



CHINA  
DEVELOPMENT  
FINANCIAL

DISA

(DISA SP/532.SI)

**BUY - INITIATION**

Price as of 21 Jun 2018	0.01
12M target price SGD	0.02
Previous target price SGD	na
Upside, incl. div (%)	137.1%

**Trading data**

Mkt Cap (US\$m)	90
Issued Shares (m)	10,039
Ave Daily Traded (3-Month) Vol / Val	14.8m / \$0.1m
52 week lo / hi	\$0.01 / \$0.02

**Major Shareholders**

Wang Yu Huei	9.7%
Tang Wee Loke	7.0%
Chng Weng Wah	5.9%

**DISA SP (1yr) VS STI**



Source: Bloomberg

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**World's First Fully Digital Asset Protection Technology**

**Event**

Since its invention of the world's first anti-theft protection technology that uses encrypted codes on consumer electronic products, DISA has focused all its resources on its anti-theft business and continues to ramp down its other businesses with revenue from technology making up 64% of total revenues at 9M2018. Given that Walmart is now using DISA's technology, we believe the time is ripe for the firm to ramp up its market penetration.

Based on our projections, we forecast DISA to breakeven in FY21F and revenue growth at a CAGR of 135% from 2017 to 2021F. We initiate coverage on DISA with a BUY recommendation and a target price of S\$0.02, based on a DCF valuation with WACC at 14.5% and terminal growth rate at 0%, implying a 2021F P/E of 23.9x.

**Impact**

**Not Just Walmart.** The company has captured headlines since its proof of concept trials with Walmart and we understand from management that this is a high barrier to entry business as Walmart's point of sale system contains sensitive data on walmart stores and supplier's sales, which is why it took DISA 2 years from its initial talks with Walmart to full implementation across all Walmart stores. While Walmart's acceptance provides support for DISA, we believe DISA's Point-of-Sale Activation (PoSA) approval from industry groups and security firms will add further weight to the company's expansion plans.

**First Mover Advantage.** As the first mover providing a digital point of sale activation solution, we believe that the company would be able to get at least 3 top US retailers onto its platform. From these 3 retailers, we estimate that DISA will have access to a pool of 77 billion barcodes, which translates to \$3.9 billion in revenue if all the suppliers from these retailers decide to adopt DISA's technology. However, as food products are unlikely to use PoSA due to costs and practicality reasons, we expect DISA to penetrate a portion of the available barcodes rather than all the available barcodes. From these projections, we forecast net revenue to grow at CAGR 135% from 2017 to 2021F with breakeven by 2021F.

**Risks**

**Slow user adoption and a breach in DISA's encryption** could lead to reputational damages and a decline in revenue. **Going concern** could become a problem if DISA fails to scale and cover its burn rate.

**Financials & Key Operating Statistics**

YE Jun SGD (mn)	2017A	2018F	2019F	2020F	2021F
Net revenue	0.3	0.3	5.9	11.6	23.2
Operating Profit/Loss	(17.2)	(8.9)	(5.1)	(1.2)	7.4
Net income	(17.7)	(9.7)	(5.8)	(2.0)	5.5
EPS (SGD Cents)	(0.3)	(0.2)	(0.1)	(0.0)	0.1
EPS growth (%)	-	-	-	-	-
P/E (x)	-	-	-	-	11.2
P/B (x)	2.2	1.7	2.0	2.2	1.8
P/S (x)	189.4	238.8	10.4	5.3	2.7
EV/EBITDA (x)	-	-	-	-	4.3
Debt / Equity	44.5%	35.5%	42.4%	45.4%	38.0%
Net Margin (%)	-	-	-	-	23.7
ROE (%)	-	-	-	-	17.8

Source: Company Data, KGI Research

See the last page for important disclosures.

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## Investment Thesis

### Not Just Walmart

In 2016, Walmart began testing DISA’s Point-of-Sale Activation (PoSA) system with proof-of-concept trials in a Walmart store in Arkansa and after a 6-month trial period, Walmart began a roll-out of DISA’s solution across the United States. With positive results from Walmart, the company recognised revenue from its anti-theft solutions for the first time, recording revenues of S\$90,000 for FY17.

Figure 1: Walmart One-Store PoSA Pilot Program Results

One Store Pilot Program	% of Customers Surveyed
Noticed PoSA in-store set-up	70%
Understood the Technology based solely on display sign or box-mark	50%
More convenient alternative than other loss prevention practices to secure product in-store	100%
Preferred the shopping environment created by PoSA as compared to alternative loss prevention solutions	80%

Source: Loss Prevention Research Council, DISA

Figure 2: Walmart 20-Store PoSA Test Results

20-Store PoSA Test	% of Customers Surveyed
PoSA is easier, more convenient access to products before purchasing, leading to improved customer shopping experience	61%
Prefer PoSA to other in-store product protection options*	67%
PoSA is a very favorable solution*	56%
*Survey conducted with asset protection managers	

Source: Loss Prevention Research Council, DISA

We understand from management that getting Walmart on-board was a lengthy process due to the sensitivity of data on retailer’s point of sale systems (POS). If POS systems are compromised, sales and suppliers data could be leaked, which is why Walmart took a long time to test DISA’s system. As such, it is very likely that retailers will only support one solution as the industry standard and once retailers are on-board, suppliers should soon follow.

Figure 3: Industry PoSA Logo



Source: Company Presentation

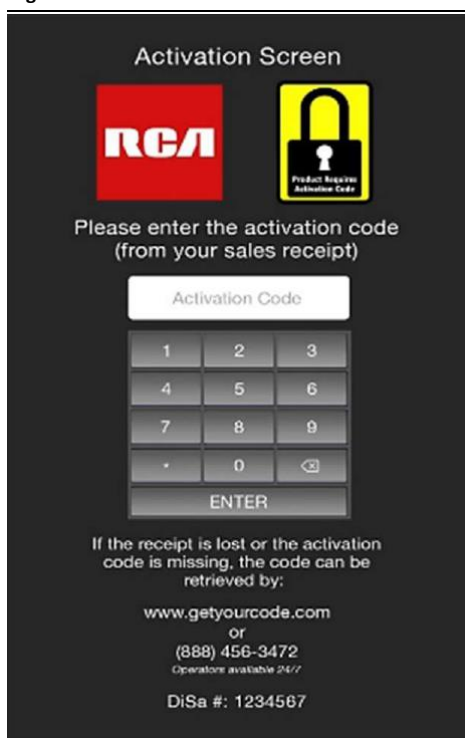
**Industry Adoption:** In our view, the company is on track to become the industry standard as the Loss Prevention Research Council (LRPC), an industry group of retailers, solution providers and scientists, has designed a universal box-mark to represent all PoSA technology, with the logo reflected on all PoSA-embedded products. According to LRPC’s studies, the usage of this box-mark has been well received by loss prevention managers and can help to deter potential offenders in retail stores.

**Not Just Walmart:** Besides Walmart, DISA’s PoSA system has received security certification from BugCrowd, a crowd-sourcing platform of computer hackers which hunts for bugs and penetration loopholes on new products. Notable customers of BugCrowd in the past have included tech and finance companies such as Western Union, Pinterest, FitBit, AVG Technologies, Tesla and others.

In our view, getting the security certification was a key milestone towards industry-wide acceptance of PoSA as this was a requirement placed on DISA from the largest US retailers which includes Target, Walmart, Best Buy, Home Depot, Lowes and others.

**Ready to Scale:** Eventually, these successful trials led to DISA’s win at the 2017 (R)Tech Asset Protection Innovation Awards, an award given by Retail Industry Leaders Association (RILA) to technologies that mitigate total retail loss. Given that members of RILA and LRPC includes the largest US retailers like Walmart and Target, we believe these awards and successful trials has helped DISA reached its targeted audience.

Figure 6: POSA Activation Screen



Source: Company Presentation

Figure 7: Activation Code on Walmart's Receipt



Source: Company Presentation

### First Mover Advantage

Shrinkage refers to the loss of inventory that can be attributed to factors such as employee theft, shoplifting or supplier fraud. While retailers try to mitigate losses from shrinkage through various measures such as video surveillance, shrinkage remains a rampant problem globally, especially in North America.

According to Checkpoint's Global Retail Theft Barometer, global shrink costs for retailers rose to \$123.4 bn in 2015 from \$107.3 bn in 2010, which translates to an average of 1.23% of global retail sales in 2015. Among 4 regions, North America was the worst, with retail shrinkage estimated at 1.97%.

Figure 4: Global Retail Theft Barometer

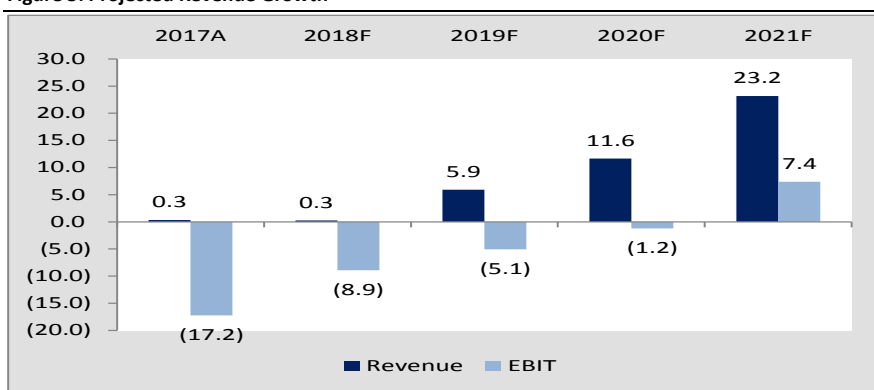
Global Retail Shrinkage	2015	2014	Change%		Estimated Value (\$ Bn)
Asia Pacific	1.11%	0.91%	0.20%	↑	39.0
Europe	0.96%	1.02%	-0.06%	↓	40.9
Latin America	1.82%	0.75%	1.07%	↑	10.8
North America	1.97%	1.28%	0.69%	↑	36.8
Global	1.42%	0.92%	0.50%	↑	123.4

Source: Checkpoint Systems, The Smart Cube

At the product level, retailers have used a combination of methods such as Electronic Article Surveillance (EAS), spider wraps or secure cable devices. These methods require hardware and often restrict consumers from accessing the products freely, which might lead to a decrease in sales. With DISA's solution, retailers can now stock product on the sales floor without fear of theft and enjoy cost savings as they no longer need to repurchase hardware for loss prevention solutions.

As the first mover providing a digital point of sale activation solution, we believe that the company would be able to get at least 3 top US retailers onto its platform. Based on this assumption, we estimate that 3 retailers would yield a combined 771 million in stock keeping units (SKUs). While it is impossible to estimate the amount of barcodes per SKU, we assume that suppliers would order at least 100 barcodes per SKU to keep an adequate amount of stock in a large retailer, which translates to 70 billion barcodes in 3 large retailers. From these projections, we forecast net revenue to grow at 135% from 2017 to 2021F with breakeven by 2021F.

Figure 5: Projected Revenue Growth



Source: KGI Research

## Valuation

We initiate coverage on DISA with a BUY recommendation and a target price of S\$0.02 which represents an upside of 100%. Our target price is based on a DCF valuation, implying a 2021F P/E of 23.9x.

**Earnings:** Valuation of DISA was based on earnings improvement from (-0.26) cents in 2017 to 0.10 cents by 2021F, driven by the ramp-up its anti-theft technology in the United States.

**Margins:** We expect gross margins to increase by 45 ppt from 2017 to ~80% by 2021F, while operating and net margins should turn positive by 2021F at 32% and 24% respectively. In aggregate, these will be driven by a diminished increase in staff costs and an improving operating leverage.

**SKUs and Barcodes:** We estimated the total potential SKUs of 3 large US retailers (including Walmart) endorsing DISA's anti-theft technology, based on the average SKUs available at a large retail store in the United States. Our assumptions include a minimum of 100 items per SKU annually, which translates into 100 barcodes per SKU per annum. From these assumptions, we estimated a combined minimum of 771 million SKUs per annum and a minimum of 77 billion barcodes which could be available to DISA.

However, since food products are unlikely to use the technology due to costs and practicality reasons, we believe that DISA can only capture a portion of the combined SKUs or barcodes. From DISA's 2017 revenues, we estimated that the company sold 1.8 million barcodes to Walmart's suppliers and if we assume a similar penetration rate, this would translate into 2.7 million barcodes from the suppliers in 2018F. By 2019F, we expect higher supplier penetration rates due to the increased number of retailers endorsing DISA's technology, resulting in sales of 115 million barcodes.

**Industry Leader:** In summary, our estimates are based on the main assumption that the company is now at an inflection point and DISA will become the market leader if it can get 2 other large US retailers other than Walmart, to endorse their technology. In such a scenario, we believe that DISA will enjoy exponential growth rates in barcode sales, which is why we forecast the number of barcodes sold to increase by a CAGR of 203% to 462 million by 2021F from an implied 1.8 million barcodes sold in 2017.

Figure 8: DCF Valuation ('000)

DCF	2017A	2018F	2019F	2020F	2021F	2022F	2023F	2024F	2025F
Revenues	90.0	135.0	5,850.3	11,605.8	23,162.2	46,298.5	55,552.0	66,659.2	79,989.4
Services Rendered	235.0	64.1	33.5	17.5	9.1	4.8	2.5	1.3	0.7
<b>Net revenue</b>	<b>325.0</b>	<b>199.1</b>	<b>5,883.7</b>	<b>11,623.3</b>	<b>23,171.3</b>	<b>46,303.3</b>	<b>55,554.5</b>	<b>66,660.5</b>	<b>79,990.1</b>
<i>YoY growth (%)</i>		-38.7%	2855.2%	97.5%	99.4%	99.8%	20.0%	20.0%	20.0%
Cost of Services	(212.0)	(116.0)	(1,182.9)	(2,211.5)	(4,172.3)	(8,335.4)	(10,000.2)	(11,999.1)	(14,398.3)
Depreciation and Amortisation Expenses	(1,479.0)	(1,479.0)	(1,479.0)	(1,479.0)	(1,479.0)	(1,479.0)	(1,479.0)	(1,479.0)	(1,479.0)
Employee Benefits Expenses	(3,545.0)	(4,963.0)	(5,707.5)	(6,563.6)	(7,548.1)	(8,680.3)	(9,982.4)	(11,479.7)	(13,201.7)
Legal and Professional Expenses	(820.0)	(820.0)	(820.0)	(820.0)	(820.0)	(820.0)	(820.0)	(820.0)	(820.0)
Impairment Losses	(8,547.0)	-	-	-	-	-	-	-	-
Loss on disposal of a subsidiary	(643.0)	-	-	-	-	-	-	-	-
Loss on liquidation of an associate	(4.0)	-	-	-	-	-	-	-	-
Loss on waiver of debts	(862.0)	-	-	-	-	-	-	-	-
Provision for legal liabilities	(182.0)	-	-	-	-	-	-	-	-
Operating lease expense	(438.0)	(438.0)	(438.0)	(438.0)	(438.0)	(438.0)	(438.0)	(438.0)	(438.0)
Other expenses	(1,353.0)	(1,353.0)	(1,353.0)	(1,353.0)	(1,353.0)	(1,353.0)	(1,353.0)	(1,353.0)	(1,353.0)
Other Income	536.0	-	-	-	-	-	-	-	-
<b>Cost and Operating Expense</b>	<b>(17,549.0)</b>	<b>(9,169.0)</b>	<b>(10,980.3)</b>	<b>(12,865.0)</b>	<b>(15,810.4)</b>	<b>(21,105.7)</b>	<b>(24,072.6)</b>	<b>(27,568.8)</b>	<b>(31,690.0)</b>
<b>EBIT</b>	<b>(17,224.0)</b>	<b>(8,969.9)</b>	<b>(5,096.6)</b>	<b>(1,241.7)</b>	<b>7,360.9</b>	<b>25,197.6</b>	<b>31,481.9</b>	<b>39,091.7</b>	<b>48,300.1</b>
Tax	238.0	-	-	-	(1,123.2)	(4,154.8)	(5,222.8)	(6,516.3)	(8,081.6)
Depreciation & Amortisation	1,492.0	1,492.0	1,492.0	1,492.0	1,492.0	1,492.0	1,492.0	1,492.0	1,492.0
Non-cash charges	11,584.0	612.6	612.6	612.6	612.6	612.6	612.6	612.6	612.6
Change in net working capital	(272.0)	-	-	-	-	-	-	-	-
Capex	(354.0)	(292.0)	(292.0)	(292.0)	(292.0)	(292.0)	(292.0)	(292.0)	(292.0)
<b>FCFF</b>	<b>(4,536.0)</b>	<b>(7,157.3)</b>	<b>(3,284.0)</b>	<b>570.9</b>	<b>8,050.2</b>	<b>22,855.4</b>	<b>28,071.8</b>	<b>34,388.0</b>	<b>42,031.1</b>
<i>YoY growth (%)</i>		-	-	-	1310.2%	183.9%	22.8%	22.5%	22.2%
<b>Discounted FCFF</b>	<b>(3,962.7)</b>	<b>(5,462.3)</b>	<b>(2,189.5)</b>	<b>332.5</b>	<b>4,096.1</b>	<b>10,159.4</b>	<b>10,900.9</b>	<b>11,665.8</b>	<b>12,456.3</b>
<b>Terminal value</b>									<b>354,385.5</b>
<b>Implied enterprise value</b>	<b>123,895.3</b>								
Add: Cash	20,165.0								
Less: Debt	12,737.0								
Less: Preferred stock	-								
Less: Minority interest	-								
<b>Implied equity value</b>	<b>131,323.3</b>								
Diluted Shares Outstanding	6,154,677.0								
<b>Implied target price (S\$)</b>	<b>0.02</b>								
<i>Upside (%)</i>	<i>113%</i>								
<b>Implied P/E (x)</b>	-	-	-	-	<b>23.9</b>	<b>6.5</b>	<b>5.2</b>	<b>4.1</b>	<b>3.3</b>
<b>Implied EV/EBITDA (x)</b>	-	-	-	<b>495.1</b>	<b>14.0</b>	<b>4.6</b>	<b>3.8</b>	<b>3.1</b>	<b>2.5</b>

Assumptions		Debt Security	Effective Rate	Face Value	Weighted Average
Risk free rate	2.6%	Convertible Bonds*	9%	12,000	8.91%
Beta	1.9	Finance Lease	15.10%	115	0.14%
Market return	10.8%	Total		12,115	9.06%
Cost of equity	18.2%	* The company borrowed S\$12mn through a convertible bond agreement with investors on 27 December 2016. These bonds can be converted into ordinary shares at any time between 23 December 2017 and 23 December 2018.			
Cost of debt	9.0%				
Tax rate	17.0%				
D/A	0.3				
<b>WACC</b>	<b>14.5%</b>	Without conversions, the company shall redeem these bonds in cash on 23 December 2018. Should the company require additional debt financing, we believe the cost of debt will be at similar rates.			
<b>Terminal growth rate</b>	<b>0.0%</b>				

Source: KGI Research

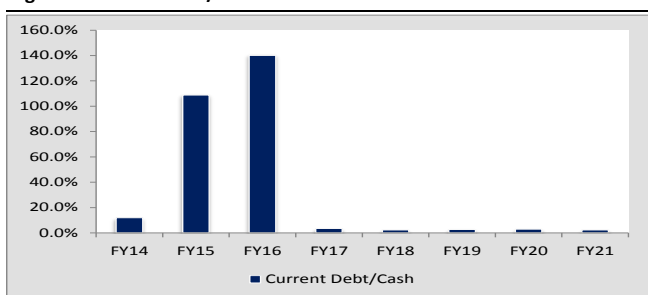
## Operational and financial review

### Stronger balance sheet but risks remain

The company has come a long way from 2015 when their ability to function as a going concern was flagged out as a risk by auditors. Since October 2016, the company has managed to attract new investors to provide financing via share and convertible bond issues, leading to a much stronger balance sheet. As of FY17, current debt/cash has fallen to 3.57% from 140% in FY16. While we expect DISA's current balance sheet to support its cash burn, we remain wary of the \$12mn convertible bond that could mature on 23 December 2018 if there are no conversion to equity. These convertible bonds were issued together with 4 investors on 27 December 2016, allowing them to convert the bonds into the company's ordinary shares at any time between 23 December 2017 and 23 December 2018.

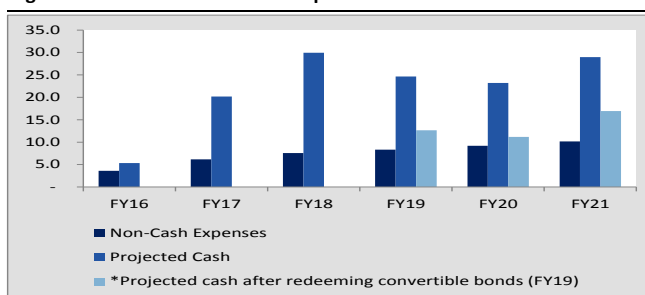
We are of the view that the company might fail to refinance the bond if DISA's technology does not make much progress from 2018 – 2019. In such a scenario, the company could find it hard to sustain its cash burn and going concern risks might surface again.

**Figure 9: Current Debt/Cash trend**



Source: Company Data, KGI Research

**Figure 10: Cash Burn: Non-Cash Expenses Vs Cash Trend**



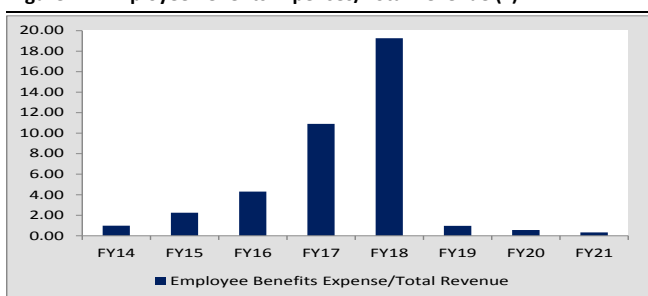
Source: Company Data, KGI Research

### Controlling Employee Expenses

Due to the underperformance of DISA's legacy businesses, employee's expenses have been a huge drag on past earnings. Since 2014, director fees have consistently averaged 28% of employees benefit expenses while salaries and bonuses have fallen from 61% in FY14 to 40% in FY 17. While the company has a culture of awarding shares and stock options to its staff to incentivise performance, we believe this is an area where prudence should be warranted, especially if operating activities remains cash flow negative.

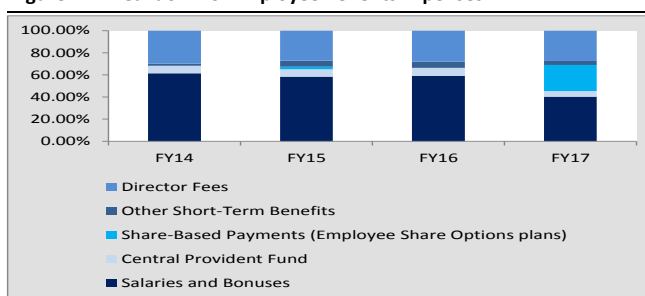
Measured against total revenues, employee benefits expense has grown from 0.98x in 2014 to 11x in 2017, even as the company continued making losses. While we expect another surge in FY18 due to the hiring of executives in the United States to scale its business, we are of the view that a successful roll-out of its anti-theft technology would allow the company to keep its employee expenses under control by FY19.

**Figure 11: Employee Benefits Expenses/Total Revenue (x)**



Source: Company Data, KGI Research

**Figure 12: Breakdown of Employee Benefits Expenses**



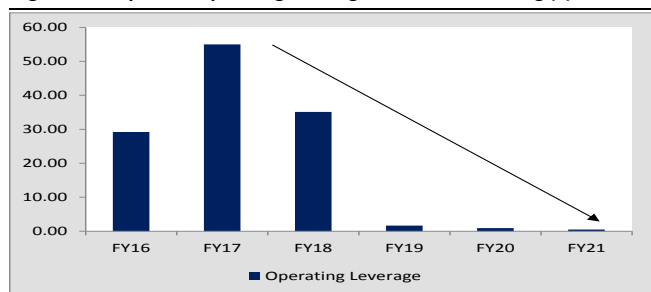
Source: Company Data, KGI Research

### Operating Costs and Legacy Issues

One of biggest contributors to DISA operating leverage has been impairment losses from its legacy businesses. In 2017, the firm took an impairment loss of \$8.5mn with impairment on prepayment for rights of granite and trade receivables adding up to \$5.9mn and \$2.6mn respectively. DISA's legacy business assets have been classified as non-current assets and trade receivables on its balance sheet. With the latest write down, the total amount on trade receivables and non-current assets has dropped to \$905,000 and \$120,000 respectively. At these levels, we expect costs relating to DISA's legacy businesses to have much smaller impacts to its earnings going forward, unless there are new lawsuits in the future.

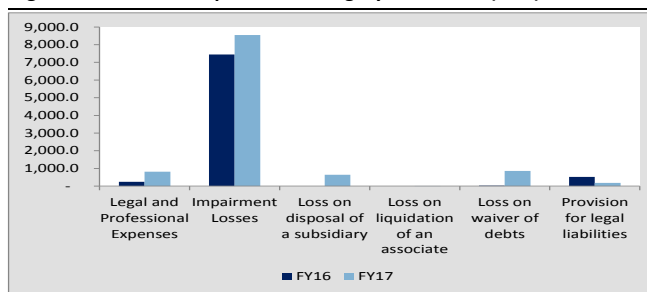
Without any new huge impairment, we are expecting the company's operating leverage to begin improving from FY18 onwards and we forecast operating leverage to improve from 55x in FY17 to 0.5x by FY21. Legal fees however, would continue to be a cost driver due to current enforcement proceedings against KDH.

**Figure 13: Improved Operating Leverage After Restructuring (x)**



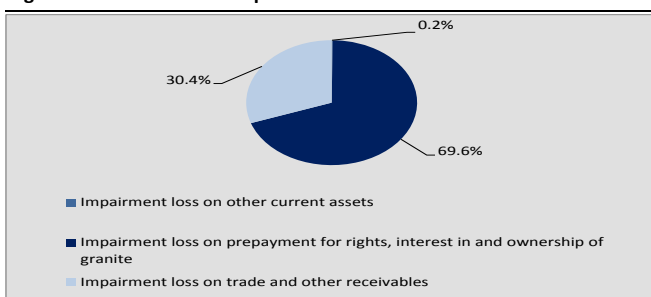
Source: Company Data, KGI Research

**Figure 14: Non-Cash Expenses from legacy businesses ('000)**



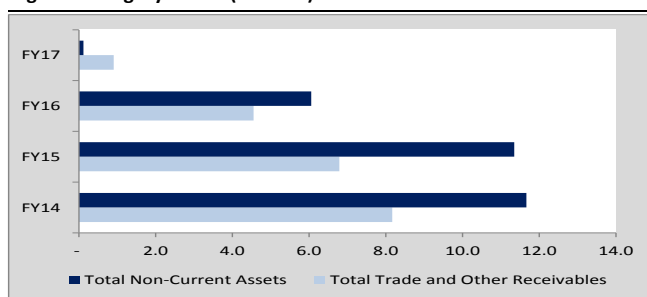
Source: Company Data, KGI Research

**Figure 15: Breakdown of Impairment Losses in FY17**



Source: Company Data, KGI Research

**Figure 16: Legacy Assets (SGD mn)**



Source: Company Data, KGI Research



## Key risks

### Slow User Adoption

Suppliers and retailers might have a slower than expected adoption rate of DISA's technology. A slower adoption would lead to lower revenue which could be detrimental to the company given its current cash burn of \$6mn to \$7mn a year.

### Encryption Breaches

Retailers will have trust in DISA's encryption technology after the company successfully completed penetration tests by BugCrowd and rolled out its solution system across Walmart stores. If hackers manage to break its encryption and allow thieves to use stolen products again, retailers and suppliers might lose confidence and stop using PoSA. Legal costs could also spike in such a scenario.

### Going Concern Risks

The company is currently at an inflection point and must successfully convince retailers and suppliers to adopt their technology as the industry standard. In a scenario where the company is unable to scale convincingly, debt and equity financing solutions could dry up as investors lose confidence.

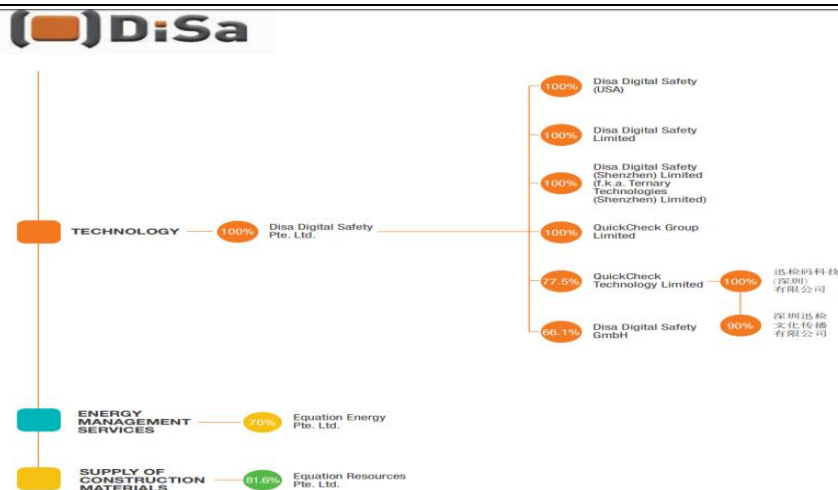
As a technology company, there could also be unexpected costs required to refine and improve its IT infrastructure and all of these could add to the cash burn rate. Like most tech firms at their inflection points, it is critical that the company maintains the trust of investors to finance their cash burn in order to scale up the business.

## Company Overview

### Investment Holding Company

DISA is an investment holding company operating in three core business segments, which includes Technology, Energy Management Services and the Supply of Construction Materials. Since its invention of the world's first anti-theft protection technology, the company has focused most of its resources on its technology business.

Figure 17: Subsidiaries and Business Segments of DISA



Source: Company Data

**Digital Safety (DISA):** Disa's digital asset-protection solution, also known as the Point-of Sale Activation ("PoSA") solution, is the world's first anti-theft protection technology that uses encrypted codes on consumer electronic products to safeguard retailers and manufacturers of consumer electronic products against theft and return fraud. The technology keeps products non-functional until the point of payment by consumers in retail stores.

After making payments, the customers will receive a one-time activation code on their receipts which allows them to unlock their device. PoSA's products are systematically and digitally locked during the manufacturing process (embedded in the firm ware) and require only a single-scan for retailers at the point of purchase. Single-scan solutions are ideal for retailers as there are no additional hardware costs from scanners.

Figure 18: Single Scan Barcode



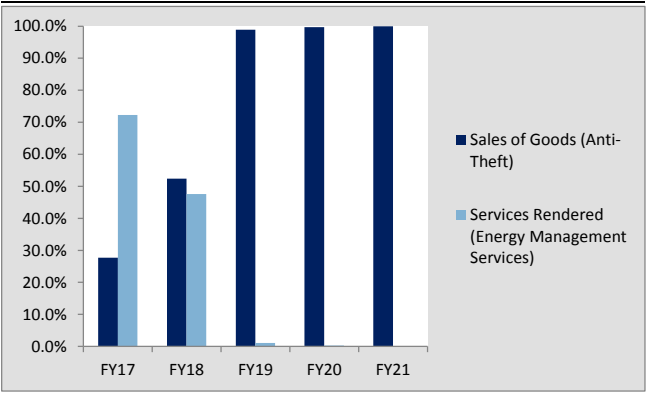
Source: Company Data

With PoSA, retailers can provide open sale of products with a non-assisted self-checkout option for the customer and the technology has already been implemented in over 2,000 consumer electronics retail stores across the United States, including Walmart, which has entered an agreement with DISA to implement the solution in their stores in the United States.

**Energy Management Service (Equation Energy):** Equation energy provides sustainable energy management solutions to the building industry in Singapore and to the region. Core services cover energy auditing and management, design and consultancy, funded solutions in energy performance contracting as well as distribution of niche energy-saving products and equipment to the building industry. While this segment made up 72.3% of DISA’s total revenue in FY17, we expect it to become a minority segment as DISA scales its anti-theft technology in the United States.

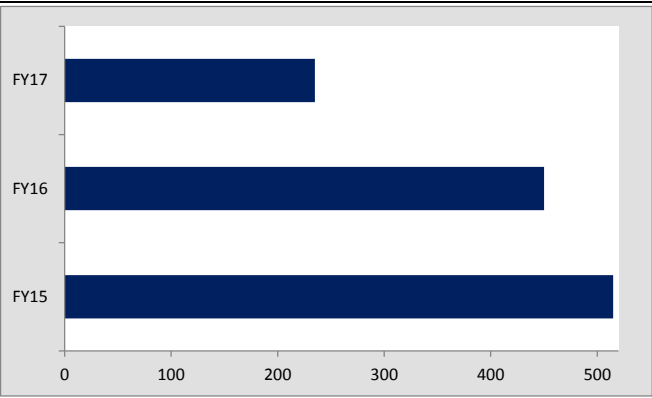
**Supply of Construction Materials (Equation Resources):** Equation Resources has been discontinued during FY14. Previously, the company was in the business of supplying and trading of construction materials including sand, granite and coal. The company paid 100% rights, interest in and ownership of granite to PT Kawasan Dinamika Harmonitama (KDH) with more than 10 million metric tonnes reserve.

**Figure 19: Revenue Breakdown Projections**



Source: Company Data, KGI Research

**Figure 20: Equation Energy Revenue Decline Since FY15 ('000)**



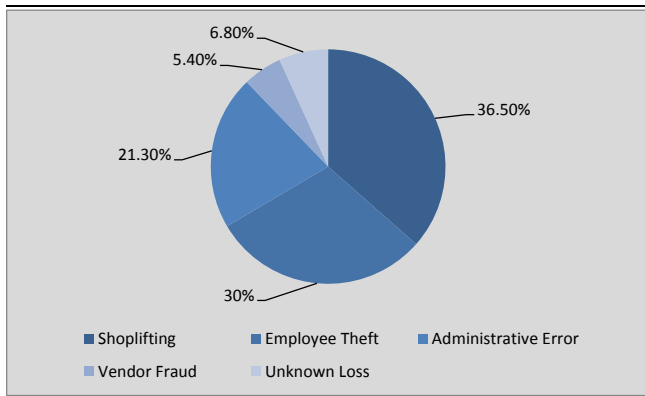
Source: Company Data, KGI Research

## Shrinkage Market

### Rampant Problem in the United States

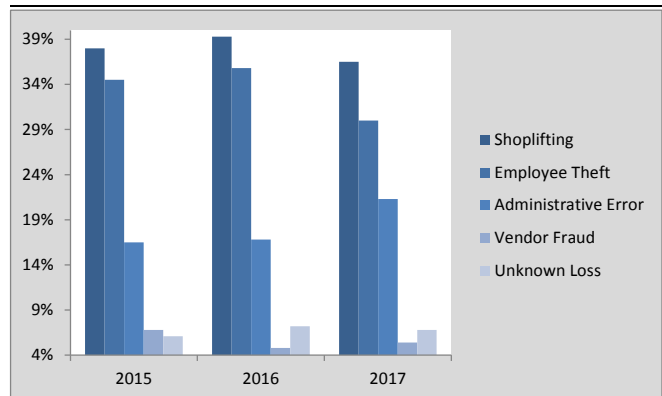
For decades, shrinkage has been a rampant problem for retailers and manufacturers globally. In the United States, an industry survey from the National Retail Federation (NRF) reported an average shrink rate of 1.44%, which cost the overall U.S. retail economy \$48.9 billion in 2016. Additionally, shrinkage was found to be trending higher at a time when two-thirds of loss prevention (LP) budgets are either flat or declining. While there are various sources of shrinkage, the majority comes from shoplifting and employee theft.

Figure 21: Source of Shrinkage



Source: National Retail Federation, KGI Research

Figure 22: Shrinkage Trends

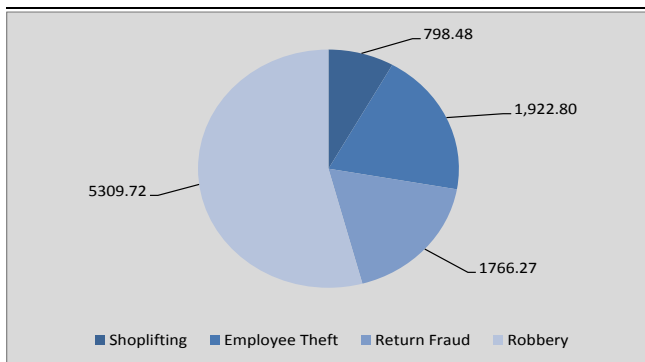


Source: National Retail Federation, KGI Research

Besides inventory losses from employee theft and shoplifting, retailers are also challenged by return fraud due to liberal return policies. According to the NRF, the average costs of return fraud are estimated at \$1,766.27, more than twice the average costs of shoplifting at \$798.48. Compared to robbery, combined average costs of shoplifting, employee theft and return fraud amounted to \$4,487.55, which is 0.85x of a robbery. Therefore while theft and return fraud has less violence involved, the combined costs affects a retailer like a robbery.

Due to shrinking loss prevention methods, mitigating measures such as actions against shoplifters or dishonest employees have dropped significantly. Costlier methods for screening out dishonest employees such as drug screening, driving history and credit checks have also dropped significantly.

Figure 23: Costs of Theft and Return Fraud Vs Robbery



Source: National Retail Federation, KGI Research

Figure 24: Employee Integrity Screening Options Used by Retailers

Screening Option	2017	% Difference from 2016
Multiple interviews	91.0%	2.0 ▲
Criminal conviction checks	85.1%	-4.1 ▼
Verify past employment history	73.1%	11.6 ▲
Personal reference checks	58.2%	-0.3 ▼
Education verification	43.3%	7.9 ▲
Drug screening (laboratory)	40.3%	-15.1 ▼
Driving history	28.4%	-13.1 ▼
Credit checks	26.9%	-6.9 ▼
Computerassisted interview	20.9%	4.0 ▲
Preemployment honesty testing	14.9%	-0.5 ▼
Mutual protection association	9.0%	-3.3 ▼
Handwriting analysis	3.0%	3.0 ▲
Workers' compensation claims	1.5%	-3.1 ▼

Source: National Retail Federation, KGI Research

Challenged by e-commerce platforms, retailers are facing tighter margins but growing shrinkage costs, which means this is a problem they must address in order to improve results. Current loss prevention solutions however, have been inadequate and ineffective in combating shrinkage.

### Loss Prevention Solutions

Since Electronic Article Surveillance (EAS) debuted in the 1990s, the world has not seen much major developments in solutions to mitigate theft and return. Other than EAS, retailers have been using similar but ineffective loss prevention solutions such as spider wraps or installing CCTV and alarms at the store level.

According to the Global Retail Theft Barometer, electronics/appliance/media products specialist retailers spent the maximum amount on loss prevention solutions due to the high value and mass appeal of these products that make them lucrative for thieves. Besides electronics retailers, supermarkets, convenience stores and grocery retailers also reported high spending in loss prevention solutions.

However, even though loss prevention equipment used to protect these products are expensive, they have not been effective in combating shrinkage, as evidenced by growing the exorbitant costs of shrinkages today.

**Figure 25: Global Loss Prevention Solutions at Store Level (2015)**

Solution	% of Respondents Using
CCTV/DVR	76%
Security Guards	61%
Alarm Monitoring	60%
Logistics-related Solutions (GPS, truck seal program, etc.)	44%
Foot Traffic Counters	43%
Door Seals/MAG	43%
POS EBR (exception-based reporting)	40%
Advanced Data Analytics	35%
Parking Lot Protection	31%
Advanced Access Control (key card, biometric technology, etc.)	29%
Motion Detection Alerts	21%
Other Protection Methods	9%
Facial/Customer Recognition Technology	3%

Source: Global Retail Theft Barometer 2015, KGI Research

**Figure 26: Global Loss Prevention Solutions at Product Level (2015)**

Solution	% of Respondents Using
EAS (Electronic Article Surveillance – Labels and Hard Tags/EAS Antennas)	73%
Spider Wraps and Security Keepers	44%
Advanced Inventory Control Tactics (secure cable devices, etc.)	27%
RFID-based EAS	15%
Shelving Solutions and Delayed Fixtures	27%
EAS Pedestal Analytic Data Tools	11%

Source: Global Retail Theft Barometer, KGI Research

For the loss prevention solutions market, DISA has introduced a software solution which can be a potential game changer as it not only allows retailers and suppliers to open sell their high-value products, it also reduces security infrastructure costs for both suppliers and retailers. For consumers, PoSA can be used as a time-saving solution at POS/self-checkouts due to its single scan solution, which has no need for a security fixture removal.

## Financials

FYE 30 June

INCOME STATEMENT (SGD mn)	2017A	2018F	2019F	2020F	2021F
Net revenue	0.3	0.3	5.9	11.6	23.2
Cost of services	(0.2)	(0.2)	(0.1)	(1.2)	(2.2)
<b>Gross profit</b>	<b>0.1</b>	<b>0.0</b>	<b>5.8</b>	<b>10.5</b>	<b>21.0</b>
Depreciation and Amortisation Expenses	(1.5)	(1.5)	(1.5)	(1.5)	(1.5)
Employee Benefits Expenses	(3.5)	(5.0)	(5.7)	(6.6)	(7.5)
Legal and Professional Expenses	(0.8)	(0.8)	(0.8)	(0.8)	(0.8)
Operating lease expense	(0.4)	(0.4)	(0.4)	(0.4)	(0.4)
Other Expenses	(1.4)	(1.4)	(1.4)	(1.4)	(1.4)
<b>Operating Profit/Loss</b>	<b>(17.2)</b>	<b>(8.9)</b>	<b>(5.1)</b>	<b>(1.2)</b>	<b>7.4</b>
Finance Costs	(0.8)	(0.8)	(0.8)	(0.8)	(0.8)
<b>Pre-tax profit (PBT)</b>	<b>(18.0)</b>	<b>(9.7)</b>	<b>(5.8)</b>	<b>(2.0)</b>	<b>6.6</b>
Income tax benefit/(expenses)	0.2	0.0	0.0	0.0	(1.1)
<b>Net income</b>	<b>(17.7)</b>	<b>(9.7)</b>	<b>(5.8)</b>	<b>(2.0)</b>	<b>5.5</b>
Minority interest	(1.6)	0.0	0.0	0.0	0.0
BALANCE SHEET (SGD mn)	2017A	2018F	2019F	2020F	2021F
Cash and cash equivalents	20.2	29.7	24.2	22.5	28.3
Trade and other receivables	0.8	0.8	0.8	0.8	0.8
Other current assets	0.9	0.9	0.9	0.9	0.9
Financial assets, available-for-sale	2.2	2.2	2.2	2.2	2.2
<b>Total current assets</b>	<b>24.2</b>	<b>33.7</b>	<b>28.2</b>	<b>26.9</b>	<b>33.5</b>
Net Property, Plant & Equipment	0.5	0.7	1.0	1.3	1.6
Trade and other receivables	0.1	0.1	0.1	0.1	0.1
Other non-current assets	0.1	0.1	0.1	0.1	0.1
<b>Total assets</b>	<b>36.8</b>	<b>45.2</b>	<b>38.5</b>	<b>36.2</b>	<b>41.7</b>
Trade and other payables	2.2	2.2	2.2	2.2	2.2
Accruals	1.2	1.2	1.2	1.2	1.2
Provisions and other liabilities	0.7	0.7	0.7	0.7	0.7
<b>Total current liabilities</b>	<b>4.1</b>	<b>4.1</b>	<b>4.1</b>	<b>4.1</b>	<b>4.1</b>
Deferred Tax Liabilities	2.0	2.0	2.0	2.0	2.0
Financial Liabilities	12.0	12.0	12.0	12.0	12.0
<b>Total liabilities</b>	<b>18.2</b>	<b>19.3</b>	<b>18.5</b>	<b>18.2</b>	<b>18.2</b>
Shareholder's Equity	28.6	35.9	30.0	28.1	33.5
<b>Total liabilities and equity</b>	<b>36.8</b>	<b>45.2</b>	<b>38.5</b>	<b>36.2</b>	<b>41.7</b>
CASH FLOW STATEMENT (SGD mn)	2017A	2018F	2019F	2020F	2021F
<b>Net income</b>	<b>(18.0)</b>	<b>(9.7)</b>	<b>(5.8)</b>	<b>(2.0)</b>	<b>5.5</b>
Depreciation & amortisation	1.5	1.5	1.5	1.5	1.5
Other non-cash adjustments	11.6	0.6	0.6	0.6	0.6
Changes in working capital	0.0	0.0	0.0	0.0	0.0
<b>Cash flows from operating activities</b>	<b>(5.1)</b>	<b>(7.6)</b>	<b>(3.7)</b>	<b>0.1</b>	<b>7.6</b>
Capital expenditure	(0.4)	(0.3)	(0.3)	(0.3)	(0.3)
<b>Cash flows from investing activities</b>	<b>(0.1)</b>	<b>(0.1)</b>	<b>(0.1)</b>	<b>(0.1)</b>	<b>(0.1)</b>
Net proceeds from issuance of ordinary shares	10.8	0.0	0.0	0.0	0.0
Proceeds from convertible bonds	12.0	0.0	0.0	0.0	0.0
Proceeds from exercise of warrants	6.5	19.0	0.0	0.0	0.0
Repayment of convertible loan	(7.0)	0.0	0.0	0.0	0.0
<b>Cash flows from financing activities</b>	<b>20.0</b>	<b>17.3</b>	<b>(1.7)</b>	<b>(1.7)</b>	<b>(1.7)</b>
<b>Net increase/(decrease) in cash and cash equivalents</b>	<b>14.8</b>	<b>9.6</b>	<b>(5.5)</b>	<b>(1.7)</b>	<b>5.8</b>
FX Effects, Others	(0.0)	0.0	0.0	0.0	0.0
<b>Beginning Cash</b>	<b>5.3</b>	<b>20.1</b>	<b>29.7</b>	<b>24.2</b>	<b>22.5</b>
<b>Ending Cash</b>	<b>20.1</b>	<b>29.7</b>	<b>24.2</b>	<b>22.5</b>	<b>28.3</b>
KEY RATIOS	2017A	2018F	2019F	2020F	2021F
EPS (SGD cents)	(0.26)	(0.16)	(0.09)	(0.03)	0.1
P/E (x)	-	-	-	-	11.2
P/B (x)	2.2	1.7	2.0	2.2	1.8
P/S (x)	189.4	238.8	10.4	5.3	2.7
<b>Growth (%)</b>					
Revenue growth	-	-	2,194.8	96.8	99.2
Net Income growth	-	-	-	-	-
EPS growth	-	-	-	-	-
<b>Profitability (%)</b>					
Gross margin	34.8	55.0	80.0	81.0	82.0
Operating margin	-	-	-	-	31.8
Net Margin	-	-	-	-	23.7
ROE	-	-	-	-	17.8

Source: Bloomberg, KGI Research

## Appendix

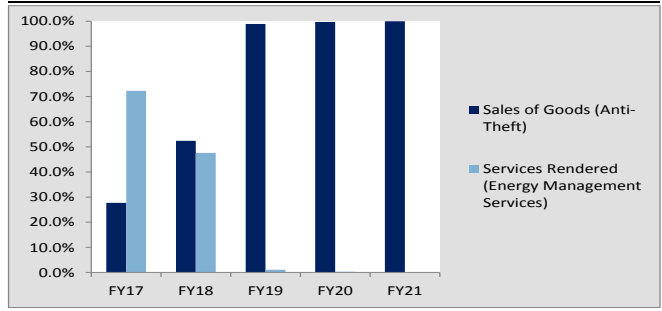
Key Management	
<b>Chng Weng Wah</b> Managing Director, Chief Executive Officer	<ul style="list-style-type: none"> <li>Mr. Chng joined DISA Limited in February 2005 as the Group's Executive Director and Chief Executive Officer. He steers the Group towards its vision and strategic direction. Mr. Chng has a diverse background of versatile experience in various industries which cover the fields of product development, innovation; and marketing and sales. He received the Asia Europe Young Entrepreneurs Award at the Berlin Asia Europe Young Entrepreneurs Forum in 1999. Mr. Chng also sits on the Board of LifeBrandz Limited as its Non-Executive Director.</li> </ul>
<b>Low Chuan Jee</b> Chief Financial Officer	<ul style="list-style-type: none"> <li>Ms. Low is responsible for the finance, compliance and reporting functions of the Group. Her post-graduation experience in various capacities includes audit, financial accounting and she has worked in various public-listed companies. She holds a Bachelor of Accountancy from Nanyang Technological University, Singapore and is a Chartered Accountant ("CA Singapore") of the Institute of Singapore Chartered Accountants ("ISCA").</li> </ul>
<b>Wong Ah Kiow</b> Financial Controller	<ul style="list-style-type: none"> <li>Ms. Wong was appointed in August 2010. She is a CA Singapore with ISCA. She is also a fellow member of Association of Chartered Certified Accountants and a member of Malaysian Institute of Accountants. She has many years of working experience in the manufacturing industry, both local companies listed in Malaysia and multinational company listed in Singapore. Prior to this, she was an external auditor. Her main responsibilities include overseeing the entire DDSPL group finance team, management reporting function as well as strategic financial planning and compliance related matters</li> </ul>
<b>Ng Kay Choong</b> Senior Vice President, Global Solution of DDSPL	<ul style="list-style-type: none"> <li>Mr. Ng joined DDSPL in March 2017. He is responsible for the integration of the DiSa solution into retail products. He has over 20 years of factory experience with different major production organizations. He holds a Bachelor of Engineering from Nanyang Technological University, Singapore.</li> </ul>
<b>Pham Hoang Bao</b> Head of Global Information Technology of DDSPL	<ul style="list-style-type: none"> <li>Mr. Pham joined DDSPL in December 2016. He is responsible for the planning, implementation and operation of information technology. He was the Lead Solution Architect in CIMB Securities from 2011 to 2016. He holds a Master in Communication Software and Network and a Bachelor of Computer Engineering from Nanyang Technological University, Singapore</li> </ul>
<b>Adam Hartway</b> Chief Executive Officer, Disa Digital Safety, USA	<ul style="list-style-type: none"> <li>Mr. Hartway joined the Group in July, 2009 and is currently the Chief Executive Officer of DiSa USA. He has been engaged in the retail industry for more than 30 years. He held positions in retail sales, store management, purchasing, vendor engagement, channel sales, director of sales and channel solution-based implementation of new technology &amp; process. Mr. Hartway was awarded the 2013 Loss Prevention Research Council Award for individual leadership and technology implementation.</li> </ul>
<b>Christopher Roberts</b> Specialist in PoSA Engagement of Disa USA	<ul style="list-style-type: none"> <li>With direct hands on experience implementing the PoSA solution at a major United States ("US") retailer, Mr. Roberts will work closely with other US retailers to successfully guide them on their PoSA implementation.</li> </ul>
<b>Han Yang Kwang</b> Chief Executive Officer, Disa Digital Safety, Shenzhen	<ul style="list-style-type: none"> <li>Mr. Han has been engaged in the manufacturing industry for more than 15 years. He started his career with Hewlett Packard and Texas Instruments. Mr. Han holds a Bachelor of Electrical and Electronics Engineering from National University of Singapore.</li> </ul>

**Figure 27: Company profile**

DISA, formerly known as Equation Summit Limited, is an investment holding company listed on the SGX Catalist since 1992. Since 2006, the Group has actively reviewed its businesses to focus on high-value services with long term potential while divesting non-core segments to complement its growth. Today, through its subsidiaries, the Group operates in three core business segments, which includes Technology, Energy Management Services and the Supply of Construction Materials. The Group has offices in Singapore, Germany, China and the United States.

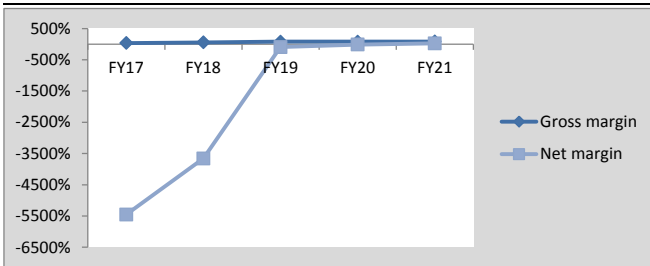
Source: Company

**Figure 28: Current and Projected Sales Mix**



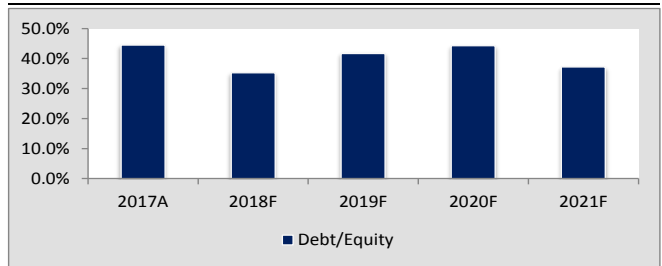
Source: Company Data, KGI Research

**Figure 29: Current and Projected Gross Profit and Net Margins**



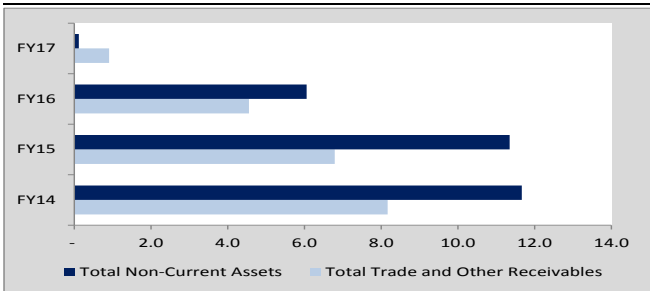
Source: Company Data, KGI Research

**Figure 30: Current and Projected Debt to Equity Ratio**



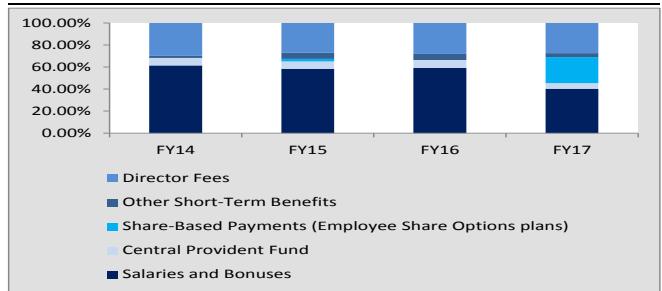
Source: Company Data, KGI Research

**Figure 31: Legacy Business Assets (SGD mn)**



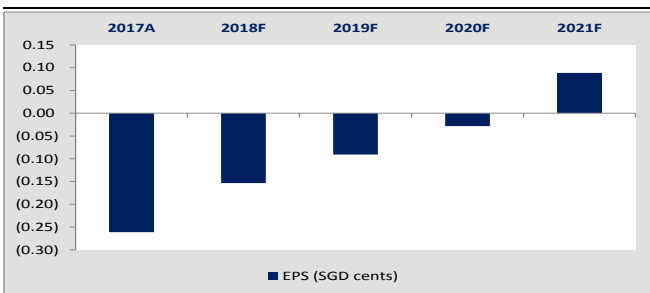
Source: Company Data, KGI Research

**Figure 32: Breakdown of Employee Benefits Expense**



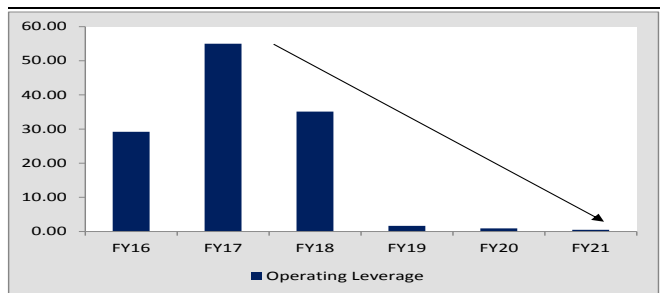
Source: Company Data, KGI Research

**Figure 33: Current and Projected Earnings Growth**



Source: Bloomberg, KGI Research

**Figure 34: Current and Projected Operating Leverage (x)**



Source: Bloomberg, KGI Research



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Rating	Definition
	KGI Securities Research's recommendations are based on an Absolute Return rating system.
<b>BUY</b>	>10% total return over the next 12 months
<b>HOLD</b>	-10% to +10% total return over the next 12 months
<b>SELL</b>	<-10% total return over the next 12 months

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