



September 06, 2018

In this letter:

- Our investments in Indian diagnostic industry
- Analysis of US diagnostic players
  - Shareholder wealth creation over last two decades despite pricing pressures
  - The journey of industry consolidation – large became larger
- Indian diagnostic industry – multi-decade structural opportunity
  - Demographics – young population that will age and increasing share of lifestyle diseases
  - Huge unorganized market – regulation and pricing pressure will benefit organized players
  - Eventually, consolidation too will happen amongst organized players

Dear Investors,

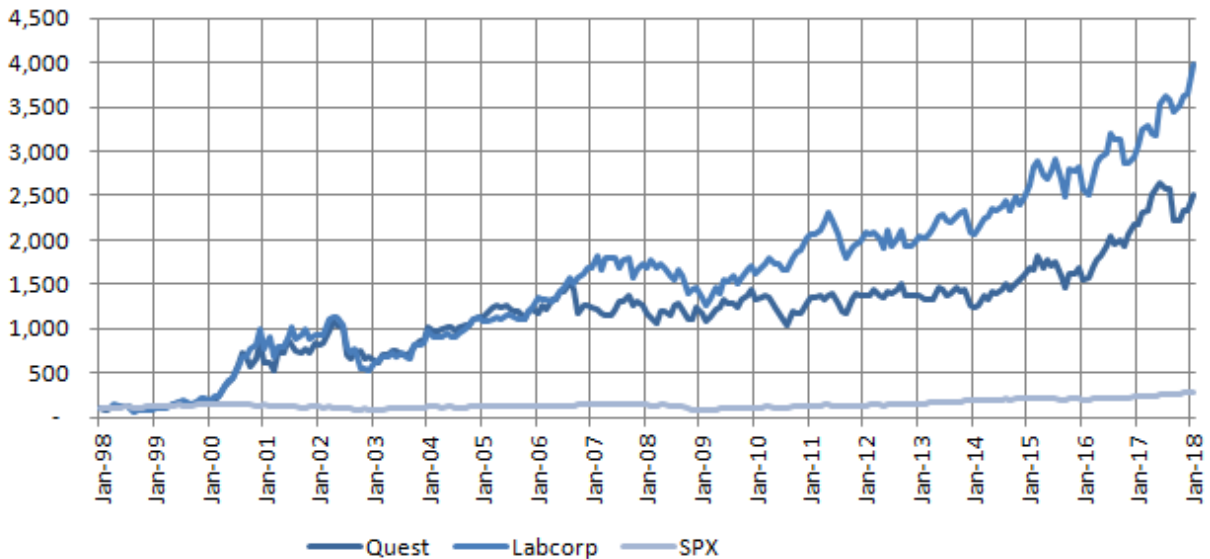
The bedrocks of our investment philosophy are compounding and preservation of capital. Our investment framework CAGR \* BMQ, where 'CA' stands for capital efficiency, 'GR' for growth potential and 'BMQ' for business and management quality, allows us to identify high quality companies as investments for long-term holding (please visit [www.anived.com](http://www.anived.com) for more info). An ideal investment for us will be a company that has high return on capital, long runway for growth, moats to protect profitability/return ratios and run by a capable management. It is very rarely that we come across a company that has a tick against all the above requirements. We believe the Indian healthcare diagnostic industry offers a couple of candidates that fit the bill.

The industry in India is still emerging with very few names having annual revenues in excess of INR1bn. The listed universe is even smaller with Dr Lal Pathlabs and Thyrocare being the only names. However, we believe that it is a structural multi-decade play and will offer opportunities for shareholder wealth creation. We are investors in both the companies as each of them has different go-to market strategy. Dr Lal Pathlabs with its extensive network of labs and patient service centers is a B2C franchise whereas Thyrocare is more focused on the B2B opportunity in the industry.



To start the discussion we would like to take you through few of our observations regarding the US diagnostic industry. Quest Diagnostics (DGX: mcap ~US\$15bn) and Labcorp (LH: mcap ~US\$18bn), the leading independent diagnostic chains in US, have created significant shareholder wealth over the last 20 years despite material headwinds like pricing pressure and government regulations. In the period 1997-2017, Quest Diagnostics share price has returned a CAGR of ~17% (23x its Dec-97 price) and Labcorp have delivered a CAGR of ~20% (~36x) compared to ~5% annualized return of S&P500 index. The low profitability base of late 90s because of intense pricing pressure is definitely one of the factors that allowed the stocks to deliver super-normal returns. However, even if we consider the last 10 years, Quest's stock has returned annualized ~6% and Labcorp ~8%, compared to ~6% of S&P500.

**Exhibit 1: S&P 500 vs Quest Diagnostics and Labcorp**



Source: Bloomberg

The US diagnostic industry is a mature market growing at 2-3% annually – from US\$30bn in the early 90s the market size is now pegged at US\$79bn. The market has always been dominated by in-house diagnostic labs of the hospitals – they have consistently been ~60% of the market. The hospitals cater to in-patient as well as out-patient volumes. Independent diagnostic chains like Quest and Labcorp constitute ~1/3rd of the market and remaining is formed by standalone labs attributed to physician offices.



The structural factors driving growth for the US diagnostic industry are:

- The general aging of the population in the United States
- The rise of evidence-based treatment - an expanded base of scientific knowledge which has led to the development of more sophisticated specialized tests and an increase in the awareness of physicians of the value of clinical laboratory testing as a cost-effective means of early detection of disease and monitoring of treatment
- An increase in the number and types of tests which are, due to advances in technology and increased cost efficiencies, readily available on a more affordable basis to physicians
- Expanded substance-abuse testing by corporations and governmental agencies

Unlike India where customer mostly pays for the diagnostic tests from out-of-pocket, most of US diagnostic revenues are in form of reimbursements, either by the managed care/insurance provider or the US government for Medicare/Medicaid. Out-of-pocket expenses are relatively a small percentage of healthcare spending. The industry faced significant profitability challenges in the 90s because of intense pricing pressure arising out of:

- 1) Consolidation in managed care/insurance providers which shifted the bargaining power in their favor
- 2) A shift towards capitated (fixed) payment contracts by managed care providers
- 3) Government led decreases in reimbursement rates for Medicare

These pressures led to a wave of consolidation in the industry favoring larger players. Diagnostic is a business of economies of scale - the most important metric is the cost of processing a sample. With consolidation in the industry, the large players could rationalize smaller target's facilities and transfer sample volumes to its existing labs wherever there was geographical overlap, thus reducing cost to process a sample. This resulted in the combined market share of Quest and Labcorp in the non-hospital market increasing from ~25% in mid-90s to ~37% in 2017.

The impact of consolidation on financials and profitability of these companies was even larger. For example, the volumes for Quest during the 10 year period starting from 1997 grew at an annualized rate of ~10% to ~151mn requisitions/samples at the end of 2006, a rate much higher than the overall industry growth rate. The operating profit per sample, however, grew much faster at annualized rate of ~21% during the period – from \$1.1 per sample in 1996 to \$7.5 per sample in 2006. The key driver of higher operating profit per sample was not pricing – realization per sample grew at an annualized rate of 4.4% compared to the annualized inflation rate of 2.4% during the period. Higher profitability came through economies of scale as cost of processing a sample grew at a much slower rate of just 2.8% per



annum. Diagnostics is labor intensive business with employees handling collection and transportation as well as highly skilled labor involved in testing the samples. According to Quest annual reports, employee expenses constituted ~50% of the operating expenses. Cost of revenues per sample, which includes employee, reagent and collection costs, increased at an annualized rate of 3.8%. Other operating overheads, which include SG&A, remained mostly unchanged per sample through-out the 10 years. The cost savings from consolidation were from two folds – first, close down the inefficient labs/infrastructure labs of acquired company thus reducing overheads and second, redirect the volumes of acquired company to its own labs/infrastructure allowing the company to absorb its fixed cost overheads better.

## Exhibit 2: Quest Diagnostic operating performance

Particulars	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	CAGR
\$ mn Revenues	1,616	1,529	1,459	2,205	3,421	3,628	4,108	4,738	5,127	5,457	6,269	14.5%
\$ mn Operating income	68	75	94	152	318	411	592	795	891	1,008	1,128	32.3%
<b>\$ Realization</b>	<b>26.9</b>	<b>28.3</b>	<b>29.2</b>	<b>31.1</b>	<b>34.2</b>	<b>34.6</b>	<b>33.2</b>	<b>36.4</b>	<b>37.4</b>	<b>37.9</b>	<b>41.5</b>	<b>4.4%</b>
\$ Cost of revenues	16.8	17.2	17.9	19.5	20.6	20.5	19.7	21.3	21.8	22.4	24.5	3.8%
\$ Other operating overheads	8.9	9.7	9.4	9.5	10.5	10.1	8.8	9.0	9.1	8.5	9.6	0.7%
<b>\$ Cost per sample</b>	<b>25.8</b>	<b>26.9</b>	<b>27.3</b>	<b>29.0</b>	<b>31.0</b>	<b>30.6</b>	<b>28.4</b>	<b>30.3</b>	<b>30.9</b>	<b>30.9</b>	<b>34.0</b>	<b>2.8%</b>
\$ Operating profit	1.14	1.38	1.88	2.15	3.18	3.92	4.79	6.12	6.51	7.00	7.47	20.7%
<b>Lab infrastructure</b>												
No. Regional Labs	17	15	14	30	30	30	30	30	30	35	30+	30+
No. STAT labs	200	150	140	200	150	100	140	155	140	150	150	150
No. Patient Service Centres	850	800	800	1400	1300	1350	1700	1925	1900	2000	2100	2100

Source: Bloomberg, Anived

Our analysis of the US diagnostic companies makes us confident that the Indian diagnostic industry has long-term structural and secular tailwinds. The existing players in the industry are still at the nascent stage of growth cycle and have a long runway for growth ahead. Some of the factors that make India's diagnostic industry a different one market are:

- Young population that will age over the next two decades
- Limited government spending on healthcare, hence most spending is private
- Limited insurance coverage with most healthcare expenses out-of-pocket of consumer

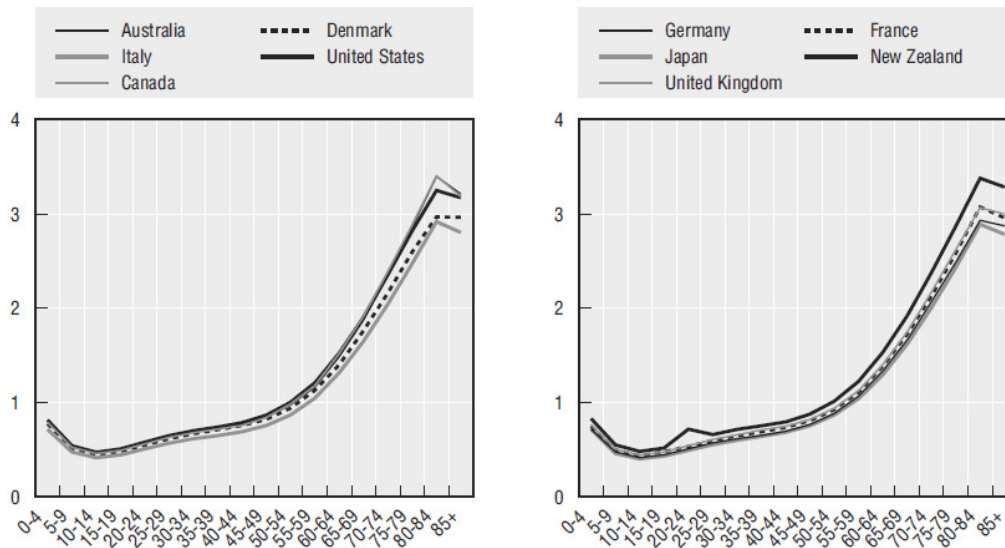


- Hospitals as relatively smaller part of the overall market leaving significant space for independent labs
- Fast growing per capita income allowing population to access better healthcare facilities
- Increasing prevalence of chronic non-communicable diseases like cardiovascular, diabetes and other lifestyle related diseases in the country

The correlation between per capita healthcare spending is an intuitive one – as age increases the spending on healthcare also increases. However, what is unique is at the rate at which healthcare requirements increases. The graph of per capita healthcare spending through-out an individual's age is a J-curve. Healthcare spending is elevated during the 0-5 years but drop during the ages 6 to 30. After 30 years the graph starts rising gradually; the gradient rises significant after the age of 45. It is estimated that almost of one fifth of an individual's healthcare spending happens till the age of 40. The remaining 80% happens after 40 with ~30% in the ages 40 to 64 and ~50% after 65 years of age (source: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1361028/> ).

**Exhibit 3:Age vs per-capita healthcare spending**

**Public health care expenditures per capita for each age group, as a proportion of total per capita health expenditure**



Note: Values above 1 indicate that the per capita spending of a given age group is above the one for the population as a whole (e.g. health care spending going to people aged 80 and over is around three times higher than the average).

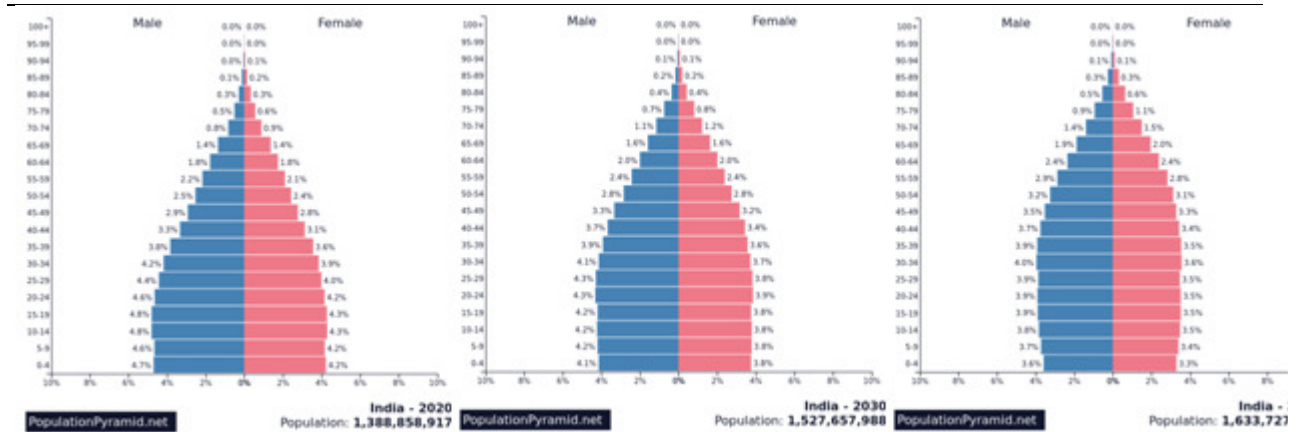
Source: Calculations based on OECD (2006), "Projecting OECD Health and Long-Term care Expenditures: What are the Main Drivers", OECD Economics Department Working Papers, No. 477, OECD, Paris.

Source: OECD



India is still a very young country with an expected median age of ~28 years in 2020. This is expected to rise to ~31.5 years in 2030 and ~35 years in 2040. More important than the median age is the changes in population pyramid that will happen over the next two decades. As the median age increases, the percentage of population having age less than 30 years is expected to reduce from 53% in 2020 to ~43.5% in 2040. Population between ages 30 to 65 is expected to rise from ~40% in 2020 to ~46% in 2040, at a CAGR of 1.4%. Whereas, population older than 65 years is expected to rise the fastest from 6.6% in 2020 to ~11% in 2040, a CAGR of 3.3% compared overall population CAGR of just 0.8%.

**Exhibit 4: India's population pyramid – 2020 to 2040**



Source: [www.populationpyramid.net](http://www.populationpyramid.net)

Another demographic-related structural change happening in India is the rise of non-communicable or lifestyle diseases. Disability-adjusted life year (DALY) is globally accepted as the measure to evaluate the health and life expectancy of a country's population. The contribution of communicable/infectious diseases like tuberculosis, diarrhea, neonatal disorders etc to DALY for India has gone down from ~61% in 1990 to ~33% in 2016. Whereas, the share of non-communicable diseases like heart disease, stroke, diabetes, cancer, etc has increased from ~31% to ~55% in the same period. More importantly, there is a direct correlation between the per capita income of the state and prevalence of non-communicable diseases – higher the income, higher the prevalence. Amongst non-communicable diseases the prominence is of chronic ones like cardiovascular, diabetes, endocrinal and respiratory-related. Currently, India has the highest number of diabetics in the world - ~60mn adults or ~8% of the country's population suffers from diabetes and is the fastest growing disease. More than one in four deaths caused by all diseases in India is because of cardiovascular diseases. The statistics for hypertension are equally alarming – with incidence rate of 20-40% in urban areas and 12-17% for rural India.



India’s healthcare expenditure was estimated to be INR4.5tn or ~4% of the GDP in FY14. Almost two thirds (~INR3.1tn) of this expenditure is borne by households with remaining coming from the Indian government. Considering the limited fiscal room available with the government and competing areas of focus like infrastructure and education it is unlikely that the government’s share will go up significantly in near future. The recently announced Ayushman Bharat scheme is a step in the right direction but still has a long way to go in terms of implementation. This implies that household participation in the healthcare expenditure will remain high.

More importantly, the representation of insurance players in the household health expenditure is just limited to ~5% and remaining 95% is borne out-of-pocket (OOP) by the individual. Though the insurance penetration is increasing fast it still has a long way to go for insurance companies to gain bargaining power on pricing of diagnostic services.

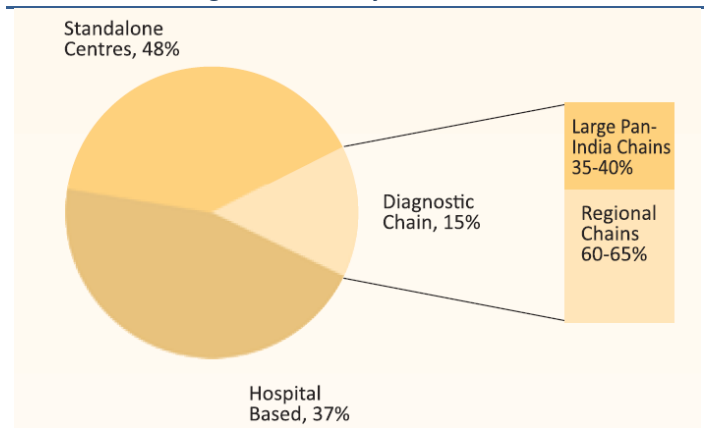
Household’s out-of-pocket expenditure on diagnostic services in FY14 was estimated to be INR280bn or ~10% of the total OOP expenditure. One-third of this was on in-patient care diagnostics whereas remaining was out-patient care diagnostics. The industry is expected to be growing at 15% per annum with current size pegged at ~INR500bn. The industry is currently dominated by standalone centers which have ~48% of the market; hospital owned labs have 37% of the market and only remaining 15% is catered by organized diagnostic chains.

**Exhibit 5: India household health spend 2013-14**

Particulars	INR bn
Total health expenditure	4,531
Household health expenditure	3,069
Out-of-pocket expenditure	2,909
<i>Of-which:</i>	
Pharmacies	51.7%
General hospitals (private)	22.2%
Medical & diagnostic labs	9.6%
Patient transportation	6.2%
Other healthcare providers	10.3%

Source: Ministry of Healthcare and Family Welfare, GoI

**Exhibit6: India diagnostic industry**



Source: Dr Lal Pathlabs FY18 annual report

Considering that diagnostic is third largest health expenditure for households, after pharmacies and hospital rents, it is very likely that there will be increased regulations and pricing controls from the government. In last few years, the government has take slew of steps to reduce prices of certain



essential medicines and devices. There have been talks to enforce accreditation of diagnostic labs in order to improve quality. Also, a price control mechanism is envisaged for certain essential diagnostic tests as prescribed in the WHO list of essential tests (for complete list of tests: [http://www.who.int/medical\\_devices/diagnostics/WHO\\_EDL\\_2018.pdf](http://www.who.int/medical_devices/diagnostics/WHO_EDL_2018.pdf)).

We believe such measures will be disruptive for the industry but in favor of large diagnostic chains. Currently, most of the standalone centers are not accredited and operate on low volumes. It is estimated that less than 1 per cent of the labs in India are accredited by National Accreditation Board for Testing and Calibration Laboratories (NABL). Regulations will increase the cost of doing business and price controls on essential tests, their bread and butter, will squeeze the margins materially. In the long term we see them either closing down or becoming collection centers for larger players. The diagnostic chain on the other hand will be able to absorb the price pressure much better because of the higher volumes. Similarly, for hospitals as well it will make more sense to outsource diagnostic business to the established players

We also believe that over the next few years consolidation will take place amongst the organized diagnostic chains – similar that what happened in US diagnostic industry. Considering the opportunity and availability of private equity funding, the number of organized players in the industry has increased recently. Most of the new players have played a pricing game in B2B segment to garner volumes quickly and climb up the cost curve. The question regarding consolidation in India is more of ‘when’ rather than ‘why’. We expect players to sell out as volume growth dries down and costs without economies of scale start putting pressure on the bottomline. Investment horizon of private equity players coming to end will be an added trigger. We expect the consolidation to happen at three levels:

- Amongst the large diagnostic chains like Dr Lal Pathlabs, SRL, Metropolis, Thyrocare, Suburban Diagnostics, etc
- Mid-tier labs getting acquired by larger names:
  - There are 30-40 regional asset names
  - Funded by private equity players
  - Have revenues but profitability is depressed because of lack of economies of scale
- Mom-n-pop standalone centers
  - Will still remain in the business will get converted into collection centers for the larger players - cannot survive on a limited bouquet of diagnostic tests
  - Essentially, collection of samples may remain fragmented but testing of samples will get consolidated amongst larger labs





Similar to US, we expect large players to get even larger. In the exhibit below are the key fundamentals of few large players in the industry.

### Exhibit 7: Financials of key players

Dr Lal Pathalbs		FY13	FY14	FY15	FY16	FY17	FY18
mn	Samples processed	7.7	9.0	9.9	12.0	13.3	15.2
INR mn	Revenues	4,517	5,579	6,596	7,913	9,124	10,569
INR mn	EBITDA	977	1,386	1,560	2,097	2,375	2,640
%	EBITDA margin	21.6%	24.8%	23.6%	26.5%	26.0%	25.0%
INR mn	Net profit	551	796	957	1,322	1,546	1,708
%	Net profit margin	12.2%	14.3%	14.5%	16.7%	16.9%	16.2%
x	Debt-to-equity	-	-	-	-	-	-
%	RoE	39.7%	40.6%	33.4%	31.2%	27.6%	23.9%
Thyrocare		FY13	FY14	FY15	FY16	FY17	FY18
mn	Samples processed			9.1	11.6	14.3	16.3
INR mn	Revenues	1,343	1,500	1,830	2,410	3,044	3,563
INR mn	EBITDA	635	687	724	935	1,152	1,447
%	EBITDA margin	47.3%	45.8%	39.6%	38.8%	37.8%	40.6%
INR mn	Net profit	568	462	473	521	428	933
%	Net profit margin	42.3%	30.8%	25.9%	21.6%	14.1%	26.2%
x	Debt-to-equity	0.2	0.1	-	-	0.0	0.0
%	RoE	43.3%	25.2%	20.2%	16.1%	11.0%	21.8%
SRL Diagnostic		FY13	FY14	FY15	FY16	FY17	FY18
mn	Samples processed	11.9	12.8	13.7	14.5	15.3	16.0
INR mn	Revenues	6,440	7,410	8,320	8,980	9,320	9,900
INR mn	EBITDA	800	1,160	1,450	1,820	1,741	1,614
%	EBITDA margin	12.4%	15.7%	17.4%	20.3%	18.7%	16.3%
Metropolis		FY13	FY14	FY15	FY16	FY17	FY18
INR mn	Revenues			4,547	5,240	5,874	
INR mn	EBITDA			1,170	1,353	1,598	
%	EBITDA margin			25.7%	25.8%	27.2%	
INR mn	Net profit			609	736	1,075	
%	Net profit margin			13.4%	14.0%	18.3%	
Suburban Diagnostics		FY13	FY14	FY15	FY16	FY17	FY18
INR mn	Revenues	330	557	798	1,031	1,174	
INR mn	EBITDA	42	1	(16)	(82)	(124)	
%	EBITDA margin	12.8%	0.3%	-2.0%	-7.9%	-10.5%	
INR mn	Net profit	10	(45)	(22)	(157)	(200)	
%	Net profit margin	3.1%	-8.1%	-2.7%	-15.2%	-17.0%	

Source: Company, Anived



## Anived Portfolio Managers Pvt. Ltd.

CIN NO : U65923MH2015PTC260965

Two companies stand out in terms of their volume size and economies of scale in the industry – Dr Lal Pathlabs and Thyrocare. Incidentally they are also the only listed names in the sector available for public investments. Both these names are good fit into our CAGR \* BMQ framework and hence we are investors in them. We are confident that both the companies are capable of capturing the structural tailwinds in the industry and will compound shareholder wealth over long-term.

Once again, we thank you for showing your interest in Anived PMS and look forward to your continued relationship with us. In case you have any queries, please feel free to contact us.

Warm Regards,

Prakash Kapadia  
Principal Officer

Hiral Desai  
Portfolio Manager

Anurag Purohit  
VP Research



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