

25 April 2014

Sarine Technologies Ltd

Triple Excellent Grade

SINGAPORE | CAPITAL GOODS | INITIATION



Rating: **Accumulate**

Sarine Technologies Ltd is listed on the SGX Mainboard with a market capitalization of **S\$994m**. It is a technology-based company that has become the worldwide leader in the development and manufacturing of advanced evaluation, planning, cutting, shaping, polishing and grading systems for diamond and gemstone production.

Investment Merits

A near monopolistic position in diamond planning and manufacturing equipment with superior proprietary technology

Sarine has a near **monopolistic position** on the rough diamond planning and manufacturing equipment market where it estimates that it currently holds about **75% market share**. It is dominating in its space in the middle segment of the diamond value chain, with its **revolutionary Galaxy systems** for automated rough diamond inclusion mapping, planning systems, cutting and shaping, polishing, cut grading to laser-marking and inscription systems. Now, with its **2 other potentially game-changing products** designed for the polished diamond market, the 2 "L"s, **Sarine Loupe** and **Sarine Light**, it is ready to swim into the **Blue Ocean**.

Higher installed base of Galaxy family of equipment driving recurring income growth

The Galaxy family of equipment has been the **game changer** not only for the diamond manufacturing industry but also the **business model of Sarine**, having transformed Sarine's proposition to its customers from not just being a capex provider but being part of their opex as well. **Recurring revenues** have reached over **30%** of total revenue in FY13 and we project for this be **~50% of revenue by 2016**. This will consequentially lift their overall **gross profit margins to ~75% by 2016**.

Tremendous further growth potential in bull case of breaking into new segment of the diamond value chain

Sarine has recently introduced **2 new products**, the 2 "L"s, **Loupe and Light**, which is targeted for the downstream segment of the diamond value chain, the polished diamond sector. We believe that in our **bull case** where ~3.5m stones pass through these 2 products, **it holds a TP with more than 40% upside**.

Investment Action

We are positive on Sarine for its 1) unique technological advantage 2) monopolistic position 3) superior margins 4) debt free net cash balance sheet and 5) potential growth story. We initiate coverage on Sarine with an "Accumulate" rating based on our DCF valuation (WACC: 10.3%) with a TP of S3.20.

Key Financial Summary

FYE Dec	FY11	FY12	FY13	FY14F	FY15F
Revenue (USD mn)	58	64	76	90	105
NPAT, adj. (USD mn)	17	21	24	30	36
EPS, adj. (USD)	0.06	0.06	0.07	0.09	0.10
P/E (X),adj.	9.1	13.3	21.1	26.5	22.0
BVPS (USD)	0.18	0.17	0.19	0.24	0.30
P/B (X)	3.3	4.9	7.5	9.5	7.5
DPS (USD)	0.03	0.05	0.06	0.04	0.04
Div. Yield (%)	3.5%	3.5%	2.7%	1.4%	1.4%

Source: Bloomberg, PSR est.

*Forward multiples and yields aer based on current price and historical multiples and yields are based on historical prices

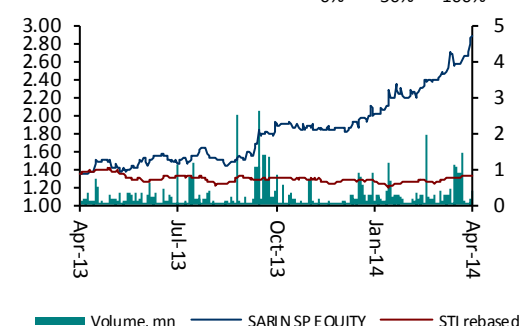
Target Price (SGD) 3.20
Forecast Dividend (SGD) 0.05
Closing Price (SGD) 2.87
Potential Upside 13.1%

Company Description

Sarine Technologies Ltd. Develops, manufactures, and sells planning, evaluation, and measurement systems for diamond grading and gemstone production. The Company's products include diamond cut grading tools, rough diamond optimization systems, gemology tools, diamond color grading, and laser marking machines.

Company Data

Raw Beta (Past 2yrs weekly data) 0.70
 Market Cap. (USD mn / SGD mn) 791 / 994
 3M Average Daily T/O (mn) 0.3
 Closing Px in 52 week range 1.36 2.92



Major Shareholders

	(%)
1. Sarin Research & Develop	33.49
2. Interhightech 1982 Ltd	15.03
3. FIL Limited	6.73

Valuation Method

Discounted cash flow (DCF)

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Company Background

Business Overview

Sarine is a technology-based company that has become the worldwide leader in the development and manufacturing of advanced evaluation, planning, cutting, shaping, polishing and grading systems for diamond and gemstone production.

Sarine’s products include:

- inclusion mapping systems
- rough diamond planning systems
- laser cutting and shaping system
- geometrical assessment systems for Cut grading
- cost-effective laser-marking and inscription machines
- Light Performance grading system
- virtual loupe imaging system

Their products provide smart solutions for every stage and aspect of diamond design and manufacturing. They **help increase the profit margins at all stages of the trade** between the purchase price of rough stones and the price of polished diamonds. Sarine products have become an essential tool in every properly equipped gem lab, diamond appraisal business and manufacturing plant, and today are considered essential for both diamond dealers and retailers. Sarine’s customers spread across the full value chain of the diamond industry, from manufacturers to gemological laboratories and retailers, but the bulk of which is focused on manufacturers for now.

Listing

Sarine was incorporated in Israel in 1988 and listing on SGX Mainboard on 8 April 2005. It is currently headquartered in Israel.

Figure 1: Company Logo



Source: Company

Figure 2: Business Outline



Source: Company

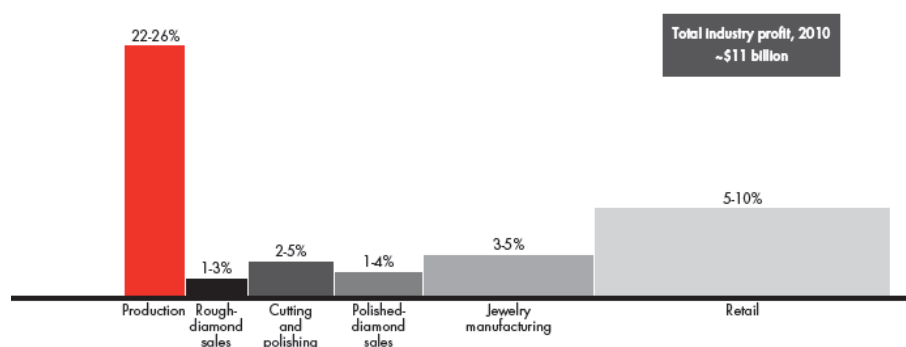
Investment merits

A monopolistic position in diamond planning and manufacturing equipment with superior proprietary technology

Sarine has a **monopolistic position** on the rough diamond planning and manufacturing equipment market where it estimates that it currently holds about **75% market share**. It is dominating in its space in the middle segment of the diamond value chain, with its **revolutionary Galaxy systems** for automated rough diamond inclusion mapping, planning systems, cutting and shaping, polishing, cut grading to laser-marking and inscription systems. Now, with its **2 other potentially game-changing products designed for the polished diamond market**, the 2 "L"s, Sarine Loupe and Sarine Light, it is ready to swim into the **Blue Ocean**.

In Sarine's 20 odd years of history, its suite of products and technology have been revolutionizing the diamond manufacturing process. It takes the human factor out of the process and allows manufacturers to squeeze the best yield out of a rough diamond and maximize its value. This is what makes Sarine's proposition so unique and valuable to its customers.

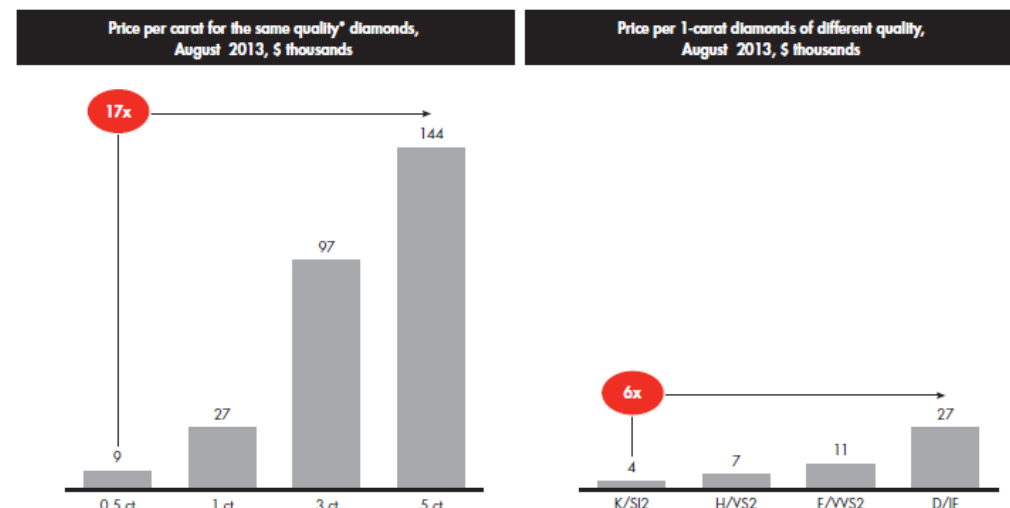
Figure 3: Operating margins across the diamond value chain



Source: Bain and Company, IDEX; Tacy Ltd. and Chaim Even-Zohar; Diamond Value Chain 2010

In the middle segment of the diamond value chain sits the diamond manufacturers which form the bulk of Sarine's customer base. **These manufacturers generate very low single-digit margins**. Sarine's products which help **improve the yield** from a rough diamond are critical as these **can potentially help boost the operating margins of their customers**. The value of polished diamonds **increases exponentially** with the increase in carat size and also the quality of the diamond. However, production waste plays a big role in the increase of the value. According to Bain and Company, to produce 1 carat worth of diamonds for jewelry, 5 carats of rough diamonds need to be mined, 2.3 carats are not of gem quality and 1.7 carats are lost in production. Therefore to reiterate, Sarine's products are crucial in maximizing the yield from a rough diamond for its customers, through both achieving less wastage in size and a diamond with higher quality (less inclusions).

Figure 4: Dramatic increase in diamond value from size and quality

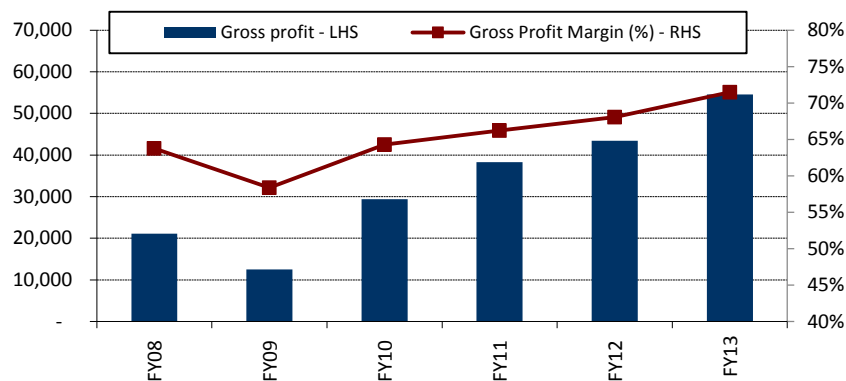


Source: Bain and Company, Antwerp World Diamond Centre

Higher installed base of Galaxy family of equipment driving recurring income growth

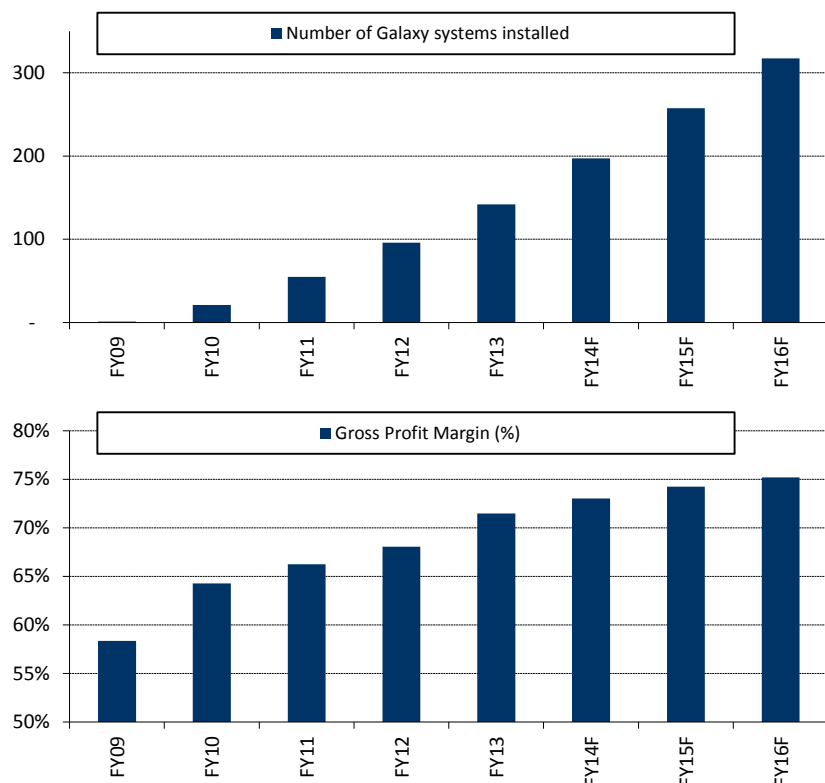
The Galaxy family of equipment, being the Galaxy and Solaris, has been the **game changer** not only for the diamond manufacturing industry but also the **business model of Sarine**. This class of products commercialized in late 2009, has transformed Sarine's proposition to its customers from being a "**capex**" perspective to an "**opex**" perspective. In the past, Sarine's equipment sales used to be a one-off capex for its customers. During the great financial crisis, demand for diamonds was also adversely affected. Diamond manufacturers cut down their capex spending accordingly which impacted Sarine's equipment sales. With the successful commercializing of the Galaxy family, this has allowed **Sarine's business model to evolve into one with recurring streams of revenue which greatly boosted its revenue growth and gross profit margins**.

Figure 5: Gross Profit and margins climbing after FY09



The Galaxy/Solaris systems are sold with low front-loading cost to its customers and the customers are charged per scan of a diamond. We estimate that the upfront equipment sales for the Galaxy and Solaris are US\$200k and US\$150k respectively, with each machine being able to generate S\$250k and US\$70k per annum of recurring revenue. Recurring revenue have reached over 30% of total revenue by FY13 and we project for this to be ~50% of revenue by 2016. This will consequentially lift their overall gross profit margins to ~75% by 2016.

Figure 6: Number of Galaxy systems to continue growing and driving up margins



Source: Company data, PSR estimates

Currently, we estimate the potential maximum market penetration for Galaxy/Solaris to be 75%-80%, the saturation point being ~300 Galaxy machines and ~600 Solaris machines for Sarine. Based on our estimates, even in the next 5 years with a sustained momentum, the number of installed machines for Galaxy and Solaris will only be about 67% and 41% of the saturation point, indicating that even with our projected growth rate, there is still comfortable space for further expansion assuming the maximum market penetration assumption holds true. We believe this assumption is reasonable given the lack of meaningful competition in the market currently for this technology.

Figure 7: Sarine's competitors

Diamond Planning & Grading Products	Laser Sawing & Cutting Products
<p>OctoNus (Russia) High-end rough and polish equipment; teamed with Lexus in India</p> <p>Lexus (India) Low-end (primarily for quality control) & price-driven products</p> <p>Sahajanand Technologies (India) Former Sarin distributor in India – marketing own equipment</p> <p>Sahajanand Laser Technology (India) Low-end equipment</p> <p>OGI Systems (Israel) Price player with international presence</p>	<p>Bettonville (Belgium) Veteran high-end laser manufacturer</p> <p>Laxmi (India) Low-cost/low-end green laser without cutting/shaping capabilities</p> <p>S.O.S. (India) Mainstream infra-red (IR) laser supplier</p> <p>Sahajanand Technologies (India) Low-end/low-cost IR laser; wide presence</p> <p>Sahajanand Laser Technology (India) Low-end/low-cost IR laser; wide presence</p> <p>OGI Systems (Israel) Some market presence with a laser</p>
<p>Combined market share of competitors for diamond planning & grading products is still smaller than Sarin's (~75%)</p>	

Source: Company data

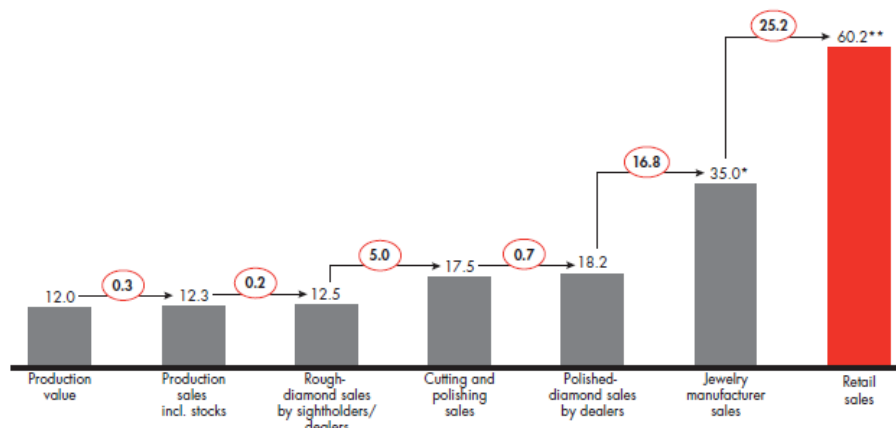
Sarine currently has 2 potential competitors for the automated inclusion mapping technology, one being OctoNus from Russia and an Indian competitor. However, these are still at the infancy stage with no signs of commercialization yet. As Sarine's products are increasingly rolled out into the market, this further entrenches them for a monopolistic hold over the automated inclusion mapping market.

Tremendous potential growth phase in bull case of breaking into new segment of the diamond value chain

Sarine has recently introduced **2 new products**, the 2 “L”s, Loupe and Light, which is targeted for the downstream segment of the diamond value chain, the **polished diamond sector**. This segment has **much higher potential than the middle segment** as the **highest amount of value per diamond is unlocked in the jewelry manufacturing and retail space**. We elaborate more on this segment in our understanding of the diamond industry in the later part of the report.

Figure 8: From the heart of the earth to the glittering stone on the finger

2010 revenue, \$ billions



Source: Bain and Company, IDEX; Tacy Ltd. and Chaim Even-Zohar; Diamond Value Chain 2010

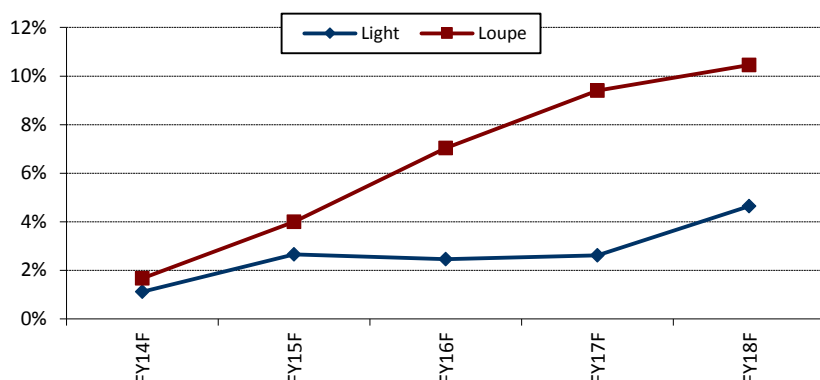
There is tremendous amount of potential for further growth if the implementation is successful. Why so?

Sarine Light is a piece of technology that helps measure the light performance of a diamond. Each year, about 7 million polished diamonds are sent to gemological labs to be certified for the well-known 4Cs, being Carat, Colour, Clarity and Cut. The light performance measurement takes it one step further by grading the brilliance, fire, scintillation or sparkle and light symmetry of the diamond. Sarine has already commercialized this product in Japan with CIMA, a leading listed Japanese diamond and jewelry retailer. Marketing is underway for Hong Kong and US. We believe that this product will gain traction in Asia due to the consumer preference for more “sparkly” premium diamonds as compared to size (carat) for the US market. The certification cost is also minimal, which is estimated to be about US\$20 per measurement, but coupled with the volume of stones, the potential high margin revenue is astounding.

Sarine Loupe is the 3D imaging of polished diamonds for business to business (B2B) usage: between diamond manufacturers and traders. Therefore, we anticipate faster growth in this product line as Sarine has a critical mass of existing customers that they can immediately tap on. This product aims to help the users inspect a polished diamond without having to travel to a diamond exchange or trade fair to view it physically. We estimate the amount per image to about US\$15.

We believe the **next 1 to 1.5 years will prove to be an exciting period for Sarine** as it will prove whether these 2 products will help transform Sarine to the next level, just like how its Galaxy family has proven over the last 3 years. We have forecasted conservatively for Loupe and Light to contribute 2% and 1% respectively to total revenue for FY14, and 10% and 5% in 5 years’ time.

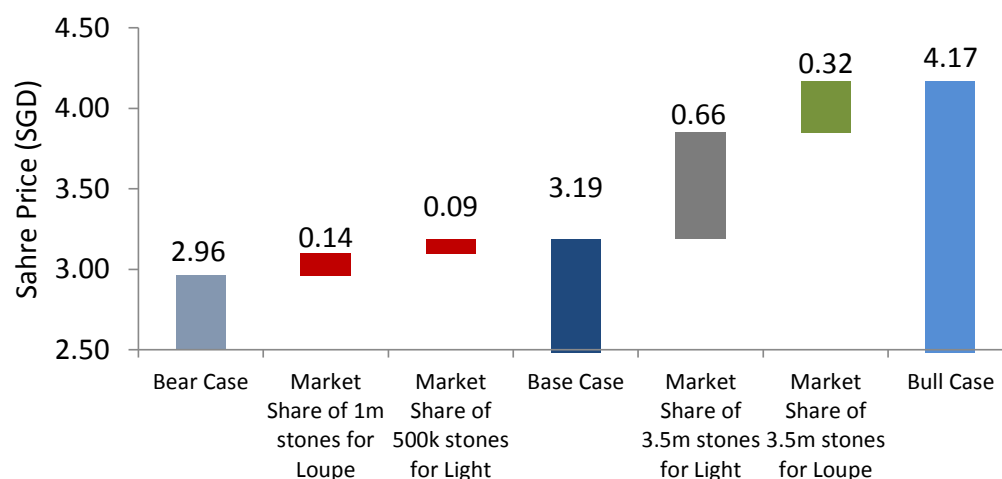
Figure 9: Sarine Loupe and Sarine Light as % of total revenue



Source: PSR estimates

Based on our scenario analysis, we believe Sarine has the **potential to have a target price of more than S\$4 per share in our bull case** where ~3.5million stones pass through Loupe and Light annually. **This implies a more than 40% upside!** This is not unattainable, considering Sarine's customer base in the diamond manufacturing space and their existing relationships with gemological labs. Therefore, the **success of Loupe and Light will be the key re-rating catalyst going forward.**

Figure 10: Scenario analysis



Source: PSR

Solid net cash balance sheet with strong FCF generation

Sarine has always been in a **net cash position for their balance sheet with zero borrowings**. They also have good free cash flow generation with a growing EBITDA, signaling a good potential for increasing shareholder returns. They currently have a dividend policy of US\$0.02 per share every six months.

Diamond industry is long-term attractive!

Global demand for diamonds driven by key growth areas such as China and India is expected to outstrip the supply of rough diamonds going forward with the dwindling production volumes from existing mines. This implies higher prices at each segment of the diamond value chain with the imbalance of demand and supply, setting a positive long-term outlook for the diamond industry. We elaborate more on the diamond industry in the next part of our report.

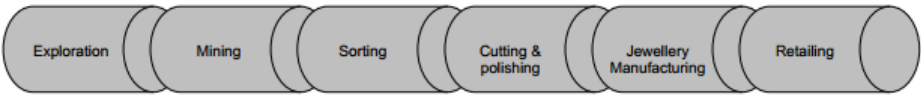
Understanding the diamond industry

Diamond value chain

The diamond industry can be viewed as 3 main segments:

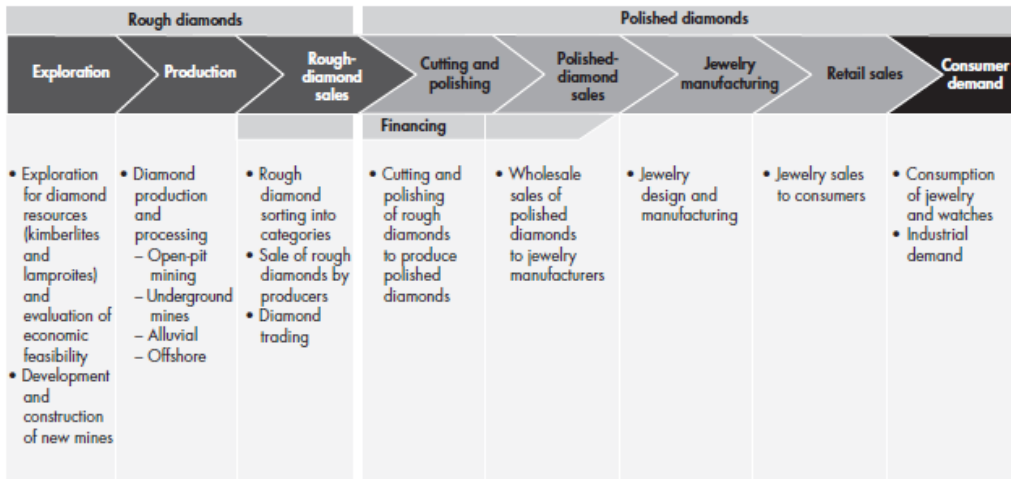
- 1) **Upstream** for exploration and production of rough diamonds
- 2) **Midstream** for cutting and polishing to produce polished diamonds
- 3) **Downstream** for manufacturing and retailing of jewelry

Figure 11: Diamond Value Chain



Source: World Diamond Council

Figure 12: From the heart of the earth to the glittering stone on the finger



Source: Bain and Company

In terms of quantity, only about 30% of diamonds are of gem quality and end up for cutting, polishing and jewelry manufacturing. The remaining 70% of diamonds end up for use in industrial applications including cutting, drilling, grinding and polishing, laser components or components in microchips and computer processors. Yet in terms of value, diamonds for jewelry account for more than 95% of the total value. Global diamond jewelry sales are currently worth more than US\$72b a year, and have increased 3-fold in the past 25 years and continue to grow.

Figure 13: Diamond Industry components



Source: Company

Where does the value lie?

The highest profits along the diamond value chain are reaped at both ends of the line. At the exploration and production stage (upstream), the market is dominated and controlled by the well-known names of De Beers, ALROSA, Rio Tinto, BHP Billiton, which together produce more than 60% of diamond volumes. About 65% of rough diamonds are produced from Africa every year. The middle market where diamonds are cut and polished is the most fragmented market where there are many thousands of small players, with India accounting for more than 80% of all stones. The jewelry manufacturing and retail sales is also a highly fragmented market but the highest proportion of revenue and highest margins is generated at this tail of the value chain.

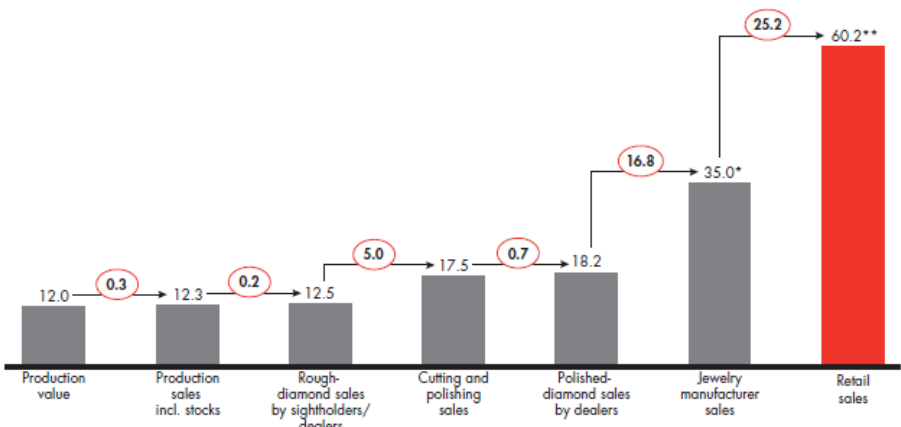
Figure 14: Value of each segment in the value chain



Source: Company

Figure 15: From the heart of the earth to the glittering stone on the finger

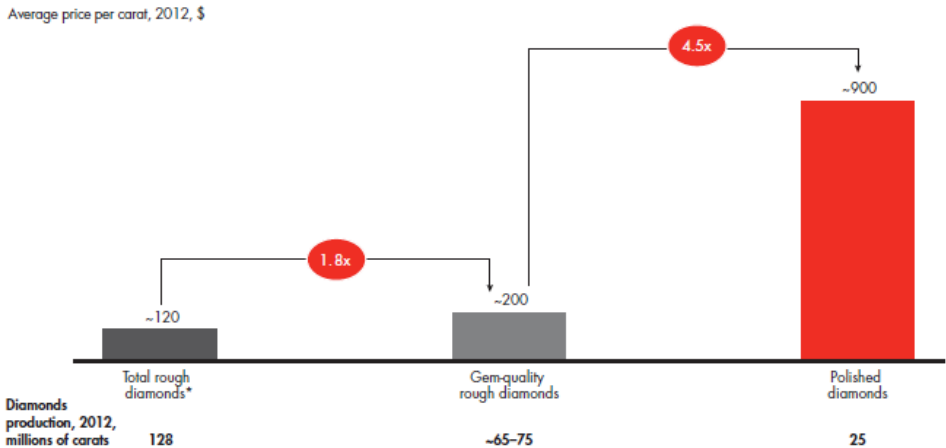
2010 revenue, \$ billions



Source: Bain and Company, IDEX; Tacy Ltd. and Chaim Even-Zohar; Diamond Value Chain 2010

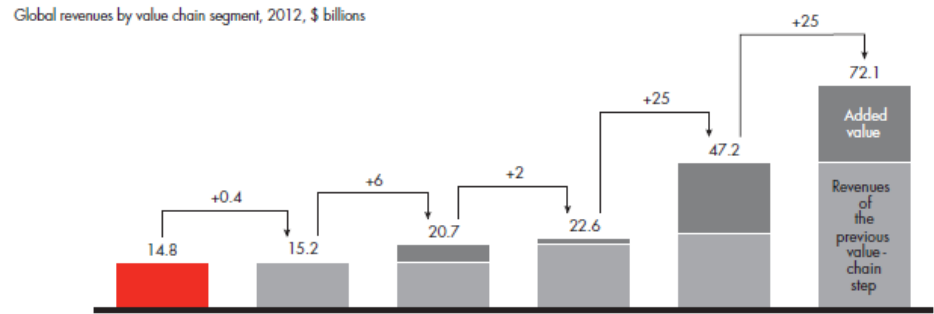
The 3 stages of the supply chain are extremely value enhancing as price per carat can increase up to 8X from the mining to retail end.

Figure 16: Price of Diamonds increase exponentially as they move down the value chain



Source: Bain and Company, Kimberley Process; USGS; IDEX; Tacy Ltd. and Chaim Even-Zohar

Figure 17: Most amount of value added at the end of the value chain



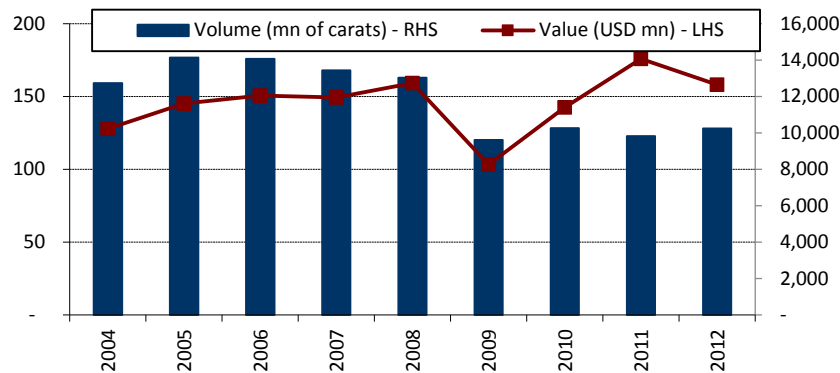
Source: Bain and Company, IDEX, Tacy Ltd. and Chaim Even-Zohar

In the earlier part of our report, we mentioned that the polished diamond segment has much higher potential than the middle segment because the highest amount of value per diamond is unlocked in the jewelry manufacturing and retail space. This is where the Sarine Loupe and Sarine Light can tap into to provide the next leg of growth for Sarine as they already have a firm footing in the middle segment of diamond manufacturers.

Diamond market outlook

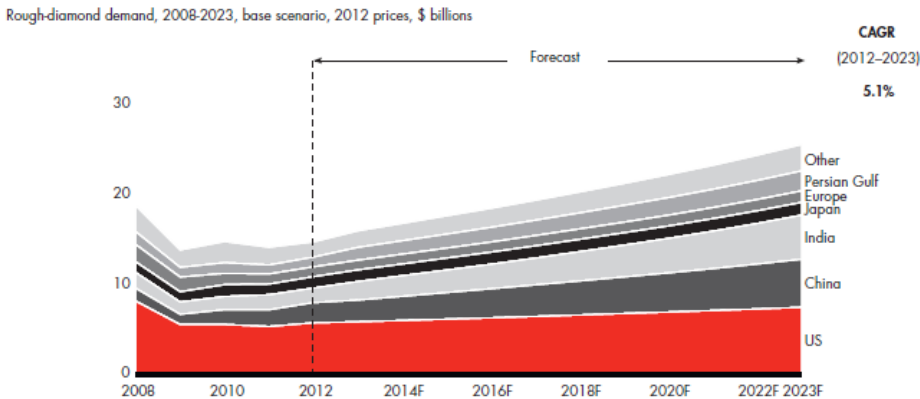
According to Bain analysis, the world rough diamond demand is expected to grow at a CAGR of 5.1% in 2023. Global supply is expected to grow at a CAGR of 4.8% from 2012 to 2018, sufficiently meeting the increasing demand. However, global supply will decline by a CAGR of 1.9% per year from there on to 2023, the main factors being depletion of existing mines and lack of significant new discoveries.

Figure 18: Diminishing Production of Diamonds



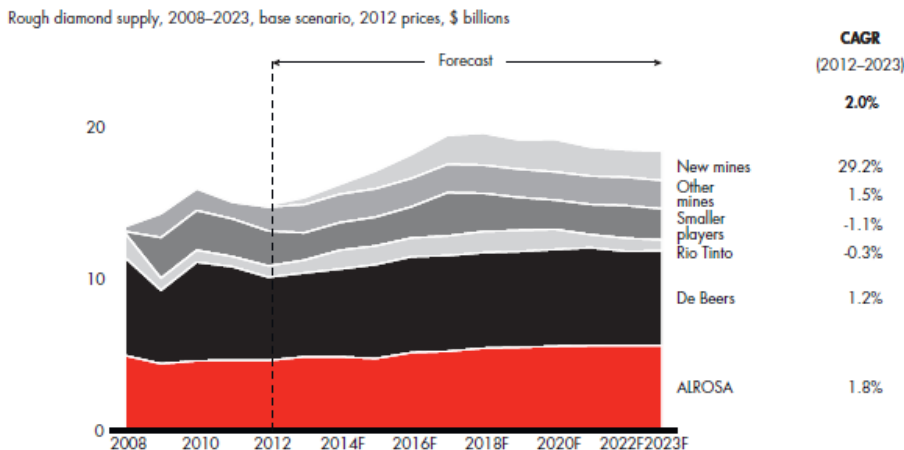
Source: Kimberly Process Statistics, PSR

Figure 19: Rough Diamond Demand forecasted to grow at CAGR of 5.1%...



Source: Bain and Company, IDEX, Tacy Ltd. and Chaim Even-Zohar

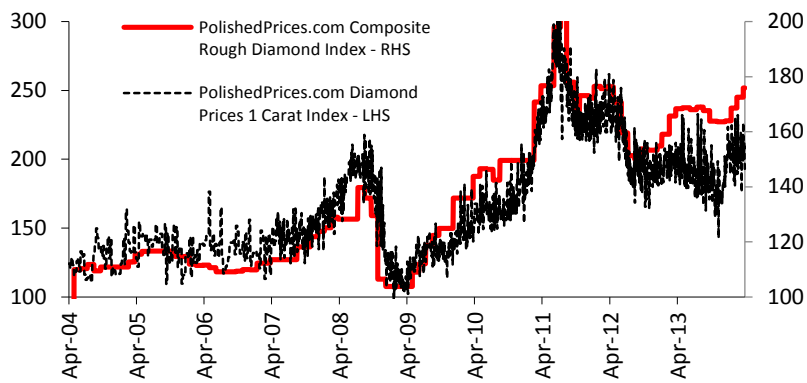
Figure 20: ... while Rough Diamond supply cannot match in pace



Source: Bain and Company, Kimberly Process, Company data

The increasing demand that will outpace supply continues to imply higher prices at every segment of the value chain. Demand for rough and polished diamonds are driven by consumer demand for diamond jewelry which is in turn driven by macroeconomic conditions, growth in GDP and growth of the middle class and urban population. Although the US takes up close to 40% of global rough diamond consumption, China and India are evolving to be major drivers for global rough diamond demand as increasing middle class affluence and a shift towards Western diamond engagement ring practice are growth engines for diamond jewelry. Near-term wise, China's slowing economic growth (Q1 2014: 7.4% versus Q4 2013: 7.7%) and tightening credit environment; India's depreciating Rupee against the USD (12% in 2013), could create a slight drag on demand. Long-term wise, the imbalance between demand and supply for diamonds will drive up diamond prices, setting a positive outlook for the industry.

Figure 21: Diamond Price Index



Source: Bloomberg, PSR

Sarine's role in the Diamond Value Chain

Recall the full value chain of the diamond industry. There are numerous stakeholders in the value chain: from the big producers of rough diamonds in the upstream segment, to the cutters and polishers of the middle segment to the jewelry manufacturers and retailers in the downstream segment.

So where does Sarine fit in?

Sarine has historically been sitting in the midstream of the diamond value chain, with the Galaxy and Solaris providing solutions to the diamond manufacturers for planning, sawing, cutting, shaping and polishing of rough diamonds. Its business model has evolved over the years from being a proprietary R&D company selling capital assets (capex to end users) to one that monetizes their technology on a per-usage basis (opex to end users), ensuring a stream of recurring revenue. Having done extremely well midstream, they are now beginning to commercialize their proprietary products – the Sarine Loupe and the Sarine Light – in the downstream market, the segment with the highest value creation and size.

Figure 22: Roadmap of Sarine's products across the years

2008 & prior	2009	2010	2011	2012 & beyond
<ul style="list-style-type: none"> ➤ DiaMension™ ➤ DiaExpert™ & Eye / Nano ➤ DiaMark™ & Z ➤ DiaScan™ S+ ➤ DiaScribe™ ➤ Quazer™ ➤ Colibri™ 	<ul style="list-style-type: none"> ➤ Galaxy™ 1000 / 2000 ➤ DiaMension™ HD ➤ DiaMobile™ XL ➤ Instructor™ 	<ul style="list-style-type: none"> ➤ Solaris™ 100 ➤ DiaExpert™ Nano 6.5 ➤ Quazer™ II ➤ Strategist™ 	<ul style="list-style-type: none"> ➤ Galaxy™ HD ➤ DiaMark™ HD 	<ul style="list-style-type: none"> ➤ Galaxy™ XL ➤ Galaxy™ Ultra ➤ DiaExpert™ Atom ➤ DiaMension™ Axiom ➤ Sarine Light™ ➤ Sarine Loupe™

Source: Company data

Figure 23: Fitting their product offering into stages of the supply chain



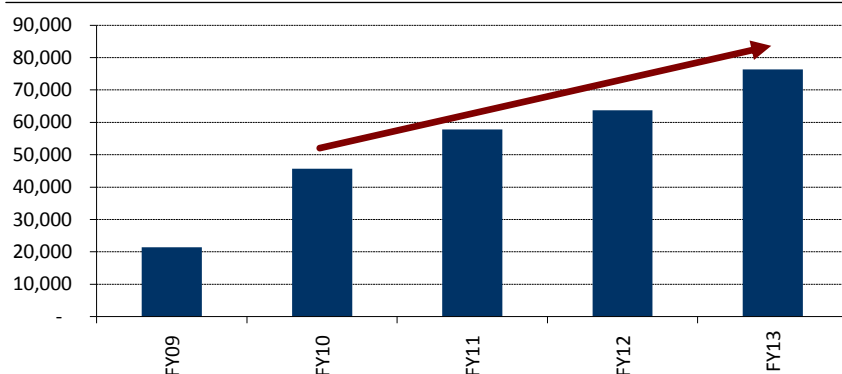
Source: Company Data

Financials

Revenue

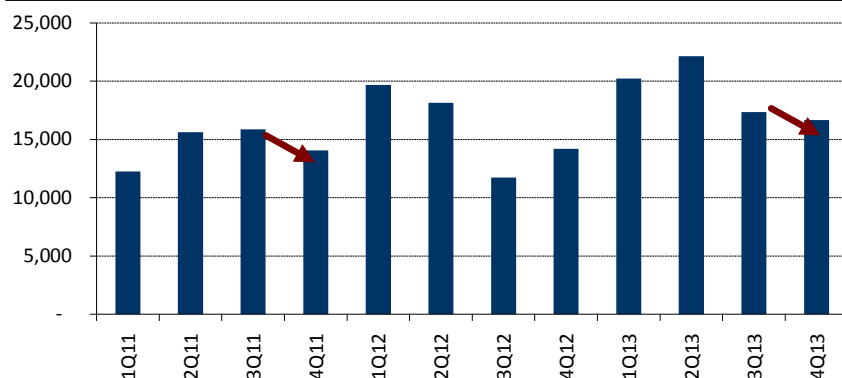
Sarine commercialized its first Galaxy family of systems in late FY09, gaining success thereafter. As mentioned in the earlier part of our report, prior to FY10, the product offering that Sarine had for its customers was of a “capex” nature which evolved into an “opex” nature with the recurring stream of revenue. This smooths out their previously lumpy revenue when their customers made one-off capex, which fluctuates with demand for diamonds. Since Sarine’s primary source of customers reside in the middle segment of diamond manufacturers, naturally the bulk of their revenue originates from India since India accounts for more than 80% of all stones manufactured globally. As a result, Sarine’s revenue is affected by the value of the Indian Rupee as well as long Indian festivals in the last quarter of the year.

Figure 24: Yearly revenue of Sarine (USD k)



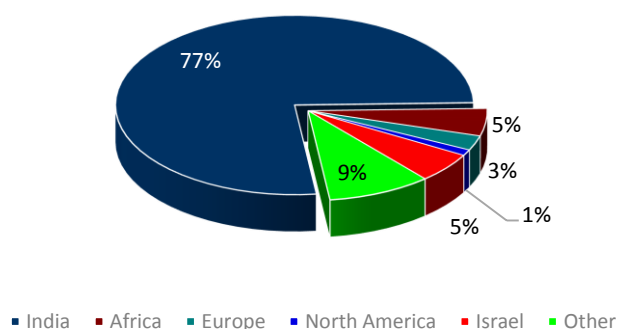
Source: Company data, PSR

Figure 25: Quarterly revenue of Sarine (USD k)



Source: Company data, PSR

Figure 26: Geographical split of revenue for FY13

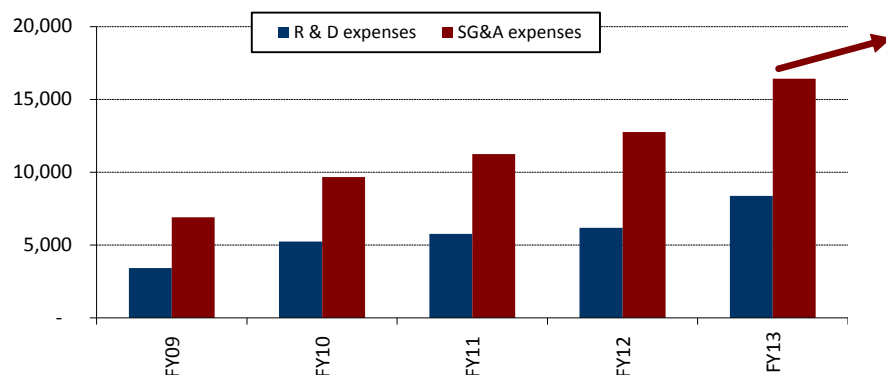


Source: Company data, PSR

Expenses

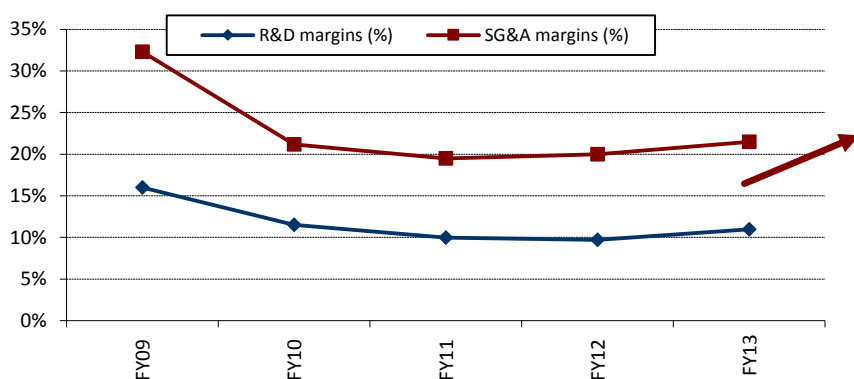
Sarine has 2 main types of expenses: R&D expenses and SG&A expenses. We expect both of these expenses to creep up from FY14 to FY16 as they continue to invest in their technology to explore other gemstone markets and increase their efforts to market Sarine Loupe and Sarine Light. We expect the increase to not only be an absolute increase in amounts but also as a percentage of revenue.

Figure 27: Yearly Expenses (USD k)



Source: Company Data, PSR

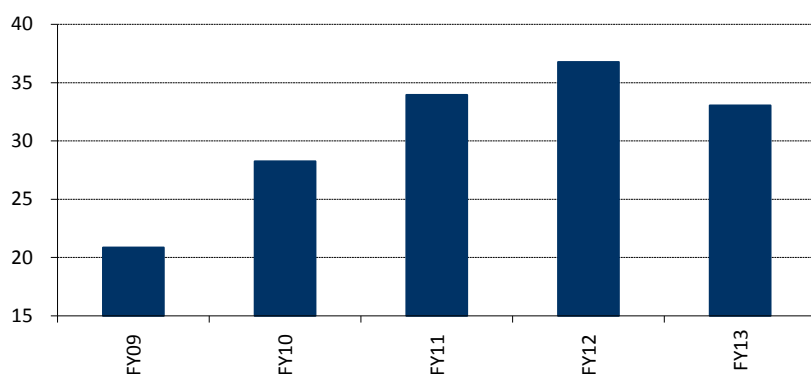
Figure 28: Yearly expense margins (%)



Source: Company data, PSR

Strong net cash balance sheet with zero borrowings

Figure 29: Yearly net cash (USD mn)



Source: Company data, PSR

Key Risks

Competing Technology

Sarine's competitive edge is definitely centred on its proprietary technology which has been the key driver of its success throughout the years. As mentioned earlier in the report, there are 2 potential competitors for the automated inclusion mapping technology. However, from what we understand, the Russian competitor (OctoNus) has not been able to successfully commercialize its technology and is introducing a second solution to it. The Indian competitor have had reported technical problems with their 2 demo systems. Sarine continuously checks legal means to protect its intellectual property. We do not rule out the potential entry of competitors, hence we have estimated a maximum 75%-80% market share for their automated inclusion mapping technology.

Tightening spread between rough diamond and polished diamond prices

Sarine is susceptible to the spread between rough diamond and polished diamond prices. We have witnessed this in 2012 when rough diamond prices increased faster than polished diamond prices which compressed the margins of manufacturers and led to a slowdown in manufacturing. We are positive on Sarine gradually being able to mitigate this risk as they move into the polished diamond segment with Sarine Loupe and Sarine Light.

Depreciating Rupee

As the bulk of Sarine's revenue is derived from India, it is dependent on the value of the Rupee against the USD. When the rupee depreciates, rough diamonds become more costly for the diamond manufacturers which in turn will lead to a slowdown in manufacturing activity. Again, we are positive on Sarine moving into the polished diamond segment which provides a more diversified geographical base.

Global economic headwinds

Sarine is vulnerable to any global economic headwinds as these macro-economic conditions impact end consumer demand for diamonds which in turns drives down diamond manufacturing. However, as Sarine's revenue is increasingly occupied by its recurring revenue, this will help to smooth out any cut backs of capex by diamond manufacturers.

Geopolitical risks

Despite being listed in Singapore, Sarine is headquartered in Israel with much of its R&D and manufacturing concentrated there, thereby exposing it to the geopolitical risks of the Middle East.

Valuation

We apply a Discounted Cash Flow (DCF) methodology as we believe this is the most appropriate way to appreciate the earnings potential and cash generating business of Sarine. We derive a **1 year forward Target Price of S\$3.20**, which implies an FY14F and FY15F multiple of **29.5x** and **24.5x** respectively. There are no peer comparisons and while seemingly not cheap, we have to appreciate the recurring revenue stream which deserves a higher PE multiple. As mentioned earlier in our report, a key re-rating catalyst would be the success of the Sarine Loupe and Sarine Light which in our bull case scenario, would command a Target Price of S\$4.17 or more. We therefore initiate our coverage on Sarine Technologies Ltd with an “**Accumulate**” rating.

Figure 30: DCF valuation of Sarine

DCF valuation

USD m	FY14F	FY15F	FY16F	FY17F	FY18F
Revenue	90	105	119	134	151
EBITDA	40	47	58	65	72
Tax	(5)	(6)	(8)	(9)	(10)
Change in WCC	7	(1)	(1)	(1)	(1)
Capex	(2)	(3)	(3)	(4)	(4)
FCFF	40	37	46	51	56
PV of FCFF	40	34	38	38	38
Sum of PV	188				
Terminal value	931				
PV of terminal value	630				
Firm value	817				
Net debt/(cash)	(63)				
Equity value	880				
No. of shares	346				
Implied value per share (USD)	2.54				
Exchange rate	1.256				
Target Price (SGD)	3.20				

Key Assumptions for DCF

LT Debt weight	0%
LT Equity weight	100%
Risk-free rate	3%
Beta	0.81
Market risk premium	9%
Cost of equity	10.3%
WACC	10.3%
Terminal growth rate	3.0%

Source: PSR

Figure 31: Comparison of Diamond exploration/miners and Diamond/Jewelry retailers

Company	Market Cap. (USD m)	Last Price (USD m)	EPS Growth			P/BV (X)	P/E (X)	ROE (%)	Div yield (%)
			FY11	FY12	FY13				
Diamond exploration/miners									
Anglo American PLC	37,443	26.81	-6%	-123%	-36%	1.18	13.69	(2.77)	3.17
Dominion Diamond Corp	1,055	12.39	-42%	37%	1276%	0.81	30.22	44.33	-
Gem Diamonds Ltd	383	2.77	227%	-251%	-120%	1.28	12.94	(34.26)	-
Mountain Province Diamonds	480	4.53	-29%	-73%	600%	6.86	n.a.	(40.52)	-
Petra Diamonds Ltd	1,360	2.66	-43%	n.m.	n.m.	2.39	n.a.	11.13	-
Diamond/Jewelry retailers									
Tiffany & Co.	11,325	87.90	19%	-5%	-57%	4.15	23.53	6.82	1.52
Blue Nile Inc	441	35.00	-18%	-20%	36%	11.15	41.18	39.75	-
Cima Co Ltd	43	0.21	-378%	-305%	223%	1.22	n.a.	(24.04)	-
Zale Corp	917	21.27	20%	-76%	-136%	3.66	112.02	10.65	-
Lazare Kaplan	12	1.45	n.a.	n.a.	n.a.	0.13	n.a.	(3.38)	-
Luk Fook Holdings	1,645	2.79	58%	42%	-12%	1.79	7.62	25.65	5.13
Sarine Technologies	791	2.28	67%	20%	17%	11.73	32.76	38.69	2.63

Source: Bloomberg, PSR

Product Overview

Sarine Technologies Ltd. develops, manufactures, markets and sells precision technology products for the processing of diamonds and gemstones. Their products provide smart solutions for every stage of the rough diamond manufacturing process, from determining the optimal polished gem based on true dollar value, through laser cutting and shaping, to inline quality control of the faceting. They also aid in key aspects of the polished diamond trade - the grading of a diamond's Cut and its Light Performance and by providing tools that simplify the online trade and enhance the in-store buying experience.

- DiaMension™ family of products, including the newest version, the DiaMension™ HD (High Definition) already adopted by industry leaders worldwide, and DiaVision™ software are used in all leading gemological institutes for the qualification and grading of a polished diamond's proportions, in order to derive the Cut grade. DiaVision™ is the only proportion and Cut grading software which has been thoroughly evaluated by the GIA in an extensive testing program and has been found to be accurate in excess of 98% of the tested cases.
- DiaMension™ family of products, including the latest version, the DiaMension™ HD (High Definition) already adopted by industry leaders worldwide, and the DiaVision™ software, are used in all leading gemological institutes for the qualification and grading of a polished diamond's proportions, in order to derive the Cut grade. DiaVision™ was the first proportion and Cut grading software which was thoroughly evaluated by the GIA in an extensive testing program and was found to be accurate in excess of 98% of the tested cases.
- DiaExpert™ family of platforms (DiaExpert™, DiaExpert™ Atom, DiaExpert™ Nano 6.5, DiaExpert™ XL, DiaExpert-Eye™, DiaScan™ S+, DiaMobile™ XL and DiaMark™ Z) and the Advisor™ software are the de-facto worldwide standard for planning the optimal utilisation of rough diamonds. Their systems assist the manufacturer to cut and polish the rough stones so as to achieve the maximum possible value, based on those of the four C parameters, which can be meaningfully optimized by the process: namely all but Colour - Carat weight, Cut quality and Clarity grade.
- In 2009, Sarine launched the revolutionary and still unmatched Galaxy™ family of internal inclusion mapping systems for rough diamonds. Today the family comprises the Galaxy™ 1000 for diamonds 2 to 20+ carats in size, the Solaris™ 100 for small stones less than 2.5 carats, and the Galaxy™ XL for large stones up to 180 carats. They have also introduced the Galaxy™ HD for high definition scanning and they will be introducing later this year the microscope enhanced Galaxy™ Ultra (Ultra High Definition) allowing the automatic identification and mapping of inclusions even nominally beyond the gem labs' definition of a VVS1 stone, thus allowing planners to more readily achieve internally flawless (IF) polished diamonds. All these products are based on the same revolutionary and unique technology that allows the automated, accurate and comprehensive assessment of Clarity, so as to truly optimize the value of the derived polished diamond. There is still no other product or technology available which does what the Galaxy™ family does. To allow the industry to fully benefit from this cutting edge technology, they offer per-carat inclusion scanning services at wholly-owned or affiliated service centres in almost all the major diamond trading and polishing centres: Mumbai and Surat in India, Ramat-Gan (Israel), Antwerp, Moscow, Johannesburg, Gaborone and Windhoek, with New York to follow mid-year 2013.

Other products Sarine currently offer provide the rough diamond manufacturing industry with technological solutions for three additional functions:

- Cutting and shaping rough stones, using the Quazer™ II green-laser system and the Strategist™ setup station (also offered as a per-carat service at various locations);
- Optimizing the polishing of the rough diamond into the best possible polished diamond by real-time analysis of deviations from, and possible corrections to, the optimal polishing solution, including unique asymmetrical solutions to optimize weight (Carat) vs. proportion (Cut) tradeoffs, using the Instructor™ software; and
- Measurement and grading of various parameters of the final polished diamond in order to help determine the value of the diamond, based on the quality of its Cut (using the DiaMension™ family of products and the DiaVision software, as noted above) and Light Performance (using the Sarine1 Light™ system).

They also provide services and products that aid in the sale of diamonds and jewelry in stores and online:

- a. For inscribing on polished diamonds with distinct marks such as text, numerals and symbols, whether for branding, personalization or simply recording the stone's certificate number, they offer the DiaScribe™ system.
- b. The Sarine Light™, a system that enables the automatic, accurate, consistent and quantified measurement of a polished diamond's appearance:

- **brilliance** - how much light is reflected back through its crown;
 - **fire** - how much light is broken into colored splashes;
 - **scintillation / sparkle** - how pronounced the diamond sparkles; and
 - **light symmetry** - how symmetric is the diamond's light play.
- c. The Sarine Loupe™ imaging system, which creates high quality visual imagery, so that a potential buyer of a polished diamond can inspect it virtually from multiple angles, as if through a conventional loupe, and truly assess its Cut and Clarity, all without having the polished gem physically in hand.
- d. They also offer the Diamond Assay Service (DAS), an online subscription service for anyone who trades polished diamonds. It helps ascertain whether a diamond is a real diamond (albeit without differentiating between a natural or synthetic stone and without identifying treatments), ascertains its geometric parameters and Cut grade, optionally issues printed reports and can propose possible solutions for re-cutting, so as to derive the optimal potential value of the stone.

Fig: Quarterly Revenue (USD k)

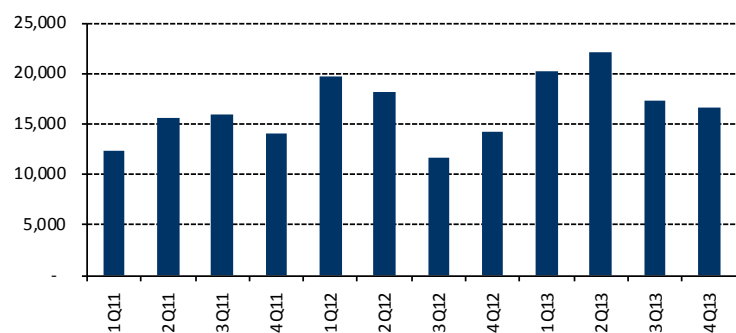


Fig: Yearly Revenue (USD k)

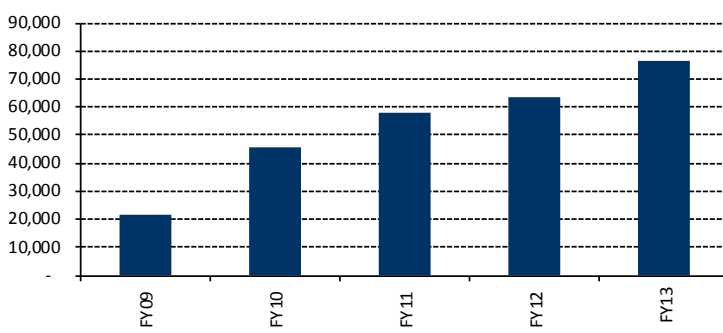


Fig: Quarterly Gross Profit (USD k)

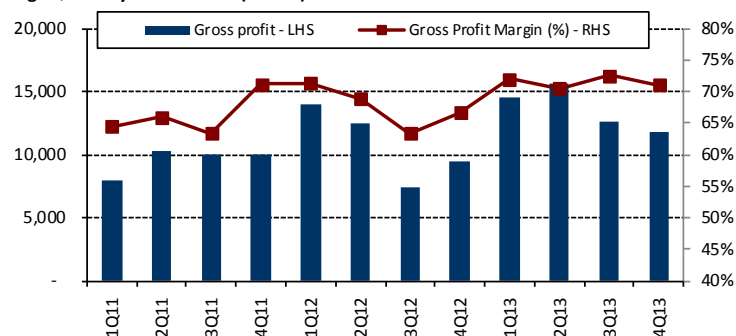


Fig: Yearly Gross Profit (USD k)

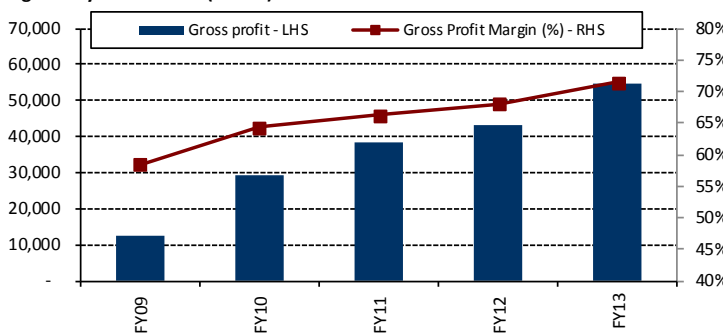


Fig: Quarterly Expenses (USD k)

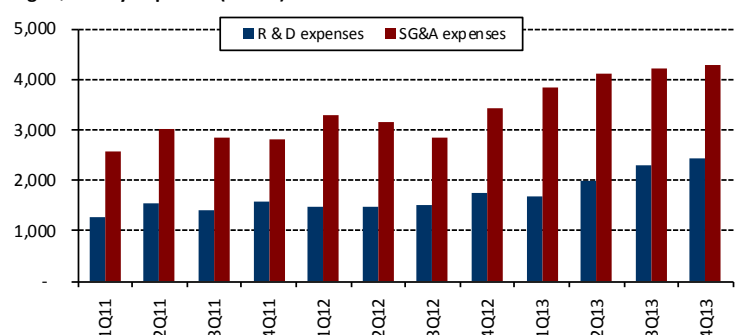


Fig: Yearly Expenses (USD k)

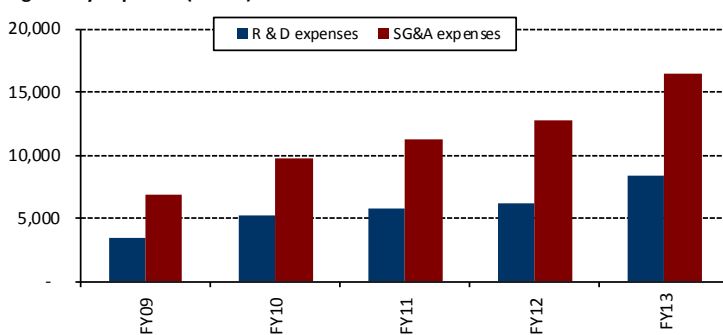


Fig: Quarterly Expenses margins (%)

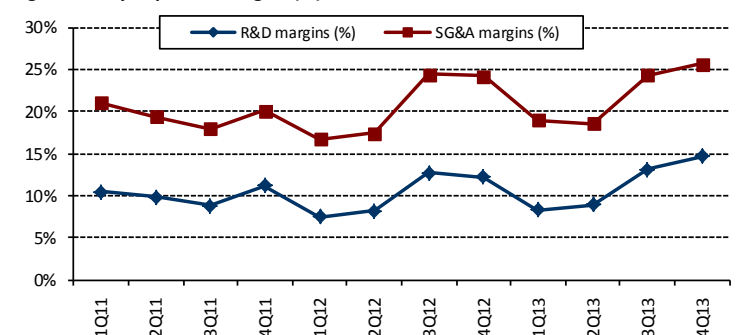


Fig: Yearly Expenses margins (%)

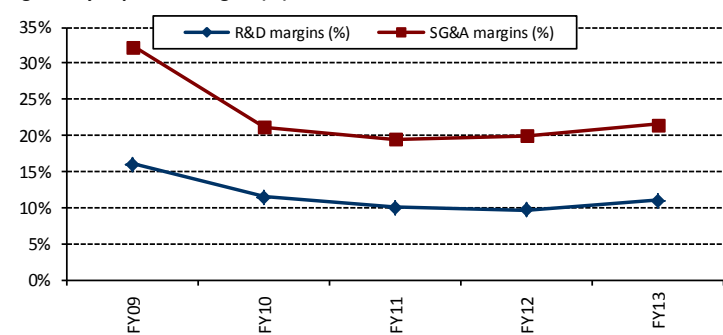


Fig: Quarterly Net Profit (USD k)

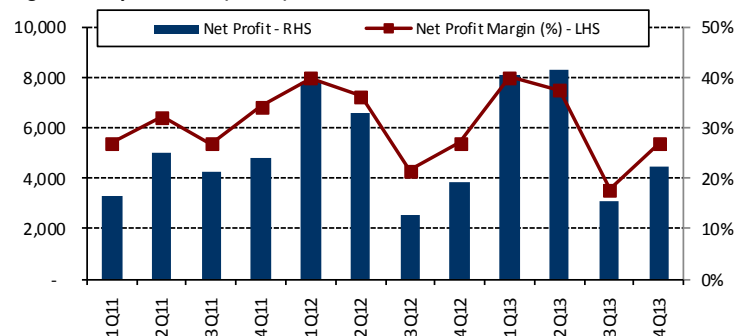


Fig: Yearly Net Profit (USD k)

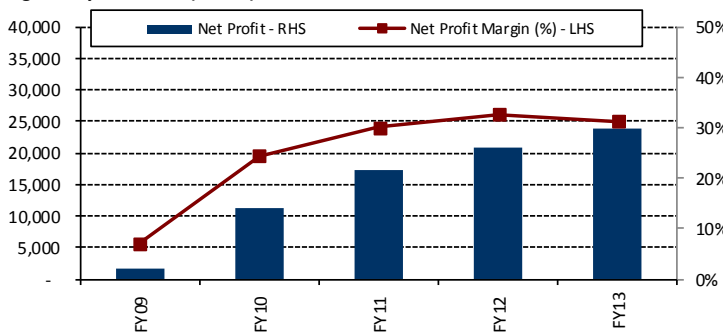


Fig: No. of Galaxy/Solaris systems installed vs Gross Profit Margins (%)

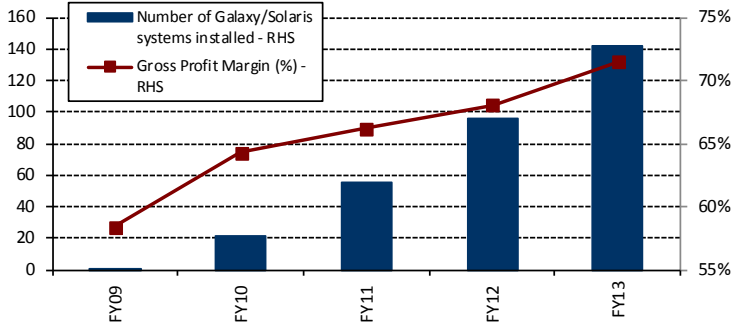


Fig: Net Cash (USD mn)

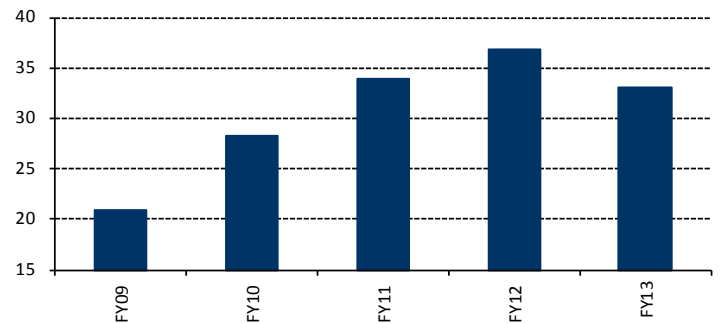


Fig: Revenue by geographical segment (%) for FY13

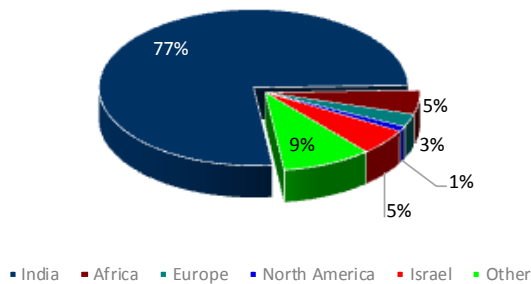


Fig: Revenue by geographical segment (%) for quarter

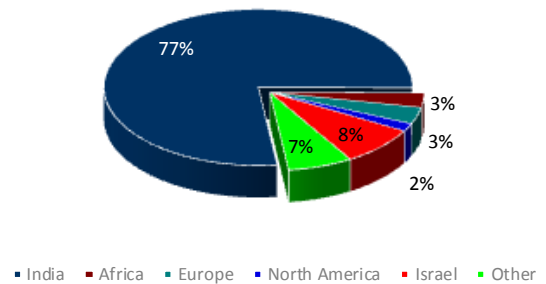


Fig: Revenue by geographical segment (USD k)

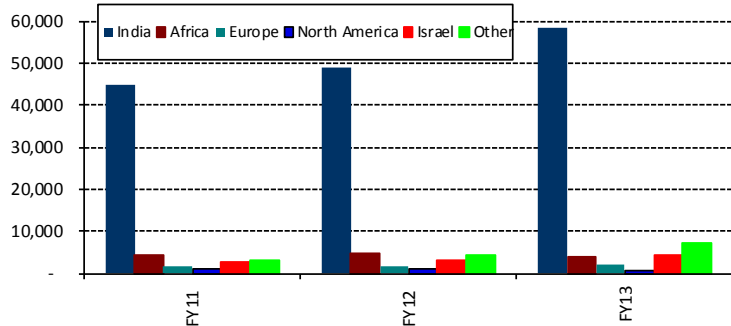


Fig: PolishedPrices.com Diamond Index 10Y

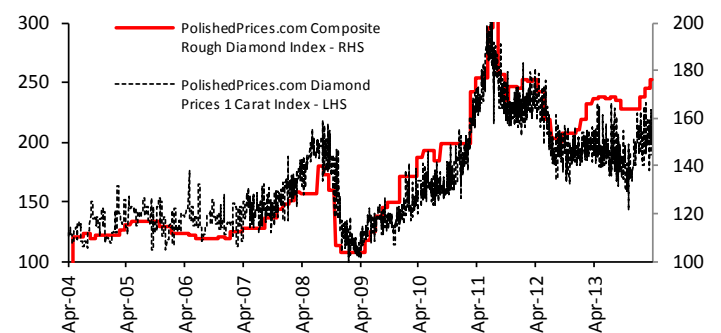


Fig: Historical 5Y PE

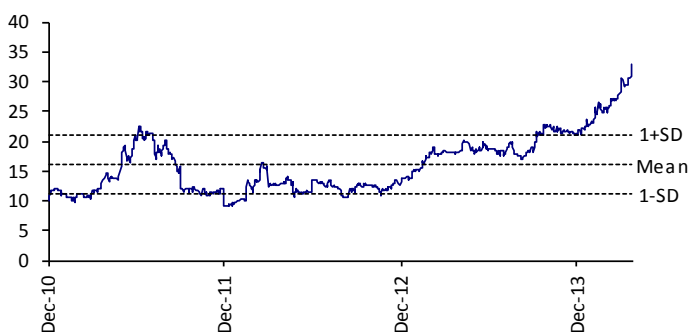
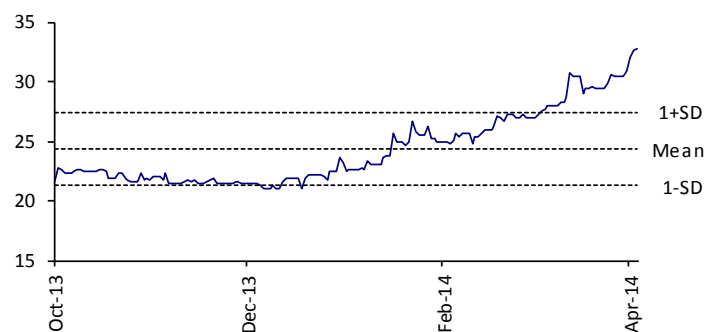


Fig: Historical 1/2Y PE



For Financial Summary at the end of report

FYE Dec	FY11	FY12	FY13	FY14F	FY15F
Income Statement (USD mn)					
Revenue	58	64	76	90	105
Cost of sales	(20)	(20)	(22)	(24)	(27)
Gross profit	38	43	55	66	78
R & D expenses	(6)	(6)	(8)	(11)	(13)
SG&A expenses	(11)	(13)	(16)	(20)	(23)
EBITDA	25	28	34	40	47
EBIT	22	25	30	35	42
Net finance income	0	0	0	0	0
Exceptionals	0	0	0	0	0
Profit before tax	21	25	30	35	42
Taxation	(4)	(4)	(6)	(5)	(6)
Non-controlling interest	0	0	0	0	0
Net Income, reported	17	21	24	30	36
Net Income, adj.	17	21	24	30	36

FYE Dec	FY11	FY12	FY13	FY14F	FY15F
Per share data (USD)					
EPS, reported	0.06	0.06	0.07	0.09	0.10
EPS, adj.	0.06	0.06	0.07	0.09	0.10
DPS	0.03	0.05	0.06	0.04	0.04
BVPS	0.18	0.17	0.19	0.24	0.30

FYE Dec	FY11	FY12	FY13	FY14F	FY15F
Cashflow Statements (USD mn)					
CFO					
PBT	21	25	30	35	42
Adjustments	4	4	6	5	5
WCC Changes	(4)	(1)	(9)	7	(1)
Cash generated from ops	17	23	20	42	40
Net cash from ops	17	23	20	42	40
CFI					
Capex	(2)	(4)	(7)	(2)	(3)
Others	1	1	2	-	-
Net cash from investments	(17)	(4)	(4)	(0)	(3)
CFF					
Dividends paid	(8)	(14)	(18)	(14)	(14)
Others	1	1	2	-	-
Net cash from financing	(9)	(15)	(15)	(14)	(14)
Net change in CCE	(8)	5	1	28	23
CCE at beginning of year	23	14	19	20	48
CCE at end of the year	14	19	20	48	72

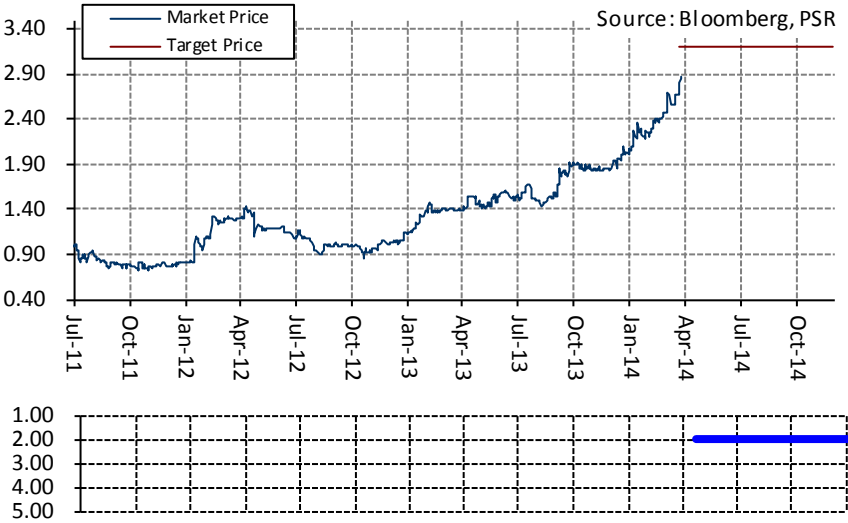
Source: Company Data, PSR est

*Forward multiples and yields aer based on current price and historical yields are based on historical prices

FYE Dec	FY11	FY12	FY13	FY14F	FY15F
Balance Sheet (USD mn)					
Non-current assets					
Property, plant and equipment	3	5	11	10	9
Intangible assets	10	9	8	6	4
Other assets	0	1	1	1	1
Total non-current assets	13	15	20	17	15
Current assets					
Inventories	6	7	9	10	12
Receivables	8	9	20	14	16
Others	0	0	0	0	0
Cash and ST investments	34	37	33	63	87
Total current assets	48	52	61	87	114
Total assets	61	68	82	104	129
Non-current liabilities					
LT interesting bearing debt	0	0	0	0	0
Others	0	0	0	0	0
Total non-current liabilities	1	1	0	0	0
Current liabilities					
Payables and other current liabil	12	11	14	20	23
Total current liabilities	12	11	14	20	23
Total liabilities	13	12	14	21	24
Shareholders' Equity	48	56	67	83	106
Minority Interests	0	0	0	0	0
Total equity	48	56	67	83	106

FYE Dec	FY11	FY12	FY13	FY14F	FY15F
Valuation Ratios					
P/E (X), adj.	9.1	13.3	21.1	26.5	22.0
P/B (X), adj.	3.3	4.9	7.5	9.5	7.5
EV/EBITDA (X), adj.	5.2	8.8	14.0	18.8	16.0
Dividend Yield (%)	3.5%	3.5%	2.7%	1.4%	1.4%
Growth & Margins (%)					
Growth					
Revenue	26.6%	10.3%	19.8%	17.9%	16.8%
EBITDA	37.0%	14.1%	21.1%	19.1%	17.5%
Net Income, adj.	56.3%	19.5%	15.1%	25.0%	20.5%
Margins					
Gross Profit margin	64.3%	66.2%	68.1%	71.5%	73.0%
SG&A margin	21.2%	19.5%	20.0%	21.5%	22.0%
EBITDA margin	39.2%	42.4%	43.9%	44.4%	44.8%
Net Profit Margin	30.0%	32.6%	31.3%	33.2%	34.2%
Key Ratios					
ROE (%)	39.9%	39.8%	38.7%	39.6%	38.1%
ROA (%)	31.2%	32.2%	32.0%	32.2%	30.9%
Net Debt/(Cash)	n.m.	n.m.	n.m.	n.m.	n.m.
Net Gearing (X)	n.m.	n.m.	n.m.	n.m.	n.m.

Ratings History



PSR Rating System

Total Returns	Recommendation	Rating
> +20%	Buy	1
+5% to +20%	Accumulate	2
-5% to +5%	Neutral	3
-5% to -20%	Reduce	4
<-20%	Sell	5

Remarks

We do not base our recommendations entirely on the above quantitative return bands. We consider qualitative factors like (but not limited to) a stock's risk reward profile, market sentiment, recent rate of share price appreciation, presence or absence of stock price catalysts, and speculative undertones surrounding the stock, before making our final recommendation

Appendix A: Understanding the 4Cs

Carat	Color
The carat measures the diamond's weight. One carat is equal to 200mg. Larger diamonds are rarer and therefore of a higher perceived value and more expensive. The price per carat of a diamond is not constant and increases exponentially the bigger the diamond is. E.g. A two carat diamond will cost substantially more than double a one carat diamond.	For common "white", or colorless, diamonds the Color relates to the degree lack of tint. A chemically pure and structurally perfect diamond is completely transparent and very rare to find. The diamonds' color differences are almost non-discernible to the human eye. Non-colorless diamonds are referred to as 'Fancy-colored', the primary colors being yellow, pink and blue and any combinations thereof. The color of a Fancy -colored diamond is measured both by its appearance to the human eye (its hue) and the intensity (depth) of the color; fancy, fancy intense and vivid. Intense and vivid colored stones are very rare and hence more expensive.
Clarity	Cut
The Clarity of a diamond is defined by its internal defects ("inclusions") and surface defects ("blemishes"). These imperfections may result from gas, bubbles, cracks or scratches. They can affect the diamond's ability to properly transmit light, and therefore impact its beauty. The Clarity grade is derived from the total number of inclusions, their size and their location, with their type being of secondary importance. Diamonds with a higher clarity grade are rarer and therefore considered more valuable.	The Cut is the only parameter derived by the human hand. An accurately cut and faceted diamond will reflect most of the light back at the viewer through the top of the stone, causing exceptional Brilliance. A poorly cut diamond creates a duller diamond with less Sparkle and Fire (colored flashes) and will not appear as beautiful. With poor Symmetry, the reflected light will be misdirected as it exits the diamond. The most popular Cut is the round brilliant, as it returns the highest percentage of light.

Source: Company data, PSR

Appendix B: Key Executives



DANIEL BENJAMIN GLINERT
Executive Director and Chairman
of the Board



UZI LEVAMI
Executive Director and CEO



AVRAHAM ESHED
Executive Director



EYAL MASHIAH
Executive Director



EHUD HAREL
Non-Executive Director



HANOth STARK
Non-Executive Director



YEHEZKEL PINHAS BLUM
Independent Director



CHAN KAM LOON
Independent Director



VALERIE ONG CHOO LIN
Independent Director

Daniel Benjamin Glinert is the Executive Director and has been the Chairman of the Board of the Group since 1999. He is also a Director in the Group's subsidiary, Sarin Hong Kong. Mr. Glinert holds a Bachelor's degree in Computer Sciences (Cum Laude) from the Technion - Israel Institute of Technology. He has 40 years of experience in various high technology industries (software, military, semiconductor and medical applications) in research, development and management positions in Israel and the USA. Mr. Glinert founded Interhightech Ltd. (then named TICI Software Systems, Ltd.) in 1982 and was its CEO and then Chairman since its inception. Prior to that, from 1977 through 1982 Mr. Glinert worked for E-Systems Inc. (now a division of Raytheon) on a development program for the Israel Air Force, which was awarded the prestigious Israel Defence Award. From 1972 to 1977 Mr. Glinert served in the Israel Air Force.

Uzi Levami has been CEO of the Group since February 2009 and an Executive Director since December 2008. He is also a Director in the Group's subsidiaries, Galatea, Sarin India, Sarine Color Technologies, Sarine Polishing Technologies, Sarin Hong Kong, Sarin Holdings USA, Sarine North America, Sarin IGT 10H, Sarin IGT 10I and Sarin IGT 10JKL. Mr. Levami completed his studies towards a Master's degree in Computer Sciences from the Weizmann Institute of Science and holds a Bachelor's degree in Electrical Engineering (Cum Laude) from the Technion - Israel Institute of Technology. He is one of the original founders of Sarin and has a long history of founding high-tech companies (Compulite Ltd., Shalev Computer Systems Ltd. and EquipNet Ltd., a startup spin-off of Interhightech Ltd.). Mr. Levami most recently held the position of Director of Business Development at MKS Instruments Inc., a publicly-traded US company supplying in excess of \$700M of capital equipment to the semiconductor industry, after the most recent company he founded, EquipNet Ltd., was acquired by MKS. In 1992, while at Shalev Computer Systems, Mr. Levami was personally awarded the prestigious Israel Defence Award by then President Chaim Herzog for his endeavours on a development project for the Israel Defence Forces. From 1973 to 1980 Mr. Levami served in the Israel Defence Forces and attained the rank of Major.

Avraham Eshed is an Executive Director of the Group, having been appointed in 2010. Prior to that he served as a Non-Executive Director, having been appointed to the Board in April 2006. Mr. Eshed has over 40 years of experience in the diamond and gemstone industries. He is the founder of Gemstar Ltd. and Eshed Diam Ltd., and serves as the President of both companies. Mr. Eshed is also a founding member of the International Colored Gemstone Association (ICA) where he served as a Director. He is President of the Israel Emerald Cutters Association and a Director in the Israel Diamond Manufacturers Association. Mr. Eshed has been recognised as an outstanding exporter by the State of Israel and was presented with awards by President Ephraim Katzir in 1977 and again in 1989 by President Chaim Herzog. In 2011 he was recognised and cited as an outstanding exporter to Asia.

Eyal Mashiah is an Executive Director of the Group and was appointed to the Board in 1994. He was appointed an Executive Director in December 2008. He is also a Director in the Group's subsidiary, Sarin Hong Kong. He has 30 years of experience in the diamond and gemstone industries. Mr. Mashiah is currently the Executive Director of Novel Collection Limited (formerly Biram Diamonds Limited), a leading fancy coloured diamond manufacturer and dealer. Prior to that, he was involved in the manufacturing, marketing and trading of precious gemstones at Icam-Gems Limited (1982 - 1983), at Algem Limited (1983 - 1987) and at Ramgem Limited (1987 - 2006).

Ehud Harel is a Non-Executive Director of the Group and was appointed to the Board in 2004. He has nearly 30 years' experience in the gemstone industry, having dealt with the evaluation and purchase of rough stones as well as the wholesale and worldwide distribution of polished gemstones, since 1982. From 1979 to 1982, he was a mechanical engineer with the Israeli Navy.

Hanoh Stark has served on the Board since 1989 and was an Executive Director of the Group until January 2009. He studied Electrical Engineering at the Technion in Milan, Italy. Mr. Stark is a member of the Israeli Diamond & Colored Stone Bourse and also a member of ICA, the International Colored Gemstone Association. He has over 40 years of experience in the gemstone mining, manufacturing and trading industries, including in the development of technology-based aids and systems.

Yehezkel Pinhas Blum is an Independent Director of the Group and was appointed to the Board in March 2005. He holds a Bachelor's degree in Economics and Business Administration from the Bar-Ilan University in Ramat Gan, Israel. From 2003 until 2011, for four terms, Mr. Blum was a Member of the Board of the Israel Diamond Exchange in Ramat Gan, Israel and served during various periods in various capacities including Vice President and Chairman of the Finance and Legal Committees. He is now observing a mandatory two-year hiatus from Exchange Board participation. Prior to that Mr. Blum was Chairman of the Exchange's Audit Committee and a lead Arbitrator in various mediations. He has 30 years of diamond and gemstone manufacturing and trading experience. Prior to that, from 1980 to 1983, he was an economist with the United Mizrahi Bank Ltd and was responsible for managing the bank's economic research unit and advising the bank's management with regard to new investments and business opportunities.

Chan Kam Loon is an Independent Director of the Group and was appointed to the Board in March 2005. He holds a degree in Accountancy from the London School of Economics and is a qualified Chartered Accountant with the Institute of Chartered Accountants in England and Wales. From July 2001 to July 2004, Mr. Chan headed the Listings Function of the Markets Group at the Singapore Exchange. Before that he spent ten years in investment banking and in private equity funding within the ASEAN region. Mr. Chan was a member of the Singapore's Accounting Standards Committee, Singapore Zhejiang Business Council and also Singapore Shandong Business Council. Aside from serving on Sarin's board, he is a Non-Executive Independent Director of several other companies listed on

the Singapore Exchange. Mr. Chan is also a board member of the National Voluntary and Philanthropy Centre of Singapore and of Vision Fund International, the microfinance arm of the global charity World Vision International.

Valerie Ong Choo Lin is an Independent Director of the Group and was appointed to the Board in March 2005. She graduated with a Bachelor of Law (Honours) from the National University of Singapore in 1987 and obtained a Master's in Law (with Distinction) from the London School of Economics in 1991. Ms. Ong heads the Corporate Finance Practice at Rodyk & Davidson. She has been a practicing lawyer since 1988, specialising in corporate finance (including initial public offerings) and mergers and acquisitions. Ms. Ong is a member of the Singapore Income Tax Board of Review and an Independent Director of Chemical Industries (Far East) Limited (a company listed on the Mainboard of the Singapore Exchange).

Appendix C: History

1988

The Company is incorporated in Israel as a private company under the name of Borimer Limited. The first product, the Robogem™, an automated production system for producing polished gemstones from rough gemstones, is launched. Robogem™ was sold in limited numbers to semi-precious gemstone manufacturers in Israel, Europe and the Far East (India and Myanmar).

1992

The DiaMension™, a pioneering grading product for assessing the Cut of polished diamonds, is introduced. It is an automated computerised product for assessing a diamond's proportion, a key parameter in the grading of a diamond's Cut. A significant advancement for the diamond industry, the DiaMension™ has changed the way polished diamonds are bought and sold by providing accurate means of measuring the proportion, thereby deriving the Cut grade. The Company changes its name to Sarin Research, Development and Manufacture (1988) Limited.

1994

The Company is renamed Sarin Technologies Limited.

1995

Sarin develops the DiaExpert™, an automated computerised planning system for the maximum utilisation of rough stones. The introduction of this new technology in the DiaExpert™ revolutionises the diamond manufacturing industry by introducing computer-based technology to substitute person-based expertise, and thus contributes to the geographic shift of the diamond industry to new centres of manufacture such as India, PRC and Russia.

1996

Sarin introduces the use of laser scanning in order to create three-dimensional concave modelling of rough stones. The ability to accurately complement our modelling with the rough stone's concavities provides the user with a complete and accurate model of the rough stone. This feature is complementary to, and increases the effectiveness of, the DiaExpert™.

2000

Sarin introduces the DiaMark™. This product allows the DiaExpert™ product to automatically inscribe, using laser markings on the rough stone's surface, the optimal sawing plane that was suggested by the DiaExpert™ and accepted by the user.

2001

Sarin acquires the entire share capital of Gran Computer Industries (subsequently renamed to Sarin Colour Technologies Ltd.), a private company incorporated in Israel. The company develops, manufactures and markets devices for the identification and classification of a diamond's colour.

2004

Sarine Polishing Technologies Ltd. (formerly known as Romedix) purchases from a third party know-how and technology used in the development and manufacture of disposable polishing discs for diamonds and gemstones. Sarin India is incorporated as a wholly owned subsidiary in India. Sarin India deals in the provision of presale, post-sale and technical support services to our Group's customers in India, Sri Lanka, and neighbouring countries.

2005

Sarin Technologies Limited is listed on the Mainboard of the Singapore Exchange. Sarin launches the Quazer™ advanced greenlaser system for sawing, cutting and shaping diamonds, establishing a new product line and climbing another rung on the ladder towards being a one-stop shop for the diamond manufacturing industry. They also introduce Facetware™, a software upgrade product for the Company's DiaMension™, and DiaExpert™ product lines (and installed base), for the analysis of a polished stone's cut grade based on light performance parameters, in cooperation with the Gemological Institute of America (GIA).

2006

Sarin Color Technologies Ltd., a wholly owned subsidiary of Sarin, introduces Colibri™. Colibri™ is a state-of-the-art colour grading product for polished diamonds, which calculates and grades the colour of the diamond as well as its fluorescence. The Group's subsidiaries, GCI and Romedix, are renamed Sarin Color Technologies Ltd. and Sarin Polishing Technologies Ltd., respectively. New subsidiaries, Sarin Hong Kong Ltd. and SUSNY LLC, are established.

2007

Sarin introduces DiaExpert™ Eye for semiautomated inclusion (Clarity) charting of rough diamonds, supporting the need for considering inclusions in the planning and production of diamonds. Additionally, after evaluating the important market niche of small stone manufacturers, DiaExpert™ Nano, a unique product for the planning and marking of small stones, is launched.

2008

Sarin acquires 100% of the issued share capital of Galatea Ltd., which then becomes a wholly-owned subsidiary of the Company. At the time of the acquisition, Galatea was in the final testing stages of an automatic inclusion (Clarity) mapping system for rough diamonds. Sarin acquires 23% of IDEX Online SA, an operator of a B2B polished diamond traders' network, a web portal for news, analyses and polished diamond price indices and publisher of a leading trade magazine. Shortly after the acquisition, IDEX Online launches its polished diamond spot market.

2009

Galatea, a wholly owned subsidiary of Sarin, launches the Galaxy™ 1000 and 2000 systems for the automated inclusion (Clarity) charting of rough diamonds, furthering support of the need for considering inclusions in the planning and production of diamonds (as offered by the DiaExpert™ Eye, launched in 2007), and opens service centres in India and Israel, in which the technology is offered for use at a low carat-based fee. Initial system delivered to launch customer towards year's end. Sarin launches the Instructor™, a new software package that runs on our polished diamond measuring equipment (DiaMension™, DiaMension™ Lab Edition, DiaMension™ HD and DiaScan™ S+), for improving the yield and assuring the quality manufacturers can attain while polishing diamonds. Sarin launches the DiaMension™ HD, an advanced high precision system, offering even more accurate 3D modelling for the measurement of polished and semi-polished diamonds. The precise 3D model allows users to evaluate not only the diamond's proportions, but also the stone's symmetry

– including “naturals”, facet misalignments, facet junctures, extra facets, and other fine cut and symmetry parameters.

2010

The Gemological Institute of America (GIA) concludes an in-depth comparison evaluation, between their internal methods to determine the Cut grade of around brilliant diamond and Sarin's new implementation of the Facetware® database in Sarin's measuring systems, which shows highly compatible results between the two methods. In continuation to this achievement GIA also concluded an initial evaluation of the DiaMension™ HD system and found it generates a high fidelity 3D model with improved precision for the measurement of polished diamonds. They thus commenced the phased upgrading of their existing DiaMension™ systems to the newer HD product.

Sarin launches the DiaExpert™ Nano 6.5 for the super fast processing (one minute total for modelling, planning and marking!) of small rough diamonds from 0.15 to 0.70 carats in weight. The previously introduced (2007) DiaExpert™ Nano processed smaller stones between 0.01 and 0.30 carats in weight. In response to market demand, Sarin launched an enhanced model, the Nano 6.5, which allows manufacturers to enjoy the proven benefits of the Nano - cost effective, high accuracy and very high productivity - on a much broader range of stones than previously possible. Galatea, a wholly owned subsidiary of Sarin, launches the Solaris™ 100 inclusion mapping system especially designed for smaller rough diamonds, based on the same technology utilised in the Galaxy™ 1000 system, to offer customers, manufacturers and traders alike, who specialise in smaller sized rough diamonds, the same benefits of the Galaxy™ system, with higher resolution (better than VS1) and in a more cost-effective package. Sarin launches the Strategist™ sawplane planning system, providing the manufacturers with an accurate computerised planning tool, which utilises the rough stone's three dimensional structure and the planned locations of the polished stones generated by the Advisor™, along with Galaxy™ or Solaris™ derived inclusion mapping data, to generate a safer and higher yield laser cutting plan. This tool integrates the rough planning, and, specifically, its saw-plane planning process, and the actual Quazer™ sawing process into a computer controlled and coordinated process, to help avoid sawing perils such as cracks, fissures, bubbles, etc. Sarine Color Technologies Ltd., a wholly owned subsidiary of Sarin, acquires Light Performance Technology (LPT), a proven light performance system previously marketed by Overseas Diamonds Technology, to enable the automatic, independent and accurate measurement of a polished diamond's appearance by assessing its light performance characteristics – brilliance, fire, scintillation / sparkle and symmetry.

2011

The American Gem Society Laboratory (“AGSL”) concludes an evaluation of the DiaMension™ HD and, based on its superior performance in 3D modeling of polished diamonds, decides to augment their existing DiaMension™ systems with the newer HD model. In addition, it is agreed that AGSL, jointly with Sarin, will conduct a research program to develop an automatic Symmetry grading methodology based on measurements of the polished diamond's properties, as provided by the DiaMension™ HD. Galatea, a wholly owned

subsidiary of Sarin, launches the Galaxy™ 1000 HD (High Definition) inclusion mapping system based on the same technology utilised in the Galaxy™ 1000 system, to offer customers, manufacturers and traders alike inclusion mapping with high definition down to VVS level inclusions. Sarine Color Technologies Ltd., a wholly owned subsidiary of Sarin, debuts its light performance system, the Sarine Light™, which quantifies a polished diamond's appearance by accurately measuring its light performance characteristics –

- brilliance - how much light is reflected back through its crown;
- fire - how much light is broken into coloured bursts;
- scintillation / sparkle – how pronounced the diamond sparkles; and
- light symmetry - how symmetric is the diamond's light play.

Sarin launches the DiaMark™ HD system, complementing the DiaMension™ HD and Instructor™. The DiaMark™ HD is equipped with a super-fine laser, specifically designed for the diamond industry to Sarin's specifications, which produces extremely fine markings, derived from the Instructor™ software. This allows the polisher to accurately execute the prescribed optimal polishing without necessitating the manual documentation of same or relying on memory, resulting in higher accuracy, better Cut grade and more value. Sarine Color Technologies Ltd., a wholly owned subsidiary of Sarin, acquires the D-See technology, a revolutionary imaging method to capture realistic, accurate and objective imagery of a polished diamond, including its internal features. Derived from this technology, the Sarine Loupe™ system enables the electronic transmission of comprehensive imagery from seller to buyer, providing a means to truly assess a polished diamond from a multitude of angles and at various magnifications without having it physically in hand.

2012

Sarin launches the Diamond Assay Service, an online subscription service that enables diamond wholesalers, retailers, appraisers and others who buy, sell or appraise polished diamonds, to verify whether it's an authentic diamond (albeit without identifying synthetics / treatments), ascertain its geometric parameters and Cut grade, issue printed reports relating to same and propose possible solutions for re-cutting and re-polishing so as to derive greater potential value. Galatea launches the Galaxy™ XL (for Extra Large) system, doubling the size of rough diamonds that can be scanned for internal inclusion mapping purposes to 32mm, allowing rough diamonds weighing up to 180 (record 220) carats to be processed. The Gemological Institute of America (GIA) concludes that the DiaMension™ HD (High Definition) has the necessary accuracy and repeatability to be used to evaluate symmetry. The GIA found that "[the] DiaMension™ HD tested by GIA, demonstrated an apt capacity to deliver accurate and repeatable symmetry results" and that "improvements in the operation and accuracy ... now enable us to also measure ... symmetry parameters during the grading process". Sarin Technologies India Pvt, Ltd. ("Sarin India") purchases land measuring approximately 2,400 square meters for approximately US\$2.2 million in Surat, India on which it plans to build approximately 2,500 square meters for its service centres, its facilities for customer service, technical support and training, and other logistics infrastructure, scheduled to be completed in 2013.

Sarin launches the Advisor™ 5.0, a radically new version of its best-selling rough diamond planning software – specifically developed to even further improve the value of the polished diamonds derivable from the rough raw material. The new Advisor™ 5.0 release offers significant new improvements in five key areas - value (asymmetrical planning and borderline Cut grade evaluations; better use of Galaxy™ inclusion mapping data; special blocking instructions), productivity (multiple stones processed in parallel; marking process faster and easier), simplicity (manual inclusion handling, saw plane manipulation and remainder utilisation all made simpler), safety (critical steps, which could damage the rough diamond, made safer, with the addition of manual aids) and communications (communicating the sawing information from the planning department to the laser cutting department made clearer with the addition of annotation on the rough diamond of the sawing planes' identifying nomenclature). Sarine Polishing Technologies Ltd. Enters into a worldwide exclusive marketing arrangement for SpaceCode's Plexus RFID (Radio Frequency Identification) hardware and software solutions for the diamond industry, whereby it will derive a commission on all sales of equipment, tags and accessories. be concluded in this market.

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