Consider the following four charts that simplistically compare Profitability, Activity, Capex to Revenue and ROCE ratios for a mature business and a growth business. The underlying issue is that budgets for mature businesses more than often assume expanding profitability, increasing activity, reducing levels of capital expenditure for every dollar of sales and therefore increasing ROCE. More often than not a mature business is unlikely to see these improvements on an ongoing basis. While some improvement is always possible continuous expansion is unlikely to be experienced on an ongoing basis and the art of getting the forecasts correct is in challenging such ongoing expansion assumptions.

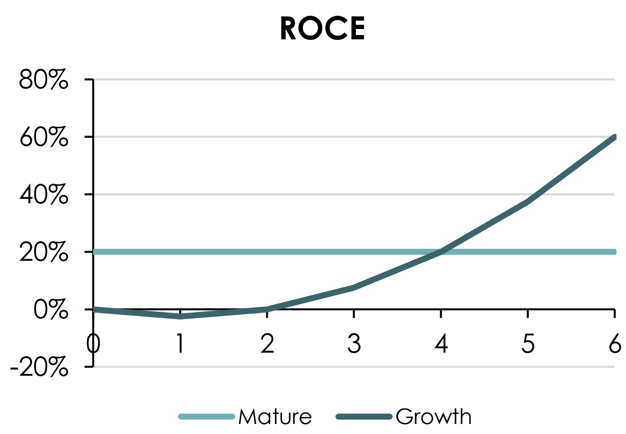
Forecasts for growth businesses often have the opposite issues. Businesses often struggle to achieve EBIT margins in excess of 20% on an ongoing basis. At those levels competitors are likely to enter a market and customers generally start looking elsewhere or in-housing the supply. Revenue growth will also demand additional lock up in working capital and additional fixed assets to support the growth. Therefore, to create robust forecasts for a growth business at some juncture these charts are likely to level out and this levelling is usually earlier than anticipated generally because the business becomes loose with expenditure.

Taking into account the ratios in the chart helps to reduce the risk of making a budget or forecast error and therefore improves the quality of the budget or forecast and by extension the quality of any valuation based off the same.









What is a "Good" ROCE

ROCE is a measure of a company's profitability and its activity. Quite simply, a good ROCE is a level that exceeds the weighted average cost of capital for the business. Where this is the case the business will be creating value for its shareholders.