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OBSERVATIONS

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Quality and it's Impact on Financing Vehicles

I believe the three most important words that have shaped this industry and, more importantly, the automotive finance industry in the last 30 years have been QUALITY, QUALITY, AND QUALITY.

Over this timeframe, the automotive sector has invested tens of billions of dollars into improving the quality of vehicles being offered to consumers. And when you do this, guess what happens? The quality of vehicles improves.

The automotive industry actually invented the concept of "planned obsolescence". In 1924 when the US auto market was reaching saturation, Alfred P. Sloan, the famous President of General Motors suggested annual model-year design changes to convince car owners they needed to buy a new replacement vehicle each year or almost every year. Critics called his strategy "planned obsolescence", while Sloan preferred to call it "dynamic obsolescence". Some also believed this was at the root of lower quality product. By the 1950's the term came to represent products "designed to break easily, not work properly or become less functional". Not a good image to have for the automotive sector, to say the least! This strategy had far reaching effects on the automotive sector, the field of product design, and indeed the entire economy. The smaller automotive players could not maintain the pace and expense of yearly re-styling. As these smaller companies failed we ended up with the "big three" comprised of GM/Ford/FCA. Many would argue that the quality of vehicles, even those made by the 'big three', suffered because of this high cost, although the lack of serious competition was also a core reason for poor quality.

Financing options for vehicles had limited availability and were also tied to these model year changes. Since ownership was usually only one to four years, the amortization of loans was also only one to four years. This resulted in 12 to 24 month loans which were popular in the 50's and 60's.

Volkswagen was the one that started to break the mould. In the late 50's while recognizing the wide spread use of planned obsolescence in the sector, VW pitched itself as an alternative. "We don't change a car for the sake of change" was their tag line. In 1961, VW actually ran an ad that showed a blank page with the tagline "NO point in showing the 1962 VW, it still looks the same".

The Japanese entered the North American auto sector in the mid-1960's and because their products were initially viewed as highly inferior to Detroit built vehicles, they began a decades long push to address their quality issues, much of which centred on adopting the practices preached by William Deming. Deming focused on:

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1. Better design of products to improve service
2. Higher level of uniform product quality
3. Improvement of product testing in the workplace and in research centers
4. Greater sales through global markets

Recognizing the huge market share success of the Japanese vehicle companies, by the 1980's every vehicle company was focused on improving the quality of their vehicles and here we are today with the highest quality of vehicles in the entire history of the sector. There are many ways to measure this improvement and you read about them almost daily in the various quality metrics across the industry.

We have two measures: first are survival rates and the second is the average expected useful life of a vehicle. We have data going back to the 1970's and back then it took between 15 and 18 years to remove 90 percent of the vehicles bought in any one year, with large variances by brand (we believe that when 90 percent of vehicles have been removed from the roads that they are essentially gone since the final owners hold their vehicles until they die or are collectors). As a statement of how much quality has improved it now takes 23 years to remove 90 percent of the vehicles bought in any particular year. Remember, those are vehicles bought 23 years ago so they are 1995 models. We believe it will take upwards of 27 years for 95 percent of vehicles bought today to disappear, so nearly double the time frame of the 1970's. In the chart, I point to the survival rate for 15 year old vehicles. In the year 2000, only about a quarter of vehicles survived 15 years of ownership. Last year, over fifty percent were still on the road after 15 years. Indeed survival rates for almost all model years have increased, especially older vehicles.

Survival Rates - All Light Vehicles

Years Old	2000 ACTUAL	2005 ACTUAL	2010 ACTUAL	2015 ACTUAL	2018 ACTUAL
5	96.0%	90.2%	99.5%	99.2%	95.3%
10	76.9%	81.5%	79.3%	90.5%	87.5%
15	26.1%	34.5%	42.2%	48.9%	51.7%
20	n.a.	10.2%	14.2%	18.4%	19.6%
25	n.a.	n.a.	5.9%	6.0%	7.2%
30	n.a.	n.a.	n.a.	2.5%	2.9%
35	n.a.	n.a.	n.a.	n.a.	1.8%

Source: DesRosiers Automotive Consultants Inc. (DAC), iHS Automotive, driven by POLK, 2018 light vehicle registration database released 2018

Another database we track is the average odometer reading when a vehicle is scrapped. In the 1970's, the average odometer reading of a vehicle that was scrapped was approximately 150K kilometers. Last year this nearly doubled approaching 300K kilometres.

Now, what does this have to do with the financing of vehicles? I believe there are at least five very significant impacts. Or better put, opportunities created in the vehicle finance sector related to better quality.

First, higher quality means a lower cost for buying and owning a vehicle. For upwards of two decades the Statistics Canada CPI index for new vehicles has generally come in below the overall economy in Canada. With any good when its price is moderated or goes down relative to other goods in the economy, consumers buy more and that is exactly what has happened in the automotive sector. We now buy about 2 million vehicles a year, when for the longest time a market of about 1.5 million vehicles per year was considered a peak. Those extra vehicles represented a lot of opportunity for the finance sector, not only for new vehicle sales but for used vehicle sales as well.

Second, is the growth of personal use vehicle leasing by consumers. The profit margin on a leased vehicle is largely dependent on correctly forecasting its residual value. If done right a finance company can make a lot of money, but if it is wrong it can be a disaster. There have been a number of multi-million dollar mistakes

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related to not correctly forecasting residuals.

Now going back to the average expected life of a vehicle. In the 1970's, the first owner of a vehicle typically drove it for four years and used up 70K to 80K kilometers. This vehicle only lasted 150K so the second owner was in essence only buying an additional 70K to 80K kilometers of use. The residual value of that vehicle was somewhere between 10 and 30 percent of its original MSRP and thus the monthly payment for a lease did not go down that much versus a loan. More importantly the residual value was very volatile due to poor quality. The lessor did not know whether the residual was going to be 10 percent or 30 percent, it was essentially a guess. Thus it was very high risk to lease and leasing didn't offer much of a monthly payment advantage. There was little to no leasing of personal use vehicles.

Today that same consumer may drive a little more (say 80k to 100K kilometres during the first four years) but the vehicle will last 250k to 300K so the second owner is buying at least 150K kilometres of additional use and upwards of 200K kilometers of additional use. Because of this the residual value of a four year old vehicle in now in the 40 percent to 60 percent per range … with outliers above and below this level. Higher residuals mean much lower monthly payments thus making it easier to sell a vehicle. But, almost as important, because of high quality there is less volatility in residual values and thus much lower risk for the finance company in a lease product today than a couple decades ago.

With lower monthly payments and stable residual values we now have a vibrant leasing market and at the root of it is the much higher quality of vehicles.

Third, higher quality vehicles have resulted in much longer ownership periods. In Canada, the average ownership period for vehicles (if bought new) is now between 6 and 8 years depending on a number of factors. Why? There isn't much that goes wrong with a younger vehicle so why change. This is at the root of these longer amortization periods (amps) that have invaded the sector. I believe amps are very closely tied to ownership periods. In addition, since vehicles hold their quality so well there is more equity in a vehicle as it depreciates and thus less 'default risk' for the finance company as a loan or lease matures. Thus the growth in amortization periods.

Fourth, how do you manufacture a high quality used vehicle? Well first, you manufacture a high quality new vehicle and then let someone drive it and eventually trade it in. There was a day and age when many consumers avoided the used vehicle sector because as they say, "You were buying someone else's problems". This hasn't been eliminated with high quality but it certainly has been lowered. So buying a used vehicle is much safer today than only a decade ago. And remember vehicles last twice as long so there is now at least one extra owner during the life of a vehicle.

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New and Used Vehicle Sales in Canada - 000's of units

	New Sales	Percent New	Used Sales	Percent Used	Total Sales	Total Units in Operation	Sales as a Percent Of UIO
1995	**1,130**	**30.4%**	**2,591**	**69.6%**	**3,721**	**15,725**	**23.7%**
2000	**1,549**	**43.2%**	**2,035**	**56.8%**	**3,584**	**17,101**	**21.0%**
2010	**1,557**	**35.0%**	**2,886**	**65.0%**	**4,444**	**22,001**	**20.2%**
2018	**1,985**	**39.5%**	**3,036**	**60.5%**	**5,021**	**27,256**	**18.4%**
2023 F	**2,031**	**35.8%**	**3,642**	**64.2%**	**5,673**	**30,094**	**18.9%**

Source: DesRosiers Automotive Consultants Inc. (DAC), iHS Automotive, driven by POLK, 2018 light vehicle registration database released 2018

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In Canada there are now 3 or 4 owners through its life versus 2 or 3 owners a couple decades ago. And because survival rates are so high there are a very large number of older used vehicles on the road at more affordable prices. This has resulted in Canada having one of the fastest growing ownership rates in the world. Ownership of vehicles in Canada has increase from 2/3rds of the driving population at the turn of the century to 88 percent last year. That means there are an additional 10 million vehicles on the road.

The used vehicle market at the turn of the century was typically between 1.5 and 1.8 million units; last year it broke 3 million units for the first time and is heading towards 3.5 million units, although this might take a few years.

So the high quality of new vehicles has led to a dynamic and rapidly growing used vehicles market. One of the biggest opportunities today in the finance sector is financing of used vehicles, especially younger and middle aged used vehicles.

Fifth, I believe the growth in sub-prime and near-prime financing is largely the result of better quality vehicles. As ownership levels increase, a finance company also has to reach deeper and deeper into consumer credit scores. The very wealthy have ownership levels above 100 percent, so more than one vehicle per person and very low credit risk. Lower income individuals have much lower ownership levels primarily because of their higher credit risk. So the last 5 to 15 percent of consumers who choose to own a vehicle can only reach a vehicle with sub-prime lending. As ownership levels go up, so does the demand for sub-prime lending. Since I believe the quality of vehicles will continue to increase, then ownership levels in Canada will continue to grow. And this means that all five of these finance opportunities should continue to grow.

Look for more leasing, no fall back in amortization periods (not sure they will grow but I'm quite sure they will not go back to the classic 48 or 60 month periods) as well as continued growth in the sub-prime category, rapid growth in the used vehicles markets, resulting in continued growth in the financing of used vehicles. Finally, the overall market for new vehicles should remain in the 1.8 to 2.1 million range for quite some time.

There now appears to be little doubt that the new vehicle market has peaked and will be soft this year, the next and possibly a third year. But the fundamentals of demand are still fairly strong so I don't see any chance of a 'free falling' market. We bought about 2 million units the last three years and I expect that to fall back by about 50 to 75K units this year. In a couple of years' time we could fall below 1.9 million units but it should be short term. Remember, for nearly 20 years our cyclical high was between 1.4 and 1.6 million units; nobody should complain about a 1.9 million market.

That being said, the used vehicle market is poised for very rapid growth. The upcycle in the new vehicle market is now about 8/9 years old so a lot of middle aged vehicles are heading to the market. Fleet sales have been robust; they come back on a one to 3 year cycle and leasing is now back above 30 percent and these vehicles typically come back on a 3 to 4 year cycle. There should be plenty of supply to feed the demand for used vehicles. DAR

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