

AB DYNAMICS

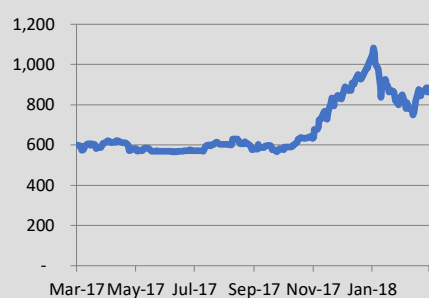
INDUSTRIAL ENGINEERING

ABDP.L

879p

Market Cap: £171m

SHARE PRICE (p)



12m high/low

1053p/566p

Source: LSE Data

KEY INFORMATION

Enterprise value	£158m
Index/market	AIM
Next news	Trading update Mar '18
Gearing	N/A
Interest cover	N/A

AB DYNAMICS IS A RESEARCH CLIENT OF PROGRESSIVE

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A Dynamic Performance

Taking Testing to the Next Level

AB Dynamic's (ABD) shares have risen tenfold since its 2013 AIM admission, fuelled by an impressive 19% organic revenue CAGR. The company is investing in a platform to sustain this performance. In the last 18 months it has opened new facilities, bolstered in-country customer support, reshaped its management structure and raised capital. The final part of this plan, a new CEO, is expected to take the helm in the summer. He, or she, looks set to inherit a business in great shape and enjoying long-term growth drivers. ABD's investment should help it to capitalise on these trends and sustain its impressive growth.

- Investing to sustain the growth trajectory.** Over the last 18 months, ABD has sought to lay the foundations for another decade of double digit growth. The most tangible evidence of its investment is its new headquarters. Opened in 2017, this state-of-the-art structure provides both a delightful working environment for employees (helping it to attract the best talent) and an impressive facility for customers. ABD is also investing operationally. Headcount has risen 36% in the last year as it grows R&D and establishes in-country support for customers. Recent board appointees and a new CEO aim to create a management structure capable of supporting a significantly larger business.
- A Dynamic Market.** Industry wide initiatives to improve car safety and develop autonomous vehicles are spurring carmakers to invest in ADAS (Advanced Driver Assistance Systems). These features need to be tested and this is boosting ABD's growth. In just four years GSTs (Guided Soft Targets) have become a significant product line and the trend towards increasingly complex testing scenarios should sustain this growth. ADAS adoption should also help spur demand for ABD's driving simulator (aVDS or Advanced Vehicle Driving Simulator). By enabling carmakers to virtually test in a range of lighting and driving conditions, aVDS helps cut ADAS development time.
- Financials.** Even factoring in conservative assumptions, we see ABD sustaining an impressive 19% average annual revenue growth between FY17 and FY20E. Rising opex is likely to restrict adj. EBIT margins to 24% but adjusted EPS should still rise by nearly 60% over the period and, as capex falls, cash generation should steadily improve.

This note sets out the long term investment case for ABD, focusing on understanding the benefits which should be derived from its current strategy and how long term trends in the automotive R&D should sustain its rapid growth.

FYE AUG (£M)	FY-16A	FY-17A	FY-18E	FY-19E	FY-20E
Revenue	20.5	24.6	30.0	35.3	41.3
Adjusted EBITDA	4.9	6.1	7.7	9.1	10.8
Adjusted PBT	4.7	5.9	7.2	8.5	10.1
Adjusted EPS (p)	23.6	28.3	33.5	37.6	44.7
EV/Adj. EBITDA	32.1x	25.8x	20.6x	17.4x	14.7x
P/Adj. EPS	37.3x	31.1x	26.2x	23.3x	19.7x
Dividend yield	0.3%	0.4%	0.4%	0.5%	0.5%

Source: Company Information and Progressive Equity Research estimates

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Executive Summary

ABD has delivered a hugely impressive 19% organic revenue CAGR since its admission to AIM in 2013. It is now focused on building a platform to sustain this performance into the next decade. In the last 18 months it has substantially increased both R&D and local customer support, bolstered the balance sheet, opened impressive new facilities and reshaped and strengthened the senior management structure. With the expected arrival of a new CEO in the summer, the final piece of the jigsaw will be in place. This note explores its longer term outlook, looking at both the fundamental market drivers and its initiatives to sustain its growth. Vehicle safety programmes and the shift to autonomous driving looks set to accelerate ADAS (Advanced Driver Assistance Systems) adoption and drive rapid growth for its Track Testing products. **Investment will be required to support this growth and this is likely to restrict margin expansion, but we still expect ABD to increase adjusted EPS by nearly 60% by FY20E.**

Investing to sustain the growth trajectory. ABD's new headquarters provide an impressive facility for customers and a working environment that will help attract and retain the best employees. **Headcount has risen 36% in the last year as the company increases R&D resources and establishes in-country client support.** A new office in Germany, in particular, should strengthen its relationship with premium manufacturers (Audi, BMW, Daimler) that are leading the development of ADAS technology. Overseeing these initiatives is a strengthened management team. The company has appointed a COO and a new CEO is expected to arrive in the summer. The capital raised in Dec-16 ensures ABD has all the cash it needs to support its ambitious growth plans.

Market Dynamics: all about the ADAS! Autonomous driving and initiatives to improve vehicle safety are encouraging carmakers to add multiple ADAS features to new models. Supporting "life or death" decisions these systems must be rigorously tested and this is fuelling ABD's current growth. **Track Testing (80% of sales) has sustained a 30% CAGR since FY13** mainly propelled by GST (Guided Soft Target) sales. Rising ADAS deployment is a long term trend capable of sustaining ABD's rapid growth in our view. Safety standards are becoming ever more stringent and **industry estimates suggest that fully autonomous vehicles (level 5) require between 23 and 44 separate ADAS systems (most new cars have less than five systems today).** Carmakers will need to test these systems in increasingly complex scenarios to deliver full autonomy. ADAS should also spur demand for ABD's simulator product (aVDS). A simulator could help carmakers safely test ADAS performance in a range of controlled lighting and driving conditions, reducing both the time and cost of deployment.

Financials: Full Speed Ahead. Despite adopting IFRS15 for the first time (an estimated £1m impact to revenue) ABD delivered 20% yoy growth in FY17. We forecast this impressive growth to continue. **Our FY20E forecast of £41m implies a 19% three year CAGR as the excellent prospects in track testing are augmented by the first aVDS sales.** Rising opex is likely to restrict adjusted EBIT margins to 24% but **ABD should still increase adjusted EPS by nearly 60% over the period** and, as capex falls, cash generation should steadily improve. These forecasts are arguably conservative. We factor in one only SPM (Suspension Parameter Measurement Machine) sale annually and only three aVDS sales by FY20E. These big ticket items are difficult to forecast – an additional sale of both in FY18E, would boost our profit and cash forecast by c.16%.

Valuation and Conclusion. ABD's shares have had a good run: up nearly 50% in the last year and tenfold since its flotation in 2013. Based on our FY19E adjusted EPS forecast of 37.6p they currently trade at 23.3x, a modest premium to both its UK Industrial Engineering peers. **ABD addresses a market with a sustainable long term growth trend and has established a platform that looks capable of maintaining its impressive performance over the next decade.**

ABD: An Overview

AB Dynamics (henceforth “ABD”) was founded in 1982 by Anthony Best – the current Interim Executive Chairman. Originally a consultancy focused on providing engineering services, it has expanded into the production of high quality testing machines for carmakers and their suppliers. In the last decade it has sustained an average 18% annual revenue growth and reported a 24% adjusted operating margin in FY17. It is based in Bradford on Avon and currently employs 128 people.

Table 1: ABD By Business Line (based on FY17 financials)

Segment	Product	Rev £m	% total	GPME (%)	Description	Trends
Track Testing (Sale of Goods)	Driving Robots				Builds highly accurate robots that steer, accelerate/brake and deploy the clutch. Enables car makers to test the performance of the car during precisely controlled manoeuvres	Double digit growth expected driven by ADAS testing
	Guided Soft Targets (GST)				Builds a range of temporarily destructible models of cars, pedestrians and cyclists. These are used by carmakers to test ADAS (Advanced Driver Assistance Systems) features.	Rising ADAS adoption, triggered by safety regulation and autonomous driving, is driving rapid growth
	Total	20.4	83	33		
Lab Testing (Construction Contracts)	SPMM				First introduced in 1997 Suspension Parameter Measurement Machines are designed to measure the parameters that affect the ride, steering and handling	A mature business with largely flat sales over the long term
	aVDS				advanced Vehicle Driving Simulator tests the response of ADAS features (cutting expensive track time) and enables driver feedback to be modelled	Awaiting first sale but potentially a significant growth driver
	Total	3.7	15	22		
Software		0.5	2	60		
Total		24.6	100	32		

Source: Company information, Progressive Equity Research estimates. GPME = Gross Profit Margin Estimates (exclude Share Based Payments)

ABD’s initial laboratory machines enabled carmakers to characterise the suspension of the vehicle by testing its behaviour under certain conditions. Lab results must be verified in the real world and the company then developed steering robots capable of accurately reproducing certain manoeuvres on the track. In 2007 it became the first company in the world to sell a Driverless Test System using GPS.

Current Strategy

Testing suspension characteristics remains an important part of the business but in recent years much of ABD’s growth has been driven by testing ADAS (Advanced Driver Assistance Systems) features. As described in more detail on page 9, carmakers are increasingly deploying features like AEB or ACC (Autonomous Emergency Braking or Adaptive Cruise Control) to enhance vehicle safety and create a more autonomous driving experience. ABD’s robots allow a car maker to reliably test the performance of these features in a range of controlled scenarios. Its Guided Soft Targets (GSTs) enable interactions with other objects (cars, pedestrians and cyclists) to be realistically tested without damaging the car.

A recent addition to ABD’s business is its driving simulator (aVDS or advanced Vehicle Driving Simulator). aVDS can test some (camera and Lidar based) ADAS features in scenarios where real-world testing would either be time consuming or unethical. Critically aVDS also simulates the physical response of the car via haptic sensors and movement of the cockpit, making the driver feel like they are really driving the vehicle. Combined, ABD’s three testing products “lab measurement” “track testing” and “simulate” aim to provide a coherent platform for carmakers throughout the product development cycle (see figure 1). For example, data collected in the lab can be compared with performance on the track; dynamics experienced on the track can be fed into the simulator.

Figure 1: ABD's Synergy of Solutions



Source: Company information, Progressive Equity Research estimates

Competition

The company has a strong market position within the niches it occupies. It estimates it has roughly half of the SPMM market and, selling over 800 track systems so far, it is also the largest player in this segment. All of the top twenty carmakers use its products.

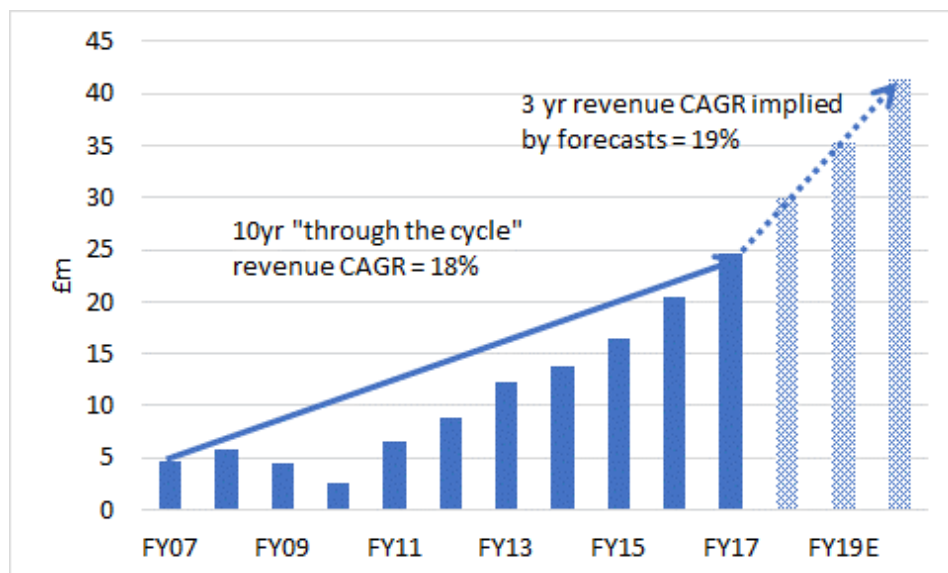
ABD predominantly faces competition from smaller testing players such as 4activeSystems, a privately held Austrian firm which focuses on dummies and ASI, a diversified US testing company which sells driving robots. Larger automotive testing players like Horiba, Kistler and AVL generally focus on bigger segments of the market such as emissions or aerodynamics and do not currently directly compete with ABD.

Sustaining the Growth Trajectory

Over the last ten years ABD has a track record of successfully investing ahead of time to drive future growth

ABD has sustained an average 18% organic annual revenue growth over the last decade. This performance is particularly impressive considering it covers the downturn of 2008-9. Sustaining rapid growth over such a long period demands careful strategic planning, investing ahead of time and establishing robust and scalable business processes. During the downturn, management took the decision not to make redundancies and to continue to invest in R&D. Short term profitability suffered but the company emerged growing faster than ever.

Figure 2: ABD's Impressive Growth track record



Source: Company information, Progressive Equity Research estimates

With this impressive performance behind it, management is focusing on building a platform to sustain double digit growth for the next decade. Measures include:

- Constructing new facilities
- Bolstering the balance sheet
- Boosting customer support
- Strengthening the management team

In the following section we set out the potential long term benefits from these initiatives.

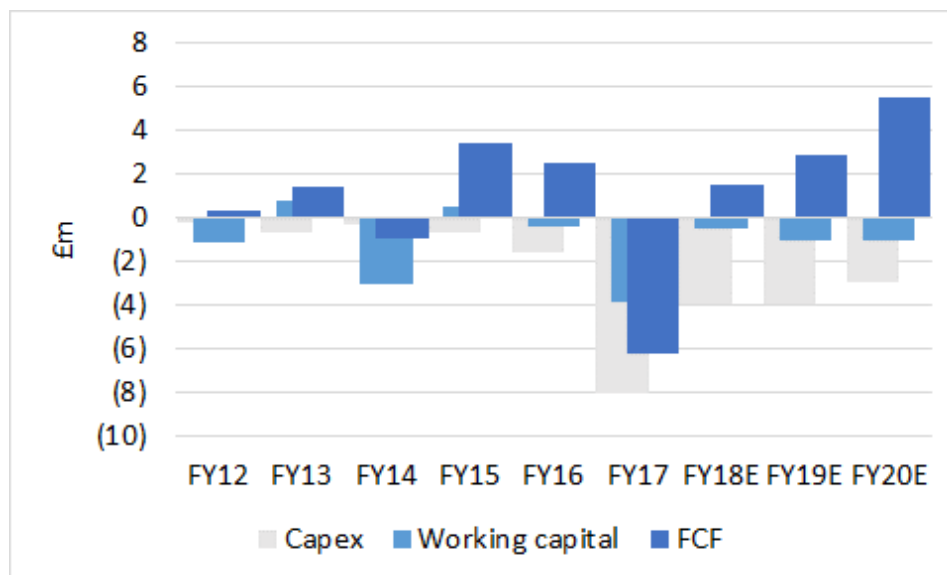
Constructing New Facilities

New facilities should boost both employee morale and the external image of the company

Costing approximately £9m, ABD's new 3,070m² headquarters and factory opened in October 2017. Aside from simply enabling the company to keep pace with its rapid expansion, this state-of-the-art facility brings two main benefits. Firstly, the attractive working environment should raise employee morale, helping to attract and retain the best staff. Secondly, it boosts the external image of the company, creating the right impression for a supplier of high quality testing systems to international carmakers.

ABD has also purchased adjacent land to build a further 3,000m² facility. This facility gives it scope to expand and is currently expected to be operational in 2021 at a cost of c. £7m. Assuming this cost is spread out fairly evenly over the forecast period should ensure ABD becomes cashflow generative in FY18E and a steady improvement in cashflow thereafter. Combined, we believe these facilities should provide sufficient space to accommodate ABD's growth for much of the next decade.

Figure 3: Falling Capex Should Drive a Return to +ve FCF in FY18E and Beyond



Source: Company information, Progressive Equity Research estimates

Bolstering the Balance Sheet

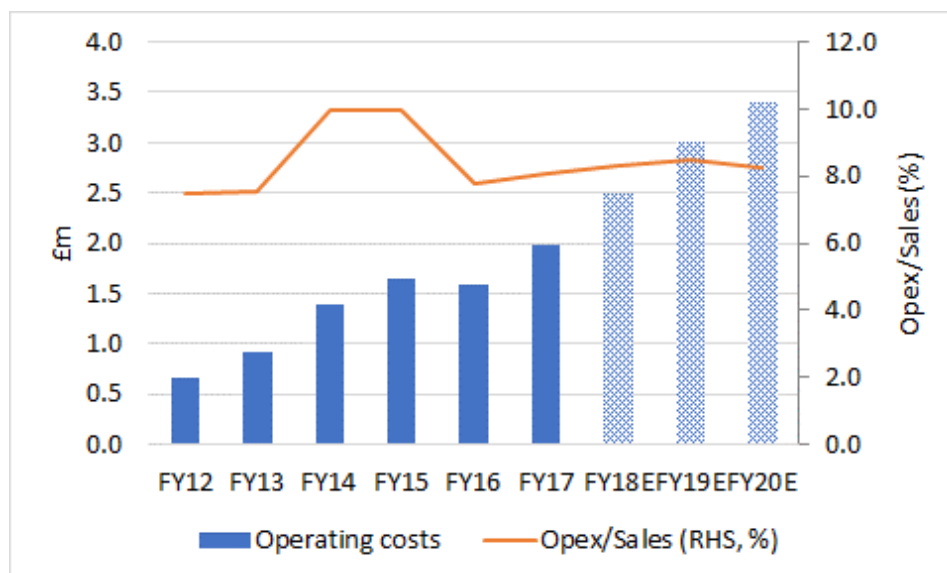
In December 2016 ABD raised £6m (net) via a secondary placing. The cash was primarily needed to 1) finance the construction of the new facilities (as described above) 2) ensure sufficient contingency in case of cost overruns and 3) fund working capital. As Figure 3 highlights, ABD's growth consumed over £7m of working capital between FY12 and FY17. Management wanted to ensure ABD had sufficient headroom to fund its rapid growth.

Despite its investment in FY17 ABD exited the year with nearly £10m in cash on hand, the highest balance in its history. We expect that even with further working capital outflows and investment in new facilities, ABD should now be sustainably FCF positive. With more cash resources at hand than it needs operationally, for the first time ABD has the capacity to invest strategically.

Boosting Customer Support

ABD recognises that it must also continue to invest in people and establish scalable operating processes to sustain its growth. As Figure 4 highlights, its rapid revenue growth has been accompanied by an even faster expansion in operating costs. Opex has grown at nearly 25% per year between FY12 and FY17.

Figure 4: Operating Cost Growth



Source: Company information, Progressive Equity Research estimates

ABD is significantly investing in headcount: increasing its in-country commercial and engineering teams and strengthening the senior management structure

This spending growth has continued in FY18E. Headcount stood at 128 at the end of February, up 36% yoy. Aside from accelerating product research and development, the company is particularly focused on providing dedicated, in-country support for its customers. It plans to open a German office in FY18E that will enable it to better support the R&D programmes of the premium auto brands (Audi, BMW and Mercedes) that are pioneering ADAS development. It also expects to establish in-country teams in the US and Japan over time and expand its presence in China. Maintaining its strong competitive position requires continually investing in both R&D and customer support.

Strengthening the Management Team

The company is also building a management team and structure capable of supporting a much larger business. In October 2016, Klaus Weimart, former Managing Director of International Operations at Kistler (another automotive testing company), joined the company as commercial director. Based in Germany he will be key to supporting the German carmakers as well as driving growth in emerging markets. In August 2017 the roles of the executive team were formalised, including the appointment of Mat Hubbard as COO, and the board was strengthened with the appointment of Richard Hickenbotham as a Non-executive Director. Adrian Simms, recently promoted to Business Director for Laboratory Test Systems, and Andrew Pick, Director of Track Test Systems, recently joined the operating board of the company.

We anticipate the final piece of the jigsaw to be announced shortly. Following Tim Roger's decision to step down as CEO at the end of 2017, ABD has embarked on an extensive search for an executive with substantial experience of managing a larger company. ABD hopes to announce further details of his or her credentials shortly.

Autonomous Vehicles, ADAS and ABD

Automotive R&D spending looks set to continue to rise ...

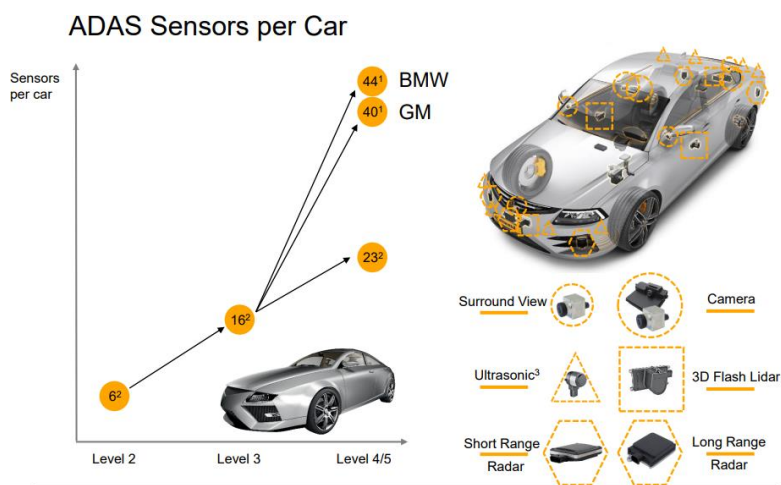
... driven in part by the race to develop safer and more "autonomous" vehicles.

ABD's testing products are sold into the R&D teams at carmakers across the globe. At over \$100bn annually, Automotive R&D is a huge market (Automotive is the second largest sector for R&D globally) and the drivers for sustained growth look excellent. The shift to low-emission and autonomous vehicles is disrupting the sector and creating opportunities for new entrants. Tesla, Alphabet, Uber and (potentially) Apple, are looking to become significant players. Carmakers' R&D budgets are rising as a response. **We see the combination of intensifying competition, emissions regulation and technology shift providing a tailwind for Automotive R&D spending for many years to come.**

The headline trends may look very encouraging but, unfortunately, they provide only a generic read across to ABD. A more relevant analysis is mapping the development of autonomous driving systems to ABD's track testing segment. **Track testing generates over 80% of ABD's revenues and has driven almost all of its recent growth.**

To understand this relationship, it is important to appreciate the shift towards autonomous driving in more detail. Autonomous vehicles promise both enormous social benefits and significant improvements in road safety. It is the potential to transform lives that particularly excites the technology industry. By freeing up drivers to do more web browsing (in Alphabet's vision of the future), work longer or spend more time with the family, they have the potential to transform our behaviour, attitudes to car ownership, transport patterns and, ultimately, the urban environment. **A fully autonomous vehicle, capable of driving without human intervention in all circumstances (often described as level 5), requires huge amounts of computing power.** Nvidia's recently announced Pegasus platform which claims to enable level 5 contains the processing power of 100 servers. This processing engine will need to be fed mission critical data from **between 23 and 44 separate ADAS (Advanced Driver Assistance Systems) sensors (Figure 5)**. Looked at from a technology industry perspective, creating an autonomous vehicle is simply a matter of delivering enough processing power; computer learning and Moore's Law make it possible its just a question of when. Evangelists such as Elon Musk or John Zimmer (co-founder of Lyft) believe full autonomy will be achievable by 2025 at the latest.

Figure 5: The Proliferation of ADAS Sensors in Autonomous Vehicles



Source: Continental AG, BMW, Progressive Equity Research estimates

Most independent experts suggest it will take longer. Full autonomy is really hard. Existing computers can already handle the c.80% of driving miles in relatively straightforward conditions (eg. cruising a main road in daylight) but **solving the “real world problem” means coping with adverse weather, poor lighting and busy urban environments. It is estimated that the computational power needed to do these tasks is several orders of magnitude greater.** Nvidia’s Pegasus takes up an entire car boot, probably consumes huge amounts of electricity and is extremely expensive currently. Aside from becoming small and cheap enough to enter production vehicles, such platforms must be rigorously tested to prove they can reliably cope with a range of scenarios. The halfway house of human intervention in emergencies (level 3 to 4) is considered as highly problematic by most carmakers for obvious reasons. The dream of full autonomy will grab the headlines and fire the imagination but may take a long time to realise.

Carmakers are adding an increasing number of complex ADAS (Advanced Driver Assistance Systems) to new vehicles

The view of mainstream carmakers towards autonomous driving is a little more prosaic. Whilst recognising both the potential and the threat posed by full autonomy, they see it as a longer term transition predominantly driven by regulatory pressure to improve road safety. **The EU estimates that 90% of road traffic accidents are due to human error in some form and the wider adoption of crash avoidance systems (also known as ADAS) is central to its ambition of halving road deaths from 2010 to 2020.** For example, it has (along with the US) mandated that all new vehicles should be equipped with autonomous emergency-braking systems (AEB) and forward-collision warning systems (FCW) by 2020. There are over 25 different ADAS technologies available today. As Table 2 highlights, most features have a low penetration today, even in premium cars.

Table 2: The Most Common ADAS Features Across the Audi Range

Acronym	System	Estimated Penetration of Audi Cars sold in Europe in 2016
AEB	Autonomous Emergency Braking	50%
LDW	Lane Departure Warning	44%
ACC	Adaptive Cruise Control	30%
TSR	Traffic Sign Recognition	32%
BSM	Blind Spot Monitoring	19%
ANV	Automotive Night Vision	19%
DMS	Driver Monitoring System	0%
FCW	Forward Collision Warning	0%

Source: SBDAutomotive, Progressive Equity Research estimates

All these ADAS features must be tested ...

As all these systems are “safety critical” they must be rigorously tested. In Europe this is undertaken by Euro NCAP (New Car Assessment Programme) which tests and publicises the safety performance of every new car sold in Europe. In late 2015 Euro NCAP introduced a new test to check how well AEB systems detect and prevent collisions with pedestrians. Carmakers must ensure their AEB systems perform well in these tests and this in turn drives demand for ABD’s pedestrian targets. Tests on lane support systems were introduced in 2016 and the test protocols on a range of ADAS features are updated continually. For example, changes to the allocation of points in the “Safety Assist” category of Euro NCAP’s 2018 rating scheme will push carmakers to offer more ADAS as standard: AEB will be extended to provide protection for cyclists and scoring for TSR will increase. In March 2017 ABD announced its Soft Car 360 was confirmed as suitable for the forthcoming Euro NCAP 2018 test procedures – the first and only compliant test so far. **As carmakers look to use these systems to develop greater autonomy they are increasingly looking to test complex multi-object scenarios. This trend is leading to orders of multiple ABD robots and targets.**

... and this has driven growth in ABD's track testing business

While European standards generally lead the way, the drive to increase safety is a global trend. Carmakers selling into Europe must obey these standards and the US and Japan also have their own domestic safety programmes. NHTSA (the US standard setting organisation) which rates FCW and LDW systems currently, looks likely to add pedestrian AEB and BSM testing to its safety rating and rear view video systems will be mandatory for all new vehicles in 2018. JNCAP testing programmes already include AEB and LDW and are increasingly harmonised with NCAP.

The rise in ADAS testing has fuelled a 30% CAGR in ABD's Track Testing segment since FY13 with growth in GSTs particularly strong. While ABD does not disclose GST we understand it has grown from virtually zero to become a significant business within Track Testing over this timeframe.

Future growth prospects look very healthy. **Most new cars currently only have a handful of ADAS systems. Safety regulation should ensure this number steadily rises in all cars. Autonomous vehicles, if and when they become available, require a step change in ADAS deployment.** All this new ADAS technology needs prolonged testing in advance, and multiple systems often require increasingly complex testing scenarios. **These long term trends give us confidence that ABD's rapid growth in track testing is sustainable.**

ADAS and aVDS ...

ABD's aVDS has the potential to cut development time for carmakers ...

ABD has spent ~£1.5m over the last two years commercialising a driving simulator or aVDS (advanced Vehicle Driving Simulator) based on technology originally developed by Williams. Its aVDS can be used to test some of the (camera and Lidar based) ADAS features in scenarios where replicating real-world conditions would either be expensive or unethical (a risk of injury to pedestrians or damage to property). High definition recreation of street scenes of major cities and testing tracks using software and data provided by rFpro, can be fed into the simulator and combined with weather and traffic "content" to replicate a variety of driving conditions. Critically ABD's aVDS simulates the physical response of the car via haptic sensors and the real-time movement of the cockpit. When used in a low latency system, this creates a completely immersive Driver-in-the-Loop (DiL) experience that enables the interaction between the driver and the car technology to be modelled. DiL also enables the integration of electric and hybrid systems and the driver to be tested. The reduction of testing time is a key advantage offered by the simulator. aVDS does not eliminate the need for traditional track and lab testing products (at least not yet) but, by identifying problems early on, it can reduce (expensive) track testing time and speed up the pace of development.

... and significantly boost ABD's growth

Consistent design of the system interfaces and parameters across ABD's aVDS, track testing and lab testing platforms, coupled with its reputation for quality, creates the potential for significant revenue synergies between these products in our view. Anecdotally we understand there is strong interest from at least two carmakers today. Nevertheless we prefer to be cautious at this stage of the product cycle and only assume one aVDS sale in FY19E and two in FY20E.

Management Team

Anthony Best, Founder and Interim Executive Chairman

Tony is steeped in manufacturing experience having worked for Rolls-Royce, Avon Rubber and Moulton Developments. During his time at Rolls Royce he worked in the design department on vehicle suspensions. This work continued when he joined Moulton Developments as Chief Engineer and when Moulton closed in 1982 he founded ABD. He has written a number of technical papers on vehicle suspension, ride and handling and was awarded the Institution of Mechanical Engineers' Thomas Hawksley medal and the Automobile Division's Crompton Lanchester Medal. A Fellow of the Royal Academy of Engineering and the Institution of Mechanical Engineers he is also on the Court of the Worshipful Company of Engineers. In 2016 he stepped down from his Executive Chairman role but following the recent departure of Tim Rogers, Tony is Interim Executive Chairman until the new CEO arrives in the summer.

Robert Hart, Chief Financial Officer

Robert joined the Group in 2008 and was appointed CFO in August 2017. He has extensive prior experience of working at public companies having been Commercial Financial Analyst at First Group from 2000 until 2002 before spending six years at Unite Group as Financial Controller of the manufacturing division. Rob has a BSc in Mathematics and Computing from The University of East Anglia and is a Fellow of the Association of Chartered Certified Accountants.

In July 2017 ABD further strengthened the executive and non-executive team:

Mat Hubbard, Chief Operating Officer

Mat joined ABD in 1999 as a project engineer and became an Operations Director in 2008. He has played a lead role developing and marketing ABD's new technologies particularly the proprietary driverless vehicle testing system, as well as managing the group's IT function and recruitment strategies. Mat gained a MEng in Electrical and Information Sciences Tripos (EIST) from Cambridge University.

Richard Hickinbotham, Non-executive Director

Richard has over 30 years City experience most recently at Cantor Fitzgerald Europe where he was Head of European Research. Prior to this he was Head of Research at Charles Stanley Securities and held a number of senior positions at Investec and SG Warburg & Co. (acquired by UBS). Richard holds a BSc in Mechanical Engineering from Imperial College and is a Chartered Accountant.

Richard joins two existing Non-executive Directors on the Board:

Graham Eves

Aside from his extensive experience with GKN, Graham co-founded and was chairman of an automotive technology company, Mechadyne. He was chairman at PCB manufacturer, Lyncolec Limited and a special security company and was also directly involved in the flotations of Antonov plc and Transense Technologies plc. Graham holds an MA in Modern and Medieval Languages from Cambridge University.

Bryan Smart

Previously CFO at DaimlerChrysler (UK) Limited, Bryan has advised a number of public and private companies. He was Chairman of the supervisory board of CarboTech AG, has significant experience of AIM–quoted companies and is a Non-Executive Director of Greka Drilling Limited and Greka Engineering & Technology Ltd. Bryan is a fellow of the Institute of Chartered Accountants in England and Wales.

Key Risks

As with any business, ABD faces a variety of risks and challenges. In addition to the generic risks of financial performance and internal controls we highlight below a number of specific threats that we believe are particularly relevant alongside management action to mitigate the threat.

Table 3: Key Risks and Mitigation Actions

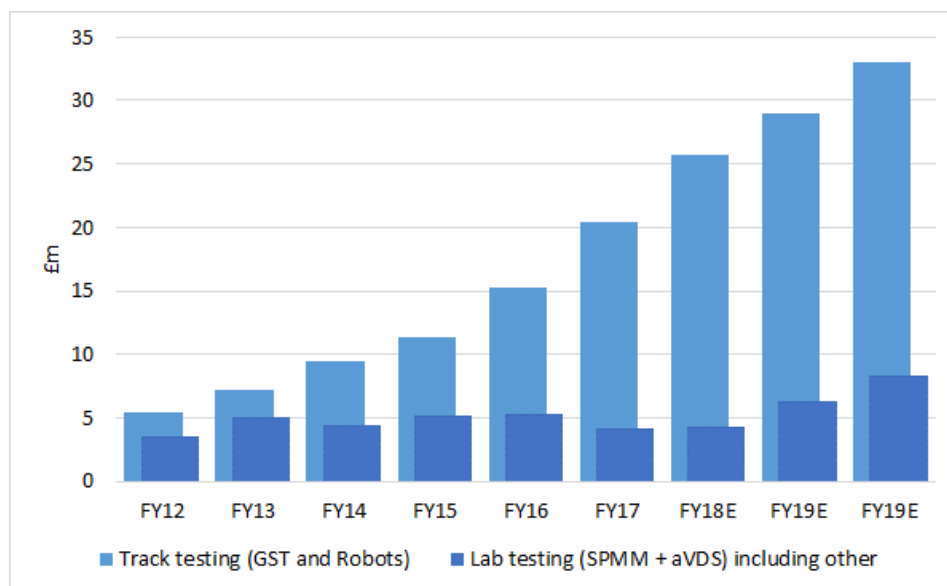
Risk	Potential Impact	Management Action to Mitigate/Response
Brexit	In a worse case "hard brexit" scenario, tariffs could be placed on ABD's products sold into the EU. The EU accounts for ~25% of sales.	Import tariffs have not prevented sales to other regions. ABD is establishing a separate trading subsidiary within the EU to potentially reduce the impact as a contingency.
Currency	Over 95% of ABD's sales are to international customers but the vast majority of costs are incurred in the UK potentially creating both a translational and transactional currency risk. Rising £ would reduce the value of foreign denominated sales potentially squeezing margins.	Over 75% of contracts are priced in £. Therefore a change in the £ impacts affordability - ie a higher £ will make ABD products more expensive - but translational currency risk is low. With 80% of costs £ based, revenues and costs are well matched, minimising transactional risk. ABD raised prices to some international distributors as the post brexit fall in £ cut their costs - prices to customers remain largely unchanged.
Competition	Strong market position in machine testing (SPMM) but competition in growth markets such as aVDS and GST may intensify. Scope to differentiate in GST in the long term may be more modest.	ABD's niche markets generally have high entry barriers (eg. established reputation/need for regulatory approval). Therefore the returns for new entrants are small relative to the risks. In addition ABD is increasingly a "platform" provider, bundling robot and GST sales and making track test procedures compatible with aVDS routines.
Visibility	As a niche player in a huge market with no significant customers, there is little direct visibility on ABD's revenue drivers. The timing of some relatively large contracts is difficult to predict.	The company is increasingly signing multi-product orders and has a record order book. Fundamental drivers underpin long term growth.
Declining US car sales	The US car market is experiencing its first downturn since 2009. Several car makers and auto supply chain players have warned of slowing sales. The 8% decline in car sales in '08/09 lead to a 20% and 40% decline in Auto R&D and ABD's revenue respectively.	ABD revenues are not driven directly by car volumes but by R&D budgets. The cuts in 08/09 were unprecedented in a normally steady market. By 2011, rebounding car sales coupled with underlying growth trends saw ABD report sales above pre-recession levels. By preserving staff and investment, ABD emerged stronger.
Auto loans	A growing proportion of car sales, particularly in the UK and US, are funded by consumer credit/PCP plans. Arguably this finance mechanism has fuelled demand for premium (ADAS rich) cars. Rising levels of loan delinquencies and falling used car prices have raised fears about a "bubble bursting".	A potential issue of saturation in a few markets but global demand for premium cars is underpinned by more than just financing. More significantly the proliferation of ADAS features is driven by long term structural trends (regulation and competition).

Source: Company information, Progressive Equity Research estimates

Financials

We expect ABD's impressive growth to continue in FY18E and beyond. Fuelled by demand for GSTs in particular, its Track Testing segment should maintain its rapid growth. Meanwhile the first driving simulator sale in FY19E should revitalise Lab Testing revenues (Figure 6). **Our forecast of £41m in sales by FY20E implies a 3-year CAGR of 19%, broadly in-line with its historic growth rate over the last decade.**

Figure 6: Growth Sustained by Track Testing and the First Simulator sales



Source: Company data, Progressive Research estimates

These forecasts are arguably conservative. The CAGR sustained between FY12 and FY17 is actually 22% and, without the ~£1m impact from a change in accounting standards, **reported growth would have been 24% in FY17**. We factor in just one driving simulator sale in FY19E and two in FY20E.

While we are confident that ABD's impressive growth will continue, forecasting its revenue is not easy. Its SPMM and driving simulator products are low volume, "big ticket" items. Since the timing of these sales cannot be easily predicted, forecast risk (both positive and negative) is relatively high. Assuming an SPMM generates revenue of £2.0m at a 20% margin, a single sale alters adjusted EPS by 2.0p. A sale of a £2.5m driving simulator at a 35% margin could have a 3.0p impact (~10% of FY18E adjusted EPS). We are comfortable that our long term forecasts for both SPMM and simulator sales are sufficiently conservative but acknowledge a relatively large margin for error.

We forecast relatively flat gross margins. Lab Testing profitability should improve slightly driven by potentially higher margin driving simulator sales however this remains a relatively small part of the business and this trend is partially offset by higher depreciation charges.

SPMM and aVDS products are low volume big ticket items. Predicting the timing of sales of these items can be tough

Table 4: The Impact of Mix and SBP on Gross Margin and Profit

	FY-12A	FY-13A	FY-14A	FY-15A	FY-16A	FY-17A	FY-18E	FY-19E	FY-20E
Revenue									
Track testing	5.4	7.1	9.4	11.4	15.2	20.4	25.7	29.0	33.0
Lab Testing	3.5	4.8	4.2	4.9	4.9	3.7	3.9	5.9	7.9
Software	0.0	0.2	0.2	0.3	0.4	0.5	0.4	0.4	0.4
Total	8.9	12.2	13.8	16.5	20.5	24.6	30.0	35.3	41.3
Gross margin assumptions (%)									
Track testing	33	31	33	37	34	33	33	33	33
Lab Testing	19	18	19	20	20	22	22	27	29
Software		60	60	60	60	60	60	60	60
Total (Reported)	27.7	25.8	28.8	32.4	31.3	32.1	31.9	32.3	32.4
Gross profit									
Track testing	1.8	2.2	3.1	4.2	5.2	6.8	8.5	9.6	10.9
Lab Testing	0.7	0.8	0.8	1.0	1.0	0.8	0.9	1.6	2.3
Software	0.0	0.1	0.1	0.2	0.2	0.3	0.2	0.2	0.2
Total	2.5	3.1	4.0	5.4	6.4	7.9	9.6	11.4	13.4
Adjusted Operating Profit									
Operating costs	(0.7)	(0.9)	(1.4)	(1.6)	(1.6)	(2.0)	(2.5)	(3.0)	(3.4)
EBIT	1.8	2.2	2.6	3.7	4.8	5.9	7.1	8.4	10.0
Margin (%)	20.2	18.3	18.8	22.5	23.5	24.0	23.6	23.8	24.2

Source: Company data, Progressive Research estimates. Strips out the impact of SBP and fair value adjustments

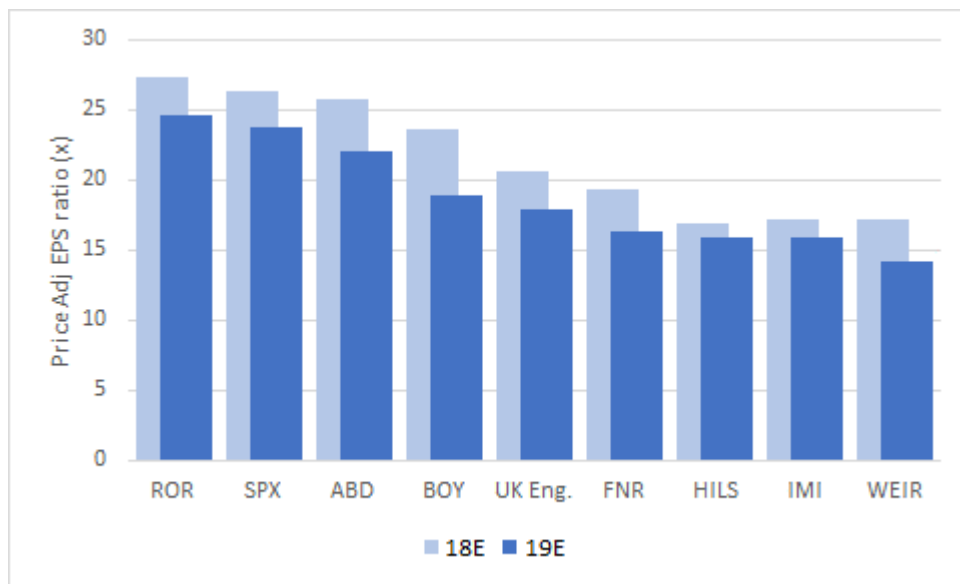
As highlighted on page 7, we believe that to sustain its growth, ABD will need to continue to grow opex. We forecast operating costs of £2.5m in FY18E, up 26% from FY17 driven by its expansion of in-country customer support. The combination of broadly flat gross margin assumptions and rising opex suppresses margin expansion in our forecast: we predict adjusted operating margins of 24%, broadly flat yoy. Even with no expansion in operating margin, the combination of top line growth and a marginally lower 2HFY18E tax rate, **leads us to forecast FY18E adj EPS rising to 33.5p**. We forecast similar trends in FY18E and FY20E. **Investment required to support rapid growth is likely to restrict operating margin expansion. Nevertheless our forecasts still imply ABD's adjusted EPS rising by nearly 60% from FY17 levels by FY20E.**

We forecast relatively modest cash generation due to ABD's capital spending on the building of its second 3,000m² facility and continued consumption of working capital driven by growth. However it should return to positive FCF in FY18E and cash generation should steadily improve throughout the remaining forecast period. We estimate FY20E FCF of £5.5m (a 13% margin).

Valuation

Following a nearly 50% rise in the share price in the last year, ABD shares trade at 23.3x our FY19E adjusted EPS forecast and 22.0x FY19E on a calendarised basis. Its UK industrial engineering peers trade between 14-25x with a weighted average of 18x.

Figure 8: Valuation vs UK Industrial Engineering Peers



Source: Company data, Progressive Research estimates

Figure 9: Financials

PROFIT & LOSS	FY-15A	FY-16A	FY-17A	FY-18E	FY-19E	FY-20E
Revenue	16.5	20.5	24.6	30.0	35.3	41.3
Adj EBITDA	4.0	4.9	6.1	7.7	9.1	10.8
Adj EBIT	3.8	4.7	5.9	7.1	8.4	10.0
Reported PBT	3.8	4.5	4.5	6.5	8.2	9.8
Fully adj PBT	3.8	4.7	5.9	7.2	8.5	10.1
NOPAT	3.3	4.1	5.4	6.5	7.3	8.7
Reported EPS (p)	18.3	22.3	20.6	29.9	36.1	43.2
Fully adj EPS (p)	18.3	23.6	28.3	33.5	37.6	44.7
Dividend per share (p)	2.8	3.0	3.3	3.7	4.0	4.4

CASH FLOW & BALANCE SHEET	FY-15A	FY-16A	FY-17A	FY-18E	FY-19E	FY-20E
Operating cash flow	4.5	4.6	2.1	6.4	7.7	9.4
Free Cash flow (£m)	3.3	2.5	(6.2)	1.7	2.8	5.5
FCF per share (p)	18.8	14.5	(32.7)	8.5	14.5	28.4
Acquisitions	0.0	0.0	0.0	0.0	0.0	0.0
Disposals	0.0	0.0	0.0	0.0	0.0	0.0
Shares issued	0.2	0.1	6.0	0.0	0.0	0.0
Net cash flow	3.1	2.4	(0.8)	1.0	2.1	4.8
Overdrafts / borrowings	0.0	0.0	0.0	0.0	0.0	0.0
Cash & equivalents	8.0	10.4	9.6	12.9	14.4	14.4
Net (Debt)/Cash	8.0	10.4	9.6	12.9	14.4	14.4

NAV AND RETURNS	FY-15A	FY-16A	FY-17A	FY-18E	FY-19E	FY-20E
Net asset value	13.6	17.5	28.2	17.5	17.5	17.5
NAV/share (p)	76.8	100.6	148.8	89.9	89.9	89.9
Net Tangible Asset Value	13.6	17.5	28.2	17.5	17.5	17.5
NTAV/share (p)	76.8	100.6	148.8	89.9	89.9	89.9
Average equity	12.0	15.6	22.9	22.9	17.5	17.5
Post-tax ROE (%)	27.1%	24.9%	17.1%	25.5%	40.2%	48.0%

METRICS	FY-15A	FY-16A	FY-17A	FY-18E	FY-19E	FY-20E
Revenue growth	19.3%	23.9%	20.0%	22.1%	17.7%	17.0%
Adj EBITDA growth	42.0%	24.6%	24.5%	25.1%	18.3%	18.7%
Adj EBIT growth	42.3%	23.3%	26.2%	20.6%	18.4%	19.1%
Adj PBT growth	42.9%	22.3%	26.8%	20.9%	18.2%	18.9%
Adj EPS growth	51.3%	28.7%	20.0%	18.5%	12.4%	18.7%
Dividend growth	175.0%	10.0%	10.1%	10.0%	10.0%	10.0%
Adj EBIT margins	22.8%	22.7%	23.9%	23.6%	23.8%	24.2%

VALUATION	FY-15A	FY-16A	FY-17A	FY-18E	FY-19E	FY-20E
EV/Sales	9.6	7.7	6.4	5.3	4.5	3.8
EV/EBITDA	40.0	32.1	25.8	20.6	17.4	14.7
EV/NOPAT	48.7	38.6	29.5	24.3	21.6	18.2
PER	48.0	37.3	31.1	26.2	23.3	19.7
Dividend yield	0.3%	0.3%	0.4%	0.4%	0.5%	0.5%
FCF yield	2.1%	1.6%	-3.7%	1.0%	1.7%	3.2%

Source: Company information, Progressive Equity Research estimates

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