CRISIL IER IndependentEquityResearch

# Astra Microwave Products Ltd

Initiating coverage

Enhancing investment decisions

## Explanation of CRISIL Fundamental and Valuation (CFV) matrix

The CFV Matrix (CRISIL Fundamental and Valuation Matrix) addresses the two important analysis of an investment making process – Analysis of Fundamentals (addressed through Fundamental Grade) and Analysis of Returns (Valuation Grade) The fundamental grade is assigned on a five-point scale from grade 5 (indicating Excellent fundamentals) to grade 1 (Poor fundamentals) The valuation grade is assigned on a five-point scale from grade 5 (indicating strong upside from the current market price (CMP)) to grade 1 (strong downside from the CMP).

| CRISIL Fundamental Grade | Assessment | CRISIL Valuation Grade | Assessment |
|---|---|---|---|
| 5/5 | Excellent fundamentals | 5/5 | Strong upside (>25% from CMP) |
| 4/5 | Superior fundamentals | 4/5 | Upside (10-25% from CMP) |
| 3/5 | Good fundamentals | 3/5 | Align (+-10% from CMP) |
| 2/5 | Moderate fundamentals | 2/5 | Downside (negative 10-25% from CMP) |
| 1/5 | Poor fundamentals | 1/5 | Strong downside (<-25% from CMP) |

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CRISIL is a global analytical company providing ratings, research, and risk and policy advisory services. We are India's leading ratings agency. We are also the foremost provider of high-end research to the world's largest banks and leading corporations.

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**Last updated: 30 April, 2012**

### Analyst Disclosure

Each member of the team involved in the preparation of the grading report, hereby affirms that there exists no conflict of interest that can bias the grading recommendation of the company.

### Disclaimer:

# Astra Microwave Products Ltd

## Astra's radar steers around for opportunities

| | |
|---|---|
| Fundamental Grade | 4/5 (Superior fundamentals) |
| Valuation Grade | 5/5 (CMP has strong upside) |
| Industry | Aerospace and defence |

**June 18, 2012**

| | |
|---|---|
| **Fair Value** | **Rs 55** |
| **CMP** | **Rs 40** |

Astra Microwave Products Ltd (Astra) designs, develops and manufactures sub-systems for defence and space applications. Its strong R&D, technical capability and established record places it ahead of its peers. Order book of more than 3x FY12 revenues provides visibility for the next two years. Healthy growth in defence capex and increase in the government's focus on indigenous manufacturing will keep its order book healthy. However, increasing competition, volatile earnings and lack of succession plans are key risks. We initiate coverage on Astra with a fundamental grade of **4/5**, indicating that its fundamentals are **superior** relative to other listed securities in India.

### Strong R&D, experienced team and established track record provide an edge

Astra has a strong R&D set-up with four in-house facilities and highly qualified and experienced personnel. The management team has over two decades of experience in DRDO and ISRO. By partnering with government agencies in many prestigious programmes, it has proved its technical capabilities. During any order bidding, technical competence weighs more than cost competitiveness, which gives Astra an edge over competitors.

### Increasing defence capex and focus on indigenous manufacturing to drive growth

India's expenditure on defence equipment has increased at a CAGR of 12% over the past 10 years. In the Union Budget for FY13, the military spending has been increased by 17% to ~US$40 bn. Further, in order to improve self-dependency, the government has introduced an offset clause, which has created another opening for Indian players. Astra has already started benefitting from this; it recently bagged an order worth Rs 3,100 mn. Although competition is high, the company's strong record will ensure a steady flow of orders.

### Current order book provides visibility for next two years

Astra's order book of Rs 7,300 mn, which is more than 3x FY12 revenues, provides visibility on its performance for the next two years. Further, we believe AESA radar (which CABS has productionised in association with Astra) will attract demand in the long term.

### Volatile business and unclear succession plan is a risk

Astra's profitability is highly susceptible to the uncertainty in the order inflows. In the past decade, its profit margins varied from 7% to 36%. The current order book provides visibility only for the next two years but long-term prospects are unquantifiable. However, increasing contribution from the offset orders is expected to moderate the volatility. Further, the company's future is highly dependent on the top personnel, who are fast approaching retirement age. An unclear succession plan adds to the uncertainty.

### Expect two-year revenue CAGR of 41% and profit margins of ~11% in FY14

Driven by the execution of its current order book, Astra's revenue is expected to grow at a two-year CAGR of 41% to Rs 4,038 mn in FY14. Its profit margins are expected to contract to 11% in FY14 due to the execution of the low-margin offset order.

### Valuations: Current market price has strong upside

CRISIL Research has used the price-to-earnings (P/E) method to value Astra. We have assigned a P/E multiple of 10x FY14E EPS of Rs 5.5 to arrive at a fair value of Rs 55.

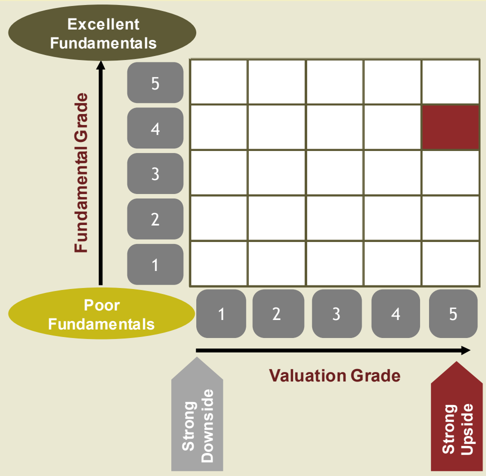
## KEY FORECAST

| (Rs mn) | FY10 | FY11 | FY12# | FY13E | FY14E |
|---|---|---|---|---|---|
| Operating income | 1,043 | 1,583 | 2,038 | 2,949 | 4,038 |
| EBITDA | 251 | 433 | 649 | 771 | 831 |
| Adj Net income | 78 | 186 | 383 | 428 | 451 |
| Adj EPS-Rs | 1.4 | 2.3 | 4.7 | 5.2 | 5.5 |
| EPS growth (%) | (51.2) | 58.2 | 105.5 | 11.9 | 5.3 |
| Dividend Yield (%) | 1.2 | 1.2 | 1.7 | 1.2 | 1.2 |
| RoCE (%) | 7.8 | 17.0 | 25.8 | 24.8 | 22.0 |
| RoE (%) | 6.1 | 13.5 | 24.1 | 22.5 | 19.6 |
| PE (x) | 28.1 | 17.7 | 8.6 | 7.7 | 7.3 |
| P/BV (x) | 1.7 | 2.3 | 1.9 | 1.6 | 1.3 |
| EV/EBITDA (x) | 9.7 | 8.0 | 5.4 | 4.9 | 4.5 |

# based on abridged financials, NM: Not meaningful; CMP: Current market price

**Source: Company, CRISIL Research estimates**

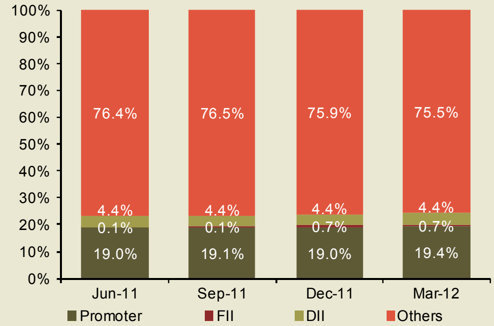
## CFV MATRIX




## KEY STOCK STATISTICS

| | |
|---|---|
| NIFTY/SENSEX | 5139/16949 |
| NSE/BSE ticker | ASTRAMICRO/ ASTRAMIC |
| Face value (Rs per share) | 2 |
| Shares outstanding (mn) | 81.8 |
| Market cap (Rs mn)/(US$ mn) | 3,253/58 |
| Enterprise value (Rs mn)/(US$ mn) | 3,447/62 |
| 52-week range (Rs)/(H/L) | 45/23 |
| Beta | 0.83 |
| Free float (%) | 81% |
| Avg daily volumes (30-days) | 268,460 |
| Avg daily value (30-days) (Rs mn) | 4.8 |

## SHAREHOLDING PATTERN




## PERFORMANCE VIS-À-VIS MARKET

| | Returns | | | |
|---|---|---|---|---|
| | 1-m | 3-m | 6-m | 12-m |
| Astra | -0.5% | 9% | 10% | 33% |
| NIFTY | 4% | -4% | 8% | -6% |

## ANALYTICAL CONTACT


Mohit Modi (Director) mohit.modi@crisil.com
Pravesh Rawat pravesh.rawat@crisil.com
Vishal Rampuria vishal.rampuria@crisil.com

**Client servicing desk**

+91 22 3342 3561 clientservicing@crisil.com

**Table 1: Business environment**

| Parameter | Defence | | Space | Others (meteorology and telecom) |
|---|---|---|---|---|
| | Defence | Offset | | |
| **Key business activity** | | | | |
| **Product application** | Missiles guidance system, radars, electronic warfare | | ISRO projects such as RISAT | Automatic weather stations, signal jammers |
| **Geographic presence** | India. Started receiving offset orders from other countries | | India | India |
| **Revenue CAGR (FY09-12)** | 40% | 90% | -21% | -56% |
| **Revenue CAGR (FY12-14)** | -3% | 301% | 24% | -9% |
| **Revenue contribution (FY12)** | 84% | 8% | 7% | 1% |
| **Revenue contribution (FY14)** | 37% | 58% | 4.5% | 0.5% |
| **Key competitors** | Data Patterns, Avental, Ananth Technologies, Tata Advanced Systems and L&T Cassidian Ltd | | | |
| **Demand driver** | • Increasing government's defence capital expenditure<br>• Focus on self reliance by Indian government and, hence, indigenous manufacturing<br>• Offset clause in defence contract | | | |
| **Key risks** | • Sales highly dependent on the order inflow<br>• Lumpy nature of the order inflow makes sales volatile<br>• Volatile margins | | | |

**Source: Company, CRISIL Research**

## Grading Rationale

### One of the few in a niche space

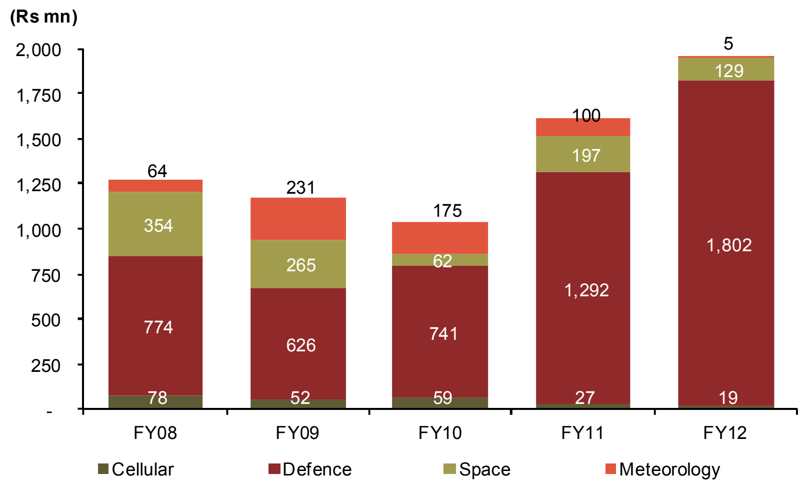
Astra designs, develops and manufactures sub-systems for defence and space organisations; it is one of the few private players in this space. It has designed and developed various products in collaboration with government agencies like Defence Research and Development Organisation (DRDO), Electronics and Radar Development Establishment (LRDE) and Indian Space Research Organisation (ISRO). Its key competitors are Data Patterns, Avental, Ananth Technologies, Tata Advanced Systems and L&T Cassidian Ltd (a JV between Larsen & Toubro and EADS Deutschland).

**This is how it works**: The Indian armed forces express the requirement of a new technology / product to DRDO, which in turn undertakes the responsibility of designing and developing the product. Bharat Electronics Ltd (BEL) takes the responsibility of production. Bids are invited from players to participate in the design and development of the sub-systems as per the specification of the product. Players are paid for the prototype developed with margins dependent on the competitive bidding. Once the product is developed and a prototype is approved by the respective armed forces, bids are invited for commercial production or it can be given to the player that designed. The bids are evaluated first on technical strength; the remaining players then compete on cost. Same private players who were involved in the design and development of the sub-components hold a good chance of winning the commercial order because 1) the prototype made by them has already been approved by user, and 2) their knowledge about the technology has already been proven.

**Radar (a detector) is a system manufactured by BEL for which it requires mainly three components / sub-systems – antenna, transmitter and receiver. Astra supplies these sub-systems**

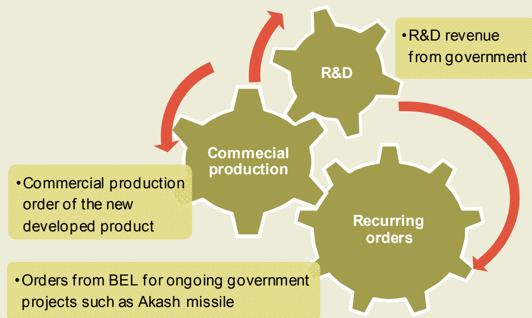
A wide-ranging product portfolio – defence (missiles, radars, electronic warfare), space (satellites, radars) and telecom (jammers, amplifiers, antennas) – has diversified Astra's revenue stream. Over the past five years, defence has been the main revenue contributor (65-70%), followed by space and meteorology (10-15% each). Astra is one of the key vendors of BEL – a manufacturer of advanced electronic products for the Indian armed forces.

**Figure 1: Defence segment is the major contributor**




**Source: Company, CRISIL Research**

**Astra's revenue drivers**



## Strong in-house R&D helps to win orders

Astra's growth has been driven by continuous product development primarily based on the client's requirement and then commercial order inflow of these new products. Given, the Indian government's increasing focus on indigenous manufacturing, we believe these drivers will continue to benefit Astra going ahead. It has already partnered with DRDO in the deployment of some new products (explained later) which, we believe, will be the key technology for the future and will drive demand.

### *Long history of product development*

Leveraging on its strong technical skill set, Astra has developed many products in association with defence and space agencies such as DRDO, LRDE and ISRO. It develops the product primarily on the client's requirement. The company's facilities are recognised by the Ministry of Science and Technology, Government of India and are ISO 9001:2000 certified by Intertek, the UK.

**Astra executed R&D order of BFSR on the basis of which it received production order. The order helped sales grow from Rs 392 mn in FY04 to Rs 1,168 mn in FY06**

**Table 2: Ready reckoner: Products**

| Year | Segment | Products |
|---|---|---|
| FY02 | Cellular | Cell jammers and V-SAT antennas in Ku band |
| FY03 | Defence | RF front end sub-systems with LRDE (electronics and radar development establishment) |
| | Cellular | CDMA filters |
| FY05 | Defence | TR module for active aperture radar for electronic warfare application |
| | IMD | Automatic weather station (AWS) in association with ISRO |
| | Cellular | Optical repeaters for cellular applications |
| FY07 | Defence | TR module for phased array radar in S band |
| | Space | TR module for "RISAT" entered into critical stage and some systems of flight module were delivered |
| FY08 | Defence | Central acquisition radar (3D-CAR) in association with LRDE |
| FY10 | Defence | S-band Active Aperture Array of 1244 elements using 100W TR modules |

**Source: CRISIL Research**

Recently, Astra, in association with Centre for Air Borne System (CABS), has productionised new technology radar (AESA radar) which is highly efficient than the old radars and considered as a big achievement for India.

The DRDO itself has appreciated the development as a significant and high-value indigenous effort (http://drdo.gov.in/drdo/labs/CABS/English/index.jsp?pg=compact.html).

Further, Astra has made significant contribution to prestigious programmes like RISAT, Akash missile and battle field surveillance radar (BFSR). This provides comfort on the company's execution capabilities. In RISAT programme - India's first indigenous all weather radar imaging satellite launched on April 26, 2012 - it has supplied critical components of radar.

### *Has a highly skilled and experienced team*

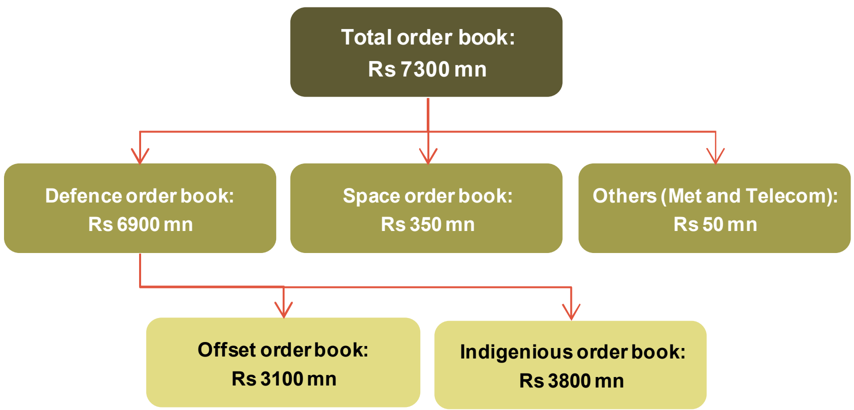
Astra is a knowledge-driven company; manpower is its most valuable asset. It is promoted by a team of highly qualified people with an experience of 20-25 years with renowned government agencies such as DRDO, LDRE and ISRO in radio technology. It has more than 700 employees. Most of the senior employees have experience of more than a decade (more than five years with Astra) with government organisations like ECIL, HAL, BEL and DRDO. It mostly hires experienced scientists from these organisations only. New entrants, usually hired from IITs, undergo a training of six months before joining the laboratories.

## Rich order book provides visibility for next two years

**Astra to grow phenomenally in the next two years with the help of its existing order book of Rs 7,300 mn**

We expect Astra to grow phenomenally in the next two years with the help of its existing order book of Rs 7,300 mn; more than 3x FY12 revenues of Rs 2,038 mn. Out of the total order book, 90% is production and 10% is R&D. The company is expected to execute most of its production order book in the next two years. Revenues are expected to grow at a 41% CAGR in the next two years to Rs 4,038 mn in FY14.

**Figure 2: Order book break-down**




**Source: Company, CRISIL Research**

The current order book is dominated by the defence segment (Rs 3,100 mn offset order from ELTA) and indigenous orders from ongoing projects like CAR-1100, Akash, etc.

**Astra has bagged an order worth Rs 3,100 mn under the offset clause**

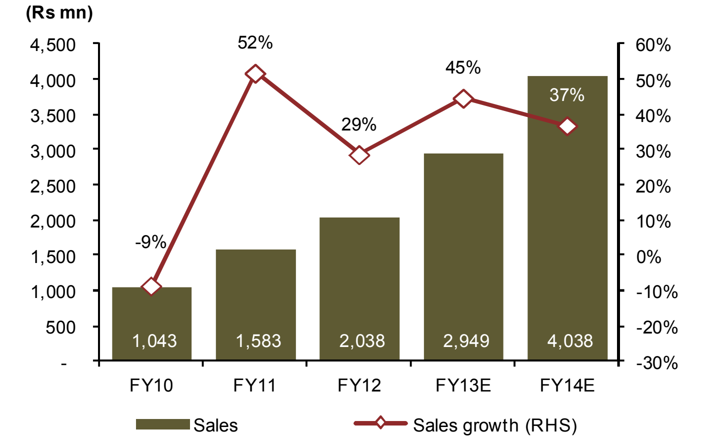
**Offset order worth Rs 3,100 mn:** Astra has bagged an order worth Rs 3,100 mn under the offset clause from ELTA. The offset clause mandates a foreign vendor to source at least 30% of the contract value from India for any Indian contract above Rs 3 bn. Under the contract, Astra will deliver 11000 T/R modules manufactured as per the design provided by ELTA.

ELTA is required to service the order for India before FY16 so we assume it will need the sub-systems at least one year before the delivery date. Further, as per the delivery schedule, Astra will deliver the first batch of 60 T/R modules in November which will be tested in ELTA's laboratory. If no change is suggested, then the whole order will be delivered in 10 batches within 10 months. However, after factoring in the delay due to testing and approval, we believe Astra will execute the complete order over the next two years (mostly in FY14).

**Indigenous orders worth Rs 3,800 mn:** Astra's indigenous book mostly consists of order from Akash missile and Central Acquisition Radar (3D-CAR). The company is expected to execute most of the order book in FY13.

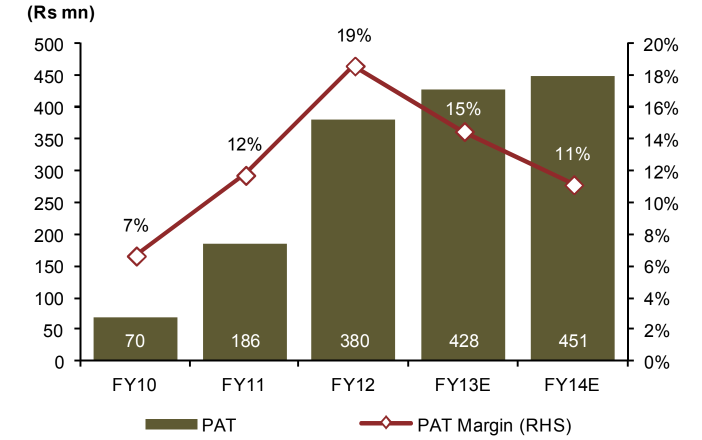
As per our study of annual reports of past ten years, the company has largely performed in line with the guidance given by the management. It shows management's visibility on the order book in hand. We derive comfort from this. We expect revenue to grow at an average 41% in the next two years to Rs 4,038 mn in FY14. However, profit margins are expected to be lower at 11% in FY14 primarily on account of the low-margin offset order, which is expected to contribute ~58% to the total sales in FY14.

**Figure 3: Sales growth on the back of healthy order book**




**Source: Company, CRISIL Research**

**Figure 4: PAT margin to be lower**




**Source: Company, CRISIL Research**

## Immense opportunities in future to support order flow

We expect Astra's order book to remain healthy in the near term on account of recurring demand from on-going defence projects such as Akash missile, 3D- CAR and RISAT. There are few more projects which are expected to release orders such as Weapon Locating Radar (WLR), Flycatcher radar and AWS, which will boost growth. Further, the offset clause will provide more opportunities. In the long run, we believe AESA radar technology will attract demand. We believe there will be sizeable opportunities in the market. Considering its past record and its association with the government agencies in the R&D, we believe Astra will be able to win some of the projects and grab a part of the large pie.

### *Strong industry growth to boost the order book*

With increase in defence expenditure and various ongoing projects of Indian armed forces and ISRO, we expect Astra to continue to benefit from the recurring demand for sub-systems. Projects like Akash missile and 3D-CAR are expected to run for a long time. Astra enjoys a long and healthy relationship with key suppliers to Indian armed forces such as BEL, Bharat Dynamics Ltd (BDL) and the space agency - ISRO. Based on Astra's long execution record in terms of product development with government agencies, final product delivery and participation in prestigious projects like RISAT, we believe the company will keep bagging orders.

### *Increase in defence capex to drive demand*

India's expenditure on defence equipment has increased at a CAGR of 12% over the past ten years. In the recent Union Budget for FY13, the military spending has been increased by 17% to ~US$40 bn. This is being done at a time when the country is already upgrading the ageing military hardware. The defence capital expenditure is pegged at US$15.84 bn, an increase of 14.89% over the last year's defence capital expenditure budget of US$14.12 bn. According to the draft 12 Five-Year Plan, the defence expenditure (as a percentage of GDP) is projected to be ~1.83% of GDP in FY12 and 1.56% of GDP in FY17.

We believe Astra's order book will continue to be in favour of the defence segment for the next two-three years. BEL, the largest defence electronics supplier and one of the large clients for Astra, has a strong order book of Rs 276 bn at the end of FY12. Radar and missiles (Astra's major market) contributed 50% to the total order book of FY12. The consensus estimate of the growth in the BEL's order book is 11% CAGR over the next two years to Rs 340 bn.

**BEL rated Astra 98 out of 100 in vendor performance for FY10**

**Rating above 70 is acceptable and above 90 is considered good**

**Expected order flow in the next few years:** As per the management, some orders are expected under various programmes in the next two-three years. In the space segment, IMD is planning to announce an order for 400 AWS (automatic weather stations) under phase-II of its modernisation programme. This is the same product which Astra developed during FY05-FY06 and executed an order for ISRO during FY08 and FY09. As per the management, the earnings potential from this contract for players like Astra would be ~Rs 350-400 mn. Further, ISRO is planning for repeat launches of RISAT which will open up one more opportunity for Astra. Considering its established technical capabilities, we believe Astra would be a strong contender in bidding.

**Table 3: History of order bidding of major projects**

| Project | No. of competitors | Comments |
|---|---|---|
| RISAT | 4 | Astra was L2 bidder but still managed to get the order due to technical strength of its product |
| BFSR | 6 | Astra won the R&D bid outbidding five competitors. Further commercial production bid came proprietary |
| WLR (R&D Order) | 3 | Competitors were eliminated based on technical evaluation and Astra won the order |
| Brahmos missiles | 3 | Astra lost the bid to ECIL and Data Patterns on commercial grounds. But supplying RF component to ECIL for the same project |

**Source: Company**

### *Products under development to accelerate growth*

Astra, in association with DRDO and ISRO, is developing many products such as AESA radar (S-band T/R module, X-band T/R module), See-though radar and L-band radar. AESA radar, once tested and approved, will be in demand because it is far more efficient then the existing radars. Further, cost competitiveness will push demand for indigenous production. A T/R module can be produced indigenously at less than 25% of the imported cost of an equivalent device. The prime reason of such a high cost differential is the difference in the manpower cost. Although bids will be invited for commercial production, there is no doubt that Astra will qualify the competitive competency test. We expect the demand to start flowing post FY14.

**Table 4: Different programmes – AESA radar and scope for Astra**

| Project | Description | What Astra can supply | Comments |
|---|---|---|---|
| AEW&C | ELTA, Israel and Brazilian Embraer are supplying aircrafts to India. The aircrafts from Brazilian Embraer will be without radars. Indigenously manufactured S-Band AESA radars will be tested in these aircrafts | S-band T/R modules | Partnered in the development of the product. Already supplied 3 units of T/R module array. User testing is in progress |
| WLR (Weapon Locating Radar) | 28 units are on order and are being manufactured by BEL. Total order worth Rs 15 bn. The WLR will eventually service the army's requirement for 40-50 systems | S-band T/R modules | Partnered in the development of the product. Expected to get the commercial production order |
| MPR (Medium Power Radar) | Active phased array radar being developed for the Indian Air Force for range exceeding 300 km | X-band T/R modules | Partnered in the development of the product. Astra has already supplied two modules of X-band T/R. User is testing the same |
| LCA (Light Combat Aircraft) | The Tejas (LCA) was cleared in January 2011 for use by Indian Air Force pilots. It will reach final operational clearance until 2014 | X-band T/R modules | Partnered in the development of the product. Astra has already supplied two modules of X-band T/R. User is testing the same |

**Source: Company**

Further, there are many long-term ongoing projects, which currently use the old technology such as Akash missiles, Central Acquisition Radar, etc. The potential for usage of AESA radar in these projects is huge. We believe Astra will derive a lot of value from expected demand as it has already established its know-how and production capabilities. The recent offset order from ELTA is an example.

***"Development of the Transmit-Receive Multi-Module (TRMM) was a significant and high-value indigenous effort as the technology"*** **– DRDO website**

**Shift in the value chain to provide incremental growth:** Apart from the expected demand, any sub-system manufacturer like Astra will also benefit from the new technology due to the shift in the value chain. With the introduction of T/R module in the radars, the share of a sub-system manufacturer in the complete value chain of system manufacturing has increased from 30% to 60%.

For mechanically steered radars, Astra supplies sub-systems such as antennas and receivers, which contribute 20-30% of the total cost of radar. It is capable of producing transmitters till 500W only. For radar of more than 500W, which requires a transmitter of the same power, it keeps its supplies limited to only antennas and receivers. However, for AESA radar it can produce complete antenna microwave assembly (transmitter and receiver module) as it required several small power T/R modules fitted in the antenna which compositely produce the required high power. In AESA, antenna cost is 60-70% of the total cost of radar.

For a total radar cost of Rs 100 mn, earlier Astra provided sub-systems worth Rs 30 mn, while now it will supply the sub-systems (T/R module) worth Rs 60 mn. This shift in the value chain towards the sub-system manufacturer will accelerate Astra's growth.

## *Government's emphasis on indigenous manufacturing to benefit Astra*

We believe the government will continue to award new contracts to industry players for the development of new technology/products. Astra is just waiting in the wings to grab this opportunity. The Indian government has been increasing its focus on indigenous manufacturing due to a) high maintenance cost of imported goods, b) large cost differential between imported and indigenously manufactured products, and c) to reduce dependency. As technical competence weighs more than cost competitiveness, we believe Astra will continue to win contracts in the future also. There have been instances where contracts were awarded based on only technical competitiveness.

**Offset clause is a boon:** India is the largest importer of arms and equipment in the world. Nearly 70% of total defence equipment requirement is met by imports. The offset clause opens sizeable opportunity for Indian players. Astra has already started reaping the benefits of it. It recently won an offset order worth US$59.9 mn (~Rs 3,100 mn) from ELTA to manufacture T/R modules as per design given by them. This is the second order from ELTA, the first one was received in FY10. This order was directly given to Astra, which is a manifestation of its execution capability.

We believe Astra will benefit from the number of on-going defence programmes such as medium multi-role combat aircraft (MMRCA), very short range air defence (VSHORAD), etc. Astra has already signed a MoU with tier 1 supplier of Dassault Rafale – winner of the MMRCA project. The order from this is expected to flow in the next two years. Astra supplies export components from its 100% export oriented unit, which provides it tax benefits.

**Offset opportunity to opens sizeable opportunity for Indian players**

## Volatile performance is a concern

Astra's performance is highly dependent on the order inflow. In the past decade, its revenue and profitability has witnessed very high volatility. Its PAT margin has ranged from 7% to 36%. In the past decade, over FY07-FY10, the company reported flat sales with decreasing profitability. Today also, the current order book provides visibility for only two years but its long-term growth remains uncertain. However, considering the company's position and opportunity universe, we expect the company will keep getting some orders but the risk of high volatility cannot be ignored. Further, we believe additional business from the offset order will moderate the volatility.

## Increasing competition will lower profitability

With increasing opportunities, attractive margins and the government's focus on public-private participation, many private players are eyeing the defence manufacturing sector. Industry sources reveal that some Indian players are opting for the joint venture route to skip the long gestation period of research and development - L&T Cassidian Ltd is a JV between Larsen & Toubro and EADS Deutschland. We expect competition to increase which will a) reduce Astra's share in the order flow and b) impact its margins due to aggressive bidding.

In the R&D segment, the government has already started focussing on diversifying its vendor base. We believe in some of the future development projects, the government will partner with at least two parties. Further, as most of the technology or products developed in collaboration with government agencies are not patented, there is a risk of the government (in order to diversify its vendor base) transferring the technology to other players for the commercial production. However, the company is trying to reduce its cost to fight competition but this is at the cost of profitability.

**Cost reduction strategy to provide an edge but at the cost of profitability:** Most of the RF component manufacturers import most of the raw material (silicon chips) from the US and Europe due to non-availability in India. Astra has collaborated with a Taiwan-based foundry for the manufacturing of these chips. Leveraging on its technical strength, it will now design the chips in-house and then outsource the manufacturing to the foundry. This will save two-third of the raw material cost which contributes ~80% in the cost of production. This will help the company to bid more aggressively.

## Capacity expansion planned for next level of growth

### *Automisation and expansion*

In order to meet the expected growing demand, Astra has planned capacity expansion to the tune of Rs 560 mn over the next three-four years. It will fund the capex with a mix of debt and equity. It is planning the expansion in two phases.

Generally, the company does not require any heavy machinery for its operations. We believe, even post expansion its D/E will remain at modest levels (0.3 in FY14) which will provide it with the financial flexibility to further expand its capacity.

***Phase 1 –*** Automatic SMT (surface mount technology) line: SMT lines are used to assemble the product as per the required design. Currently, Astra outsources its assembly operations to approved vendors who assemble the components as per the design provided. Astra designs and tests the prototype before mass production.

As a function of its outsourced business model, capacity is not a constraint for Astra but to speed up the process of assembly, it is planning to set up an automatic SMT line in its Hyderabad unit. It will also help the company in a) reducing the dependency on vendors for small scale production of prototypes used during R&D, and b) reducing the cost of manufacturing as vendors generally command 15-20% margins.

Although one assembly line will be able to service only 20-25% of its existing order book, for the next two to three years, Astra plans to outsource commercial production to assemblers but will decrease the dependency by automating more SMT lines. The capacity is expected to come on stream in FY13; total capex planned is Rs 230 mn.

**Phase 2 –** Setting up a production facility: To cater to the growing demand from the defence segment and to be in close proximity to end customers, Astra is setting up a facility in the five-acre aerospace industrial park, near the International Airport, Bengaluru. The operations are expected to commence in FY15. Total planned capex is Rs 330 mn. The company has already applied for the land; as per the management, it will receive the land in the next three-four months.

## No succession plan in place – a big threat to sustainability

Astra was incorporated by six promoters, of whom three have retired. The other three are also nearing the retirement age. All three promoters hold critical positions in the company. Based on our discussion with the management we have learnt that promoters are highly involved in day-to-day business activities. New product development is also undertaken by the R&D chief who is one of the promoters.

**Unclear succession plan adds to the uncertainty**

Management has informed that currently, they do not have any succession plan in place. As we believe that Astra's future is highly dependent on the management, an unclear succession plan is disconcerting. However, they are grooming the second line of management to address the concern.

Usually, a PE investor has an investment horizon of three to five years, but Strategic Ventures Fund (Mauritius) has remained invested in the company for 10 years. It bought 28.8% stake in FY02 but subsequently disinvested 13.4% during FY05 and FY06. Hence, we believe it may be looking to exit. We also believe that L&T Capital Company Ltd (a subsidiary of Larsen & Toubro Limited), which holds 9.7% in the company, may be interested in increasing its stake. Way back in 2008, a section of the media had reported that L&T wanted to buy Strategic Ventures Fund's stake in Astra. Further, the promoter's low holding at 19.4% makes the company an acquisition target.

## Lengthy cash generation cycle

Astra primarily caters to the government organisations and the products manufactured generally have a production cycle of a year. Because of this, it has long debtor days (average 200 days in past five years) and inventory days (average 213 days in past five years). However, it receives advance payments, generally 30%, for any contract which helps to reduce the cash generation cycle, but it remains higher (average 188 days in last five years). We expect debtor days to come down in FY14 as the payment from ELTA, which will contribute a major part of the company's sale, is backed by a letter of credit (LC).

# Key risks

## Retention of employees is a challenge

For a knowledge-driven company like Astra, manpower is the most important asset. Retention of its employees is very important. There have been instances in the past where employees have been poached by competitors by offering higher packages. So far, the company has maintained a low attrition rate (<3%, as per the management) on account of a) unavailability of much options for scientists, and b) high compensation levels (high remunerations + sales linked bonus + ESOPS). However, with increasing competition, retention of employees will be a challenge.

## Foreign exchange risk

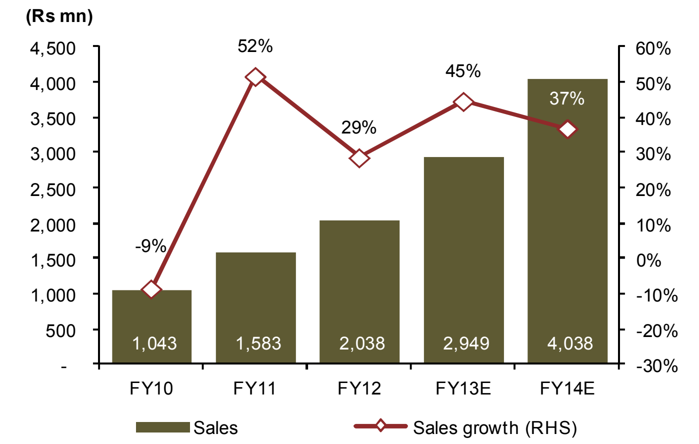
The company is expected to realise a significant portion (58% of total sales in FY14) of revenue from exports. It has won an offset order worth US$ 59.9 mn (~Rs 3,100 mn at an exchange rate of Rs 51.8 per US$). CRISIL Research expects the rupee to appreciate from current levels, to 50 per dollar by FY13-end. This assumes a modest recovery in Eurozone towards the second half of FY13 which will bring back capital inflows. If domestic and global recovery strengthens further in FY14, then the country could see a revival of capital inflows which could strengthen the rupee further. Currently, the company does not have a hedging policy, hence it remains exposed to the foreign exchange risk in case the rupee appreciates from Rs 51.8 per US$. However, the company always has an option to hedge its open position in the future.

## Financial Outlook

### Order book execution to drive revenue growth

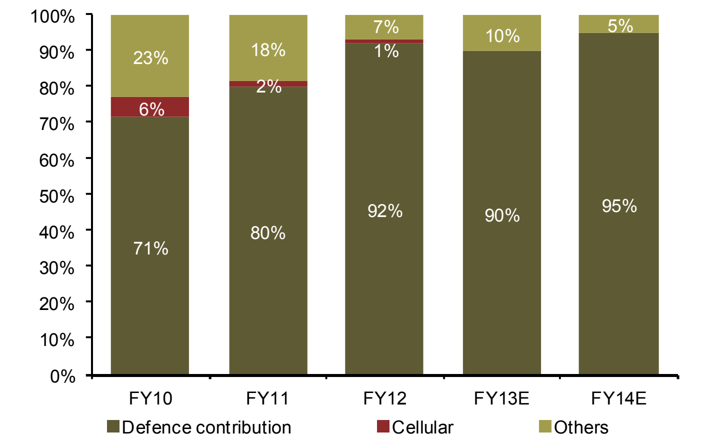
Driven by the execution of a big order book, Astra is expected to report revenues of Rs 2,949 in FY13 (up by 45% y-o-y) and Rs 4,038 mn in FY14 (up by 37% y-o-y). Revenues are expected to be skewed towards the defence segment. We expect the company to complete most of the indigenous defence orders in FY13, while a major part of the offset order (Rs 3,100 mn) will be executed in FY14. To calculate the realisation from the offset order, we have assumed an exchange rate of Rs 48 per USD.

**Figure 5: Revenues to grow at a CAGR of 41%**




**Source: Company, CRISIL Research**

**Figure 6: Defence segment to dominate sales**

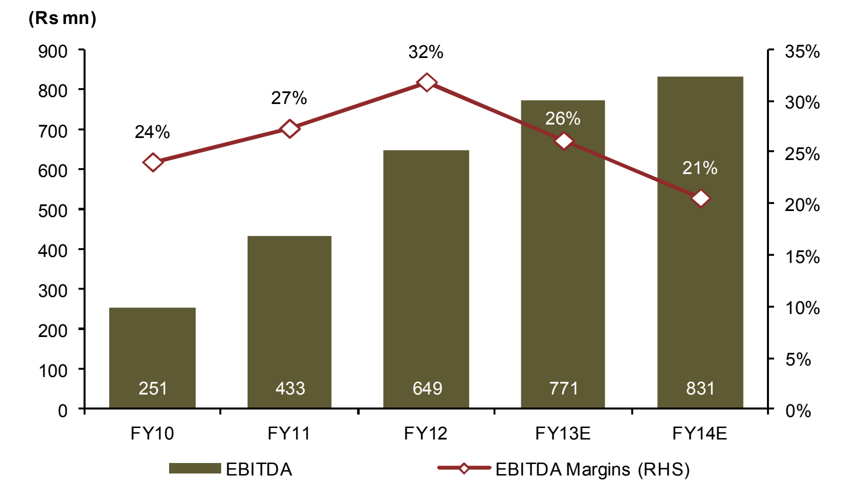



**Source: Company, CRISIL Research**

### EBITDA margins to contract

We expect Astra's EBITDA margin to drop by 570 bps in FY13 to 26% and further by 560 bps in FY14 to 21%. The contraction is due to execution of the low-margin offset order. However, in any new product delivery, profit margins are higher as the company charges development cost along with normal margins. Any domestic order will improve margins.

**Figure 7: EBITDA margin to contract in FY14; still remain healthy**



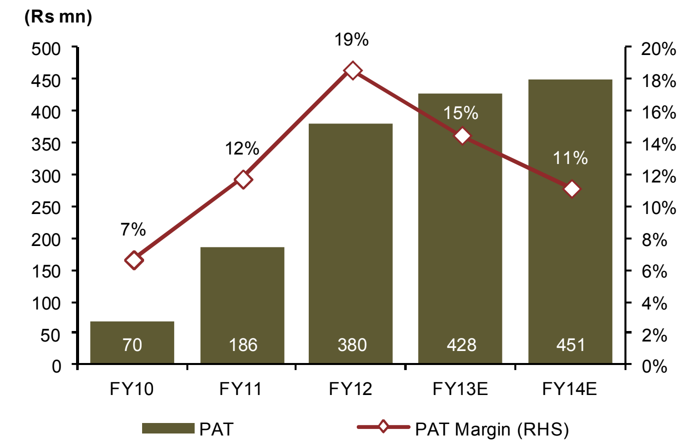

**Source: Company, CRISIL Research**

## PAT margin to decline in line with operating performance

We expect the company to report 15% PAT margin in FY13 and 11% in FY14. The drop is in line with the EBITDA margins and is supported by increased depreciation expense and higher interest cost. The company will commission the automatic SMT line in FY13, capitalisation of which will increase the depreciation.

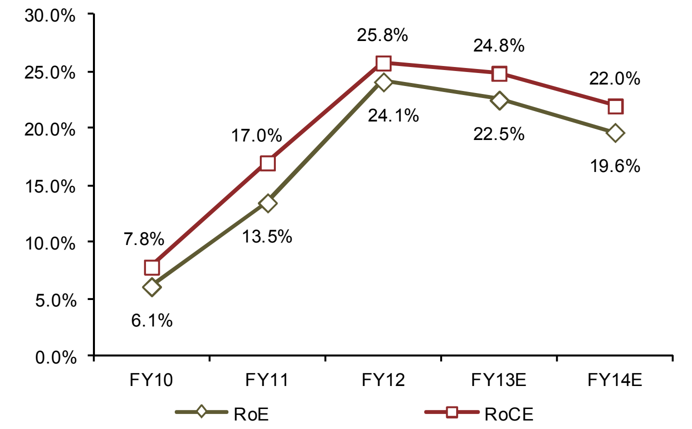
The EPS is expected to be Rs 5.2 in FY13 and Rs 5.5 in FY14. The company is expected to report RoE of 22% and 20% in FY13 and FY14, respectively.

**Figure 8: PAT margin to decline in FY13 and FY14...**




**Source: Company, CRISIL Research**

**Figure 9: ...so will RoE and RoCE**




**Source: Company, CRISIL Research**

## Management Overview

CRISIL's fundamental grading methodology includes a broad assessment of management quality, apart from other key factors such as industry and business prospects, and financial performance.

### Well qualified and experienced management

Astra has an experienced and well qualified management team headed by Mr B. Malla Reddy (managing director). Mr P.A. Chitrakar (COO) and Mrs C. Prameelamma (director - technical) support him. The management team has an average two decades of experience in government organisations like DRDO, ISRO and LRDE. They are highly qualified in the field of electronics and have in-depth knowledge of the business. Using management technical expertise, Astra has developed various products and broadened its product offerings. Astra has grown manifold under the guidance of the management team.

| | |
|---|---|
| Mr B. Malla Reddy | Masters in Engineering (Automation) from the Indian Institute of Science, Bengaluru. He has over 23 years of experience at the Systems Division of ISRO, Bengaluru and as a scientist at DRDO, Hyderabad. |
| Mr P.A. Chitrakar | M.Sc (Physics) from Mysore University and M.Tech (Advanced Electronics), Jawaharlal Nehru Technological University (JNTU), Hyderabad. He has been with Defence Electronics Laboratory, Hyderabad as a scientist for over 20 years. He has vast knowledge in the design aspects of a wide range of microwave components. |
| Mrs. C. Prameelamma | Master’s degree in Engineering (Instrumentation & Control Systems) from S. V. University, Tirupathi. She had worked with Electronics Research and Development Establishment, Bengaluru and Defence Electronics Research Laboratory, Hyderabad. Her areas of expertise include the computer-aided design work stations, manufacture and testing of microwave components. |

Further, the management has mostly met its guidance given in the annual reports. This gives us comfort in terms of its capability and foresight.

### Professional second line of management

Astra has a strong second line of management with professionals having experience between 15 and 40 years. Most of the professionals have worked with government agencies like Hindustan Aeronautics Ltd (HAL), BEL and LRDE. Most of the key managerial personnel have been associated with the company for more than five years.

## Corporate Governance

CRISIL's fundamental grading methodology includes a broad assessment of corporate governance and management quality, apart from other key factors such as industry and business prospects, and financial performance. In this context, CRISIL Research analyses the shareholding structure, board composition, typical board processes, disclosure standards and related-party transactions. Any qualifications by regulators or auditors also serve as useful inputs while assessing a company's corporate governance.

Overall, corporate governance at Astra meets the regulatory requirement – it has reasonably good board practices and an independent board.

**Corporate governance practices at Astra meet the regulatory requirement**

### Board composition

The board consists of six members, two of whom are independent directors and one is non-executive director, which is in line with the requirements under Clause 49 of SEBI's listing guidelines. The board is chaired by an independent director, Dr Shiban K. Kaul –professor and head of the Department of Centre for Applied Research in Electronics at IIT-Delhi. The other independent director is Mr J. Venkata Das, who was with Canara Bank's venture fund, when it provided the seed capital to the company. The board also consists of a non-executive director, Mr Atim Kabra, who represents Strategic Ventures Fund (Mauritius) on the board.

### Board's processes

The company's quality of disclosure can be considered good judged by the level of information and details furnished in the annual report, websites and other publicly available data. The company has all necessary committees in place to support corporate governance practices. The audit committee is chaired by an independent director, Mr J. Venkatadas. The committee meets at timely and regular intervals. The remuneration committee is chaired by Dr Shiban K. Kaul and includes Mr J. Venkatadas and Mr Atim Kabra.

## Valuation Grade: 5/5

Astra operates in an industry where revenues and profitability are highly dependent on the order inflow. Considering the volatile nature of the business, we believe the P/E multiple approach is the best one to value the company.

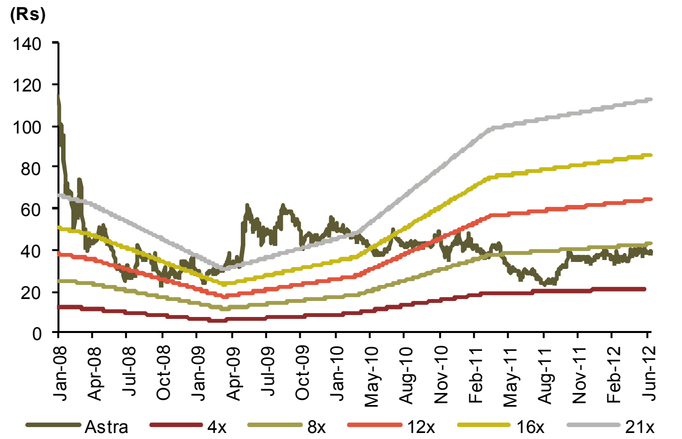
We assign P/E multiple of 10x to Astra's FY14E EPS and arrive at a fair value of Rs 55 per share. Based on the current market price of Rs 40, our valuation grade is **5/5**, indicating that the market price has a **strong upside** from the current levels.

### One-year forward P/E

| Name | 5-years Average | 5-years Median |
|---|---|---|
| Astra | 17.5 | 16.1 |
| BEL | 14.2 | 14.4 |
| Avantal | 13.1 | 12.1 |

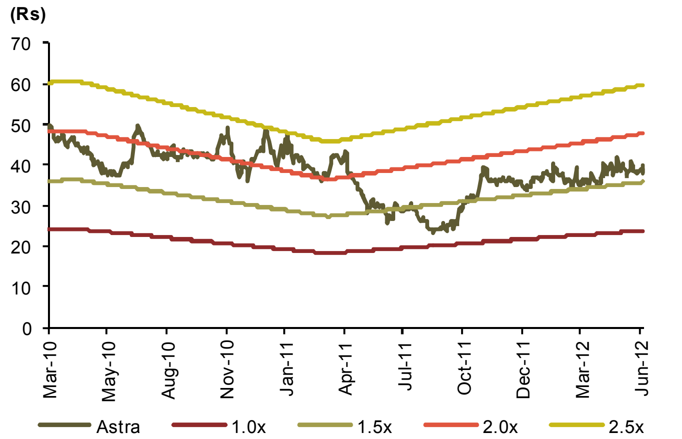
Astra commanded a P/E multiple of an average 10.4x during FY04 to FY06 – high growth years in the last decade. As the next two years are expected to be high growth phase for the company, we believe it should command a P/E multiple of 10x on FY14 earnings.

### One-year forward P/E band



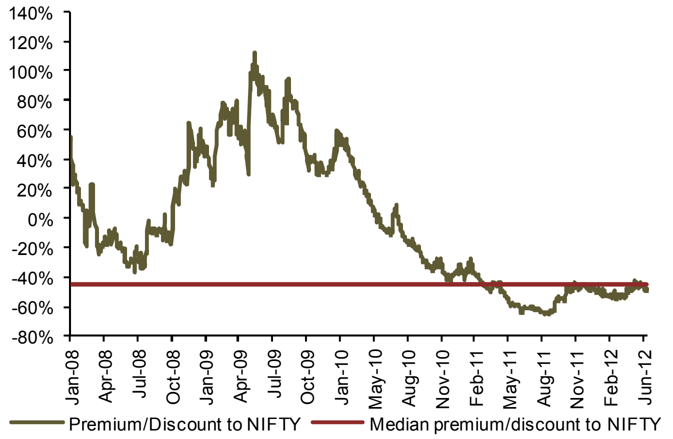

Source: NSE, CRISIL Research

### One-year forward P/B band



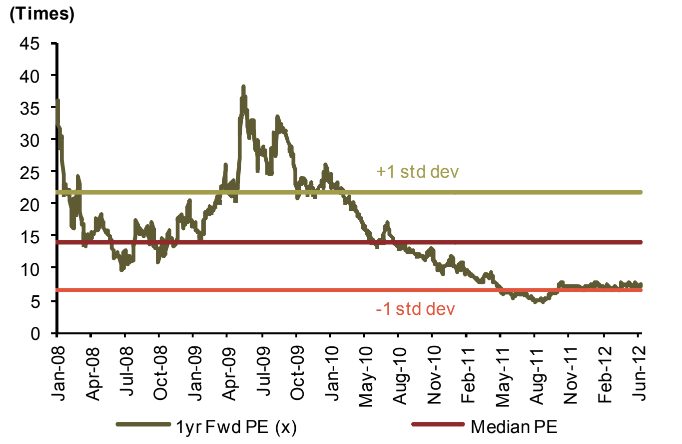

Source: NSE, CRISIL Research

### P/E – premium / discount to NIFTY




Source: NSE, CRISIL Research

### P/E movement




Source: NSE, CRISIL Research

## Company Overview

Hyderabad-based Astra is one of the few suppliers of components for defence, space, meteorology and telecom segments. It started as a component manufacturer for telecom in 1991 but it now caters to defence and space segments. During the past five years, defence has contributed 65-70% to revenues, followed by the space and the meteorology segments (10-15% each). It has four production units covering 120,000 sq.ft. in Andhra Pradesh.

**Table 5: Product portfolio**

| Segments | Products | Application |
|---|---|---|
| Defence | Command guidance units, radar components, radio proximity fuse | Missiles, radars, electronic warfare |
| Space | MSS terminal, radar components | Satellites, radars |
| Cellular | Amplifier, jammer, VSAT antenna | Civil |
| Meteorology | Automatic weather stations | Weather monitoring |

**Source: Company, CRISIL Research**

### Key Milestones

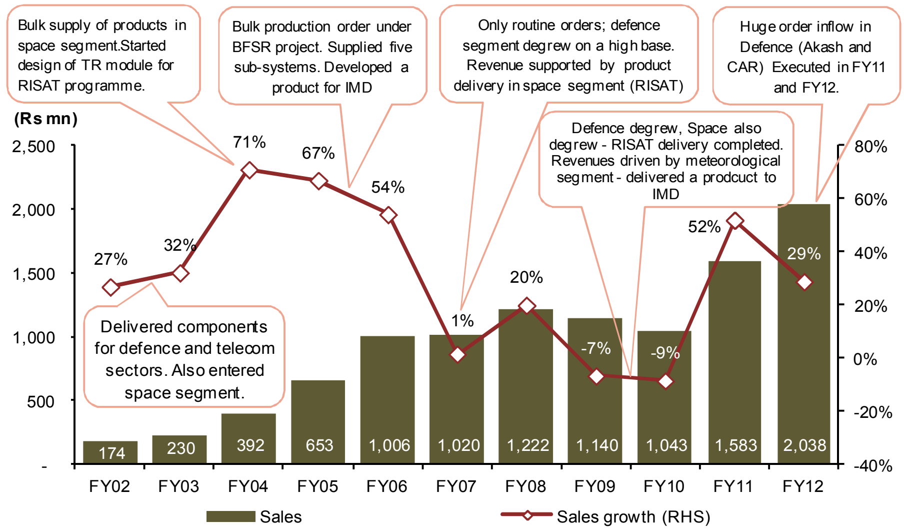
| | |
|---|---|
| **2001** | Best technology absorption award from the Government of India for the year 2001 for successfully adopting the technology for producing sub-systems for critical defence applications. Import substitution (2$^{nd}$ prize) award from 62nd All India Industrial Exhibition |
| **2003** | Entered the space segment through supply of MSS terminals during the year |
| **2004** | Set up facility for TR module for satellite application. Prototype development orders were received at the end of the year |
| **2005** | Designed and developed Automatic Weather Station (AWS) in association with ISRO |
| **2005** | Designed and developed optical repeaters for cellular applications |
| **2007** | Entered an offset for supply of RADAR sub-systems |
| **2012** | Received Rs 3,100 mn offset order from ELTA |

## Snap shot of financial performance in last decade

Astra's performance in the past decade has been very volatile driven by the lumpy nature of sales order/prototype tender from the sourcing agencies. Sales and profitability are highly dependent on the nature of order flows from these departments and their execution. Although recurring orders remain, any lumpy order execution increases the volatility of performance.

During FY02 and FY03, Astra delivered sub-systems for defence and telecom sectors, which helped in top line growth of 27% and 32%, respectively. In FY04, it executed a big order for ISRO in which it supplied managed security services (MSS) terminals which are used for communication during disasters. Sales grew by 71% to Rs 392 mn in FY04. Next year, the company received a bulk order to manufacture five sub-components for the battle field surveillance radar (BFSR) project, which fuelled growth in FY05 and FY06. Revenue grew phenomenally to Rs 653 mn in FY05 and then Rs 1,006 mn in FY06.

**Figure 10: Astra's performance is highly dependent on order inflow**

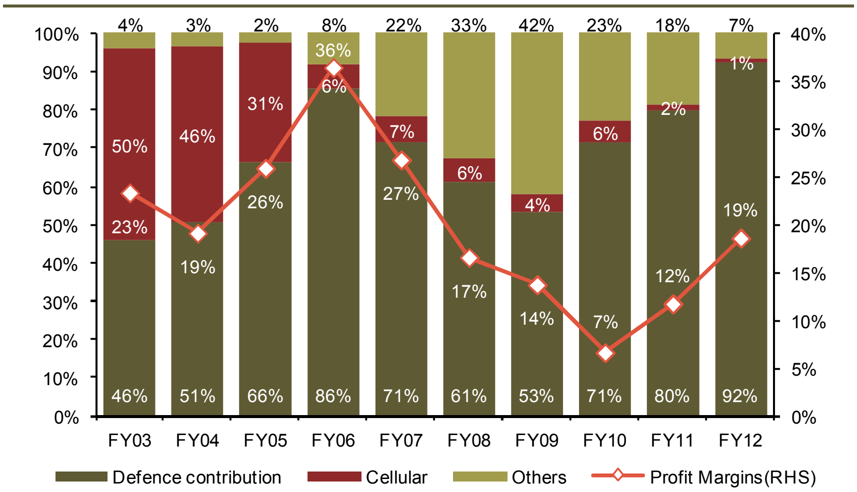



**Source: Company, CRISIL Research**

Astra's revenue remained almost flat during FY07 to FY10. As most of the orders in defence had already got executed till FY06, sales from the defence segment in FY07 de-grew by 22% on a higher base of FY06. Although, during FY09 and FY10, the company received large production orders in the defence segment but the execution got delayed primarily on account of delay in approvals and large gestation nature of orders. However, the company managed to maintain Rs 1 bn level of sales with the help of recurring orders in defence and new products in other segments (space and meteorology). The pending orders in the defence segment were executed in FY11 and FY12, which pushed sales up by 52% in FY11 to Rs 1,583 mn and by 22% to Rs 1,953 mn in FY12. Although, the revenue of the company remained volatile but a long-term measure of revenue growth - 10-year CAGR, remained healthy at 27%.

Astra's profitability is also linked with the order inflow. Generally, orders from the defence segment command better margins than orders in other segments.

**Figure 11: Profitability linked with order inflow**




**Source: Company, CRISIL Research**

## Annexure: Financials

**Income statement**

| (Rs mn) | FY10 | FY11 | FY12# | FY13E | FY14E |
|---|---|---|---|---|---|
| **Operating income** | **1,043** | **1,583** | **2,038** | **2,949** | **4,038** |
| **EBITDA** | **251** | **433** | **649** | **771** | **831** |
| **EBITDA margin** | **24.1%** | **27.4%** | **31.9%** | **26.2%** | **20.6%** |
| Depreciation | 117 | 128 | 124 | 141 | 154 |
| **EBIT** | **134** | **305** | **525** | **631** | **676** |
| Interest | 39 | 71 | 54 | 79 | 98 |
| **Operating PBT** | **95** | **234** | **470** | **552** | **579** |
| Other income | 10 | 10 | 15 | 26 | 22 |
| Exceptional inc/(exp) | (8) | (0) | (3) | - | - |
| **PBT** | **97** | **244** | **482** | **578** | **601** |
| Tax provision | 28 | 58 | 102 | 150 | 150 |
| Minority interest | - | - | - | - | - |
| **PAT (Reported)** | **70** | **186** | **380** | **428** | **451** |
| Less: Exceptionals | (8) | (0) | (3) | - | - |
| **Adjusted PAT** | **78** | **186** | **383** | **428** | **451** |

**Ratios**

| | FY10 | FY11 | FY12# | FY13E | FY14E |
|---|---|---|---|---|---|
| **Growth** | | | | | |
| Operating income (%) | (8.5) | 51.8 | 28.7 | 44.7 | 36.9 |
| EBITDA (%) | (24.0) | 72.5 | 49.9 | 18.9 | 7.7 |
| Adj PAT (%) | (51.1) | 139.1 | 105.5 | 11.9 | 5.3 |
| Adj EPS (%) | (51.2) | 58.2 | 105.5 | 11.9 | 5.3 |
| | | | | | |
| **Profitability** | | | | | |
| EBITDA margin (%) | 24.1 | 27.4 | 31.9 | 26.2 | 20.6 |
| Adj PAT Margin (%) | 7.5 | 11.8 | 18.8 | 14.5 | 11.2 |
| RoE (%) | 6.1 | 13.5 | 24.1 | 22.5 | 19.6 |
| RoCE (%) | 7.8 | 17.0 | 25.8 | 24.8 | 22.0 |
| RoIC (%) | 8.4 | 16.8 | 25.6 | 24.0 | 20.9 |
| | | | | | |
| **Valuations** | | | | | |
| Price-earnings (x) | 27.6 | 17.5 | 8.5 | 7.6 | 7.2 |
| Price-book (x) | 1.6 | 2.2 | 1.9 | 1.6 | 1.3 |
| EV/EBITDA (x) | 9.6 | 7.9 | 5.3 | 4.8 | 4.4 |
| EV/Sales (x) | 2.3 | 2.2 | 1.7 | 1.3 | 0.9 |
| Dividend payout ratio (%) | 39.2 | 22.0 | 15.1 | 9.6 | 9.1 |
| Dividend yield (%) | 1.3 | 1.3 | 1.8 | 1.3 | 1.3 |
| | | | | | |
| **B/S ratios** | | | | | |
| Inventory days | 244 | 194 | 248 | 187 | 180 |
| Creditors days | 339 | 238 | 163 | 168 | 168 |
| Debtor days | 271 | 180 | 152 | 153 | 143 |
| Working capital days | 207 | 160 | 184 | 174 | 155 |
| Gross asset turnover (x) | 0.7 | 1.0 | 1.2 | 1.6 | 2.0 |
| Net asset turnover (x) | 1.1 | 1.7 | 2.2 | 2.9 | 3.9 |
| Sales/operating assets (x) | 1.1 | 1.7 | 2.2 | 2.9 | 3.5 |
| Current ratio (x) | 2.1 | 2.1 | 2.8 | 2.5 | 2.2 |
| Debt-equity (x) | 0.4 | 0.2 | 0.3 | 0.4 | 0.3 |
| Net debt/equity (x) | 0.2 | 0.1 | 0.1 | 0.2 | 0.2 |
| Interest coverage | 3.4 | 4.3 | 9.6 | 8.0 | 6.9 |

**Per share**

| | FY10 | FY11 | FY12# | FY13E | FY14E |
|---|---|---|---|---|---|
| Adj EPS (Rs) | 1.4 | 2.3 | 4.7 | 5.2 | 5.5 |
| CEPS | 3.6 | 3.8 | 6.2 | 6.9 | 7.4 |
| Book value | 24.1 | 17.9 | 20.9 | 25.6 | 30.5 |
| Dividend (Rs) | 0.5 | 0.5 | 0.7 | 0.5 | 0.5 |
| Actual o/s shares (mn) | 54.1 | 81.8 | 81.8 | 81.8 | 81.8 |

**Balance Sheet**

| (Rs mn) | FY10 | FY11 | FY12# | FY13E | FY14E |
|---|---|---|---|---|---|
| **Liabilities** | | | | | |
| Equity share capital | 108 | 164 | 164 | 164 | 164 |
| Reserves | 1,197 | 1,298 | 1,549 | 1,929 | 2,332 |
| Minorities | - | - | - | - | - |
| **Net worth** | **1,305** | **1,461** | **1,713** | **2,093** | **2,496** |
| Convertible debt | - | - | - | - | - |
| Other debt | 471 | 359 | 539 | 737 | 836 |
| **Total debt** | **471** | **359** | **539** | **737** | **836** |
| Deferred tax liability (net) | 56 | 44 | 48 | 48 | 48 |
| **Total liabilities** | **1,832** | **1,864** | **2,300** | **2,879** | **3,380** |
| **Assets** | | | | | |
| Net fixed assets | 971 | 925 | 893 | 1,113 | 958 |
| Capital WIP | 2 | 7 | - | - | 220 |
| **Total fixed assets** | **974** | **932** | **893** | **1,113** | **1,178** |
| **Investments** | 0 | 0 | 0 | 0 | 0 |
| **Current assets** | | | | | |
| Inventory | 471 | 558 | 747 | 1,010 | 1,438 |
| Sundry debtors | 831 | 821 | 875 | 1,293 | 1,659 |
| Loans and advances | 127 | 182 | 205 | 354 | 485 |
| Cash & bank balance | 219 | 196 | 344 | 293 | 403 |
| Marketable securities | - | - | - | - | - |
| **Total current assets** | **1,648** | **1,757** | **2,171** | **2,949** | **3,986** |
| **Total current liabilities** | **796** | **831** | **764** | **1,183** | **1,784** |
| **Net current assets** | **853** | **926** | **1,407** | **1,766** | **2,202** |
| **Intangibles/Misc. expenditure** | **6** | **6** | **-** | **-** | **-** |
| **Total assets** | **1,832** | **1,864** | **2,300** | **2,879** | **3,380** |

**Cash flow**

| (Rs mn) | FY10 | FY11 | FY12# | FY13E | FY14E |
|---|---|---|---|---|---|
| Pre-tax profit | 105 | 244 | 485 | 578 | 601 |
| Total tax paid | (31) | (70) | (98) | (150) | (150) |
| Depreciation | 117 | 128 | 124 | 141 | 154 |
| Working capital changes | (65) | (97) | (332) | (410) | (325) |
| **Net cash from operations** | **126** | **205** | **179** | **158** | **279** |
| **Cash from investments** | | | | | |
| Capital expenditure | (124) | (86) | (80) | (360) | (220) |
| Investments and others | 3 | - | - | - | - |
| **Net cash from investments** | **(121)** | **(86)** | **(80)** | **(360)** | **(220)** |
| **Cash from financing** | | | | | |
| Equity raised/(repaid) | 7 | 28 | (0) | - | - |
| Debt raised/(repaid) | 61 | (113) | 180 | 198 | 99 |
| Dividend (incl. tax) | (32) | (48) | (57) | (48) | (48) |
| Others (incl extraordinaries) | 1 | (11) | (73) | - | - |
| **Net cash from financing** | **37** | **(142)** | **49** | **150** | **51** |
| Change in cash position | 42 | (23) | 148 | (51) | 111 |
| Closing cash | 219 | 196 | 344 | 293 | 403 |

**Quarterly financials**

| (Rs mn) | Q4FY11 | Q1FY12 | Q2FY12 | Q3FY12 | Q4FY12 |
|---|---|---|---|---|---|
| **Net Sales** | **439** | **263** | **370** | **468** | **852** |
| Change (q-o-q) | -20% | -40% | 40% | 27% | 82% |
| **EBITDA** | **107** | **75** | **127** | **198** | **180** |
| Change (q-o-q) | -40% | -30% | 69% | 56% | -9% |
| **EBITDA margin** | **24%** | **29%** | **34%** | **42%** | **21%** |
| PAT | 37 | 34 | 89 | 108 | 105 |
| **Adj PAT** | **37** | **34** | **89** | **108** | **105** |
| Change (q-o-q) | -65% | -7% | 162% | 21% | -3% |
| **Adj PAT margin** | **8%** | **13%** | **24%** | **23%** | **12%** |
| **Adj EPS** | **0.4** | **0.4** | **1.1** | **1.3** | **1.3** |

**# based on abridged financials**

**Source: CRISIL Research**

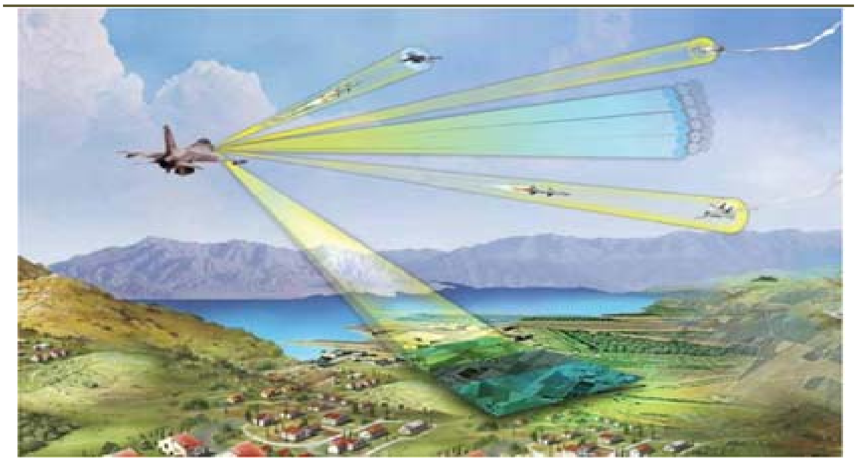
## Annexure: Glossary of terms

### AESA Radars

Astra in association with Centre For Airborne Systems (CABS) has successfully productionised T/R modules (transmit-receive multi module) – the basic building block of the AESA radar. This new technology has enabled traditional airborne radars with many revolutionary features. With the introduction of T/R module, the radars have gone though a sea change in terms of their functionality. AESA radars are relative more efficient than the mechanically steered radars.

An active electronically scanned array (AESA) is a type of phased array radar whose transmitter and receiver functions are composed of numerous small transmit/receive (T/R) modules. Each T/R module has its own transmitter, receiver, processing power, and a small radiator antenna on top. It can position its beam rapidly from one direction to another without mechanical movement of large antenna structures (like in mechanically steered radars). The T/R modules all work together to create a powerful radar, but they can do different tasks parallely, with some operating together as a radar warning receiver, others operating together as a jammer, and the rest operating as a radar.

**Multiple tracking by AESA radar**



**Source: CRISIL Research**

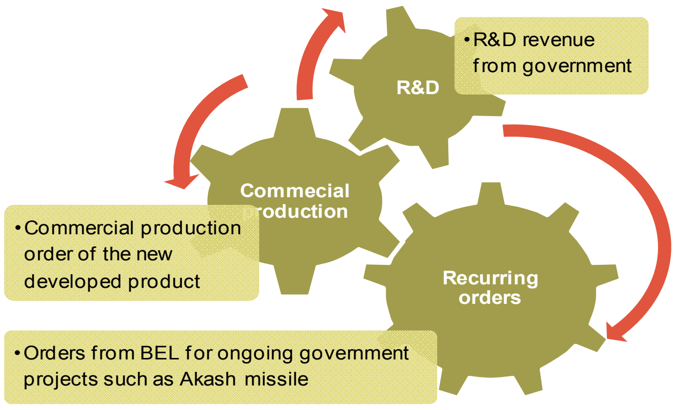
AESA radar is more efficient than the mechanically steered radars as 1) agile, rapid beam switching permits the AESA radar to track many targets simultaneously, and 2) transmitter power stage is distributed across hundreds or over a thousand T/R modules, rather than being concentrated in a single transmitter tube. Hence, failure of up to 10% of the T/R modules will not cause the loss of the antenna function, but merely degrade its performance.

### Offset Clause

To achieve greater self-reliance in defence production, the Indian government has announced the offset policy as part of the defence procurement procedure (DPP) 2006. Under this, foreign vendors winning a defence contract above Rs 3 bn are obliged to source at least 30% of the contract value from India. This offset obligation is like a current account which can be discharged against the same or other orders.

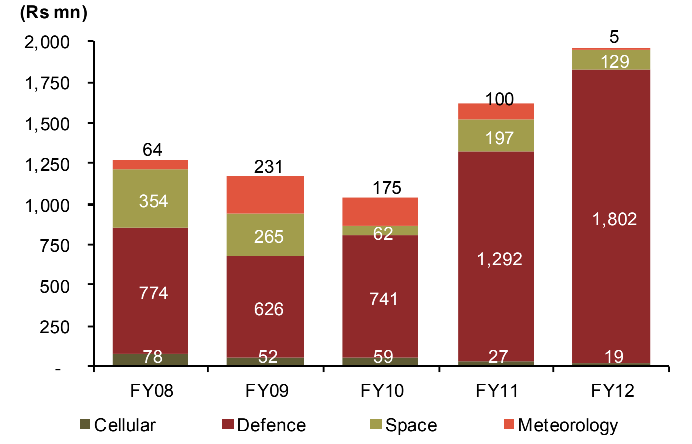
## Focus Charts

### Revenue drivers



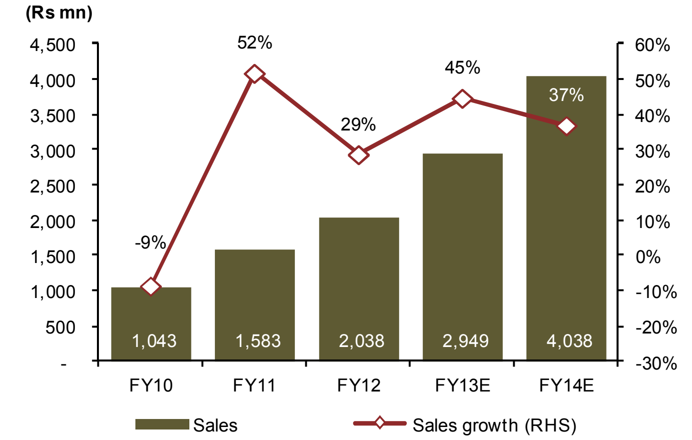

Source: Company, CRISIL Research

### Revenue and segmental contribution trend



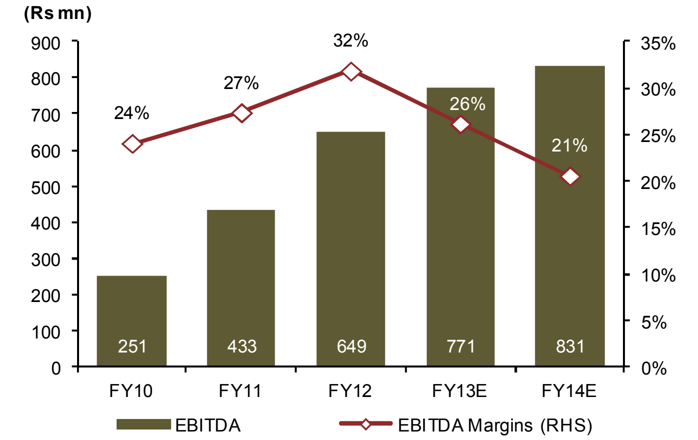

Source: Company, CRISIL Research

### Order book execution will drive sales growth



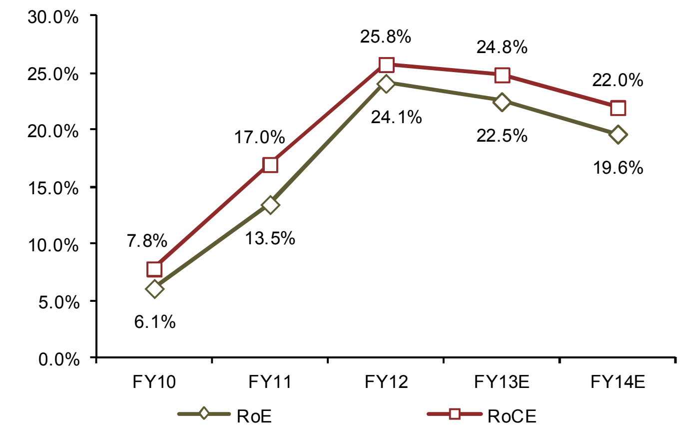

Source: Company, CRISIL Research

### Margin to contract due to execution of low margin orders



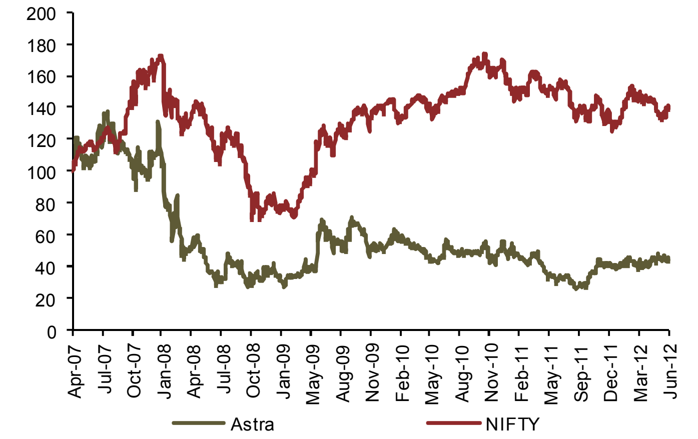

Source: Company, CRISIL Research

### RoE and RoCE to improve




Source: Company, CRISIL Research

### Share price movement




-Indexed to 100

Source: Company, CRISIL Research

## CRISIL Research Team

### President

| | | | |
|---|---|---|---|
| Mukesh Agarwal | CRISIL Research | +91 22 3342 3035 | mukesh.agarwal@crisil.com |

### Analytical Contacts

| | | | |
|---|---|---|---|
| Tarun Bhatia | Senior Director, Capital Markets | +91 22 3342 3226 | tarun.bhatia@crisil.com |
| Prasad Koparkar | Senior Director, Industry & Customised Research | +91 22 3342 3137 | prasad.koparkar@crisil.com |
| Binaifer Jehani | Director, Customised Research | +91 22 3342 4091 | binaifer.jehani@crisil.com |
| Manoj Mohta | Director, Customised Research | +91 22 3342 3554 | manoj.mohta@crisil.com |
| Sudhir Nair | Director, Customised Research | +91 22 3342 3526 | sudhir.nair@crisil.com |
| Mohit Modi | Director, Equity Research | +91 22 4254 2860 | mohit.modi@crisil.com |
| Jiju Vidyadharan | Director, Funds & Fixed Income Research | +91 22 3342 8091 | jiju.vidyadharan@crisil.com |
| Ajay D'Souza | Director, Industry Research | +91 22 3342 3567 | ajay.dsouza@crisil.com |
| Ajay Srinivasan | Director, Industry Research | +91 22 3342 3530 | ajay.srinivasan@crisil.com |
| Rahul Prithiani | Director, Industry Research | +91 22 3342 3574 | rahul.prithiani@crisil.com |

### Business Development

| | | | |
|---|---|---|---|
| Siddharth Arora | Director, Customised Research | +91 22 3342 4133 | siddharth.arora@crisil.com |
| Vinaya Dongre | Director, Industry & Customised Research | +91 22 3342 8025 | vinaya.dongre@crisil.com |
| Sagar Sawarkar | Associate Director, Equity Research | +91 22 3342 8012 | sagar.sawarkar@crisil.com |
| Deepak Mittal | Associate Director, Funds & Fixed Income Research | +91 22 3342 8031 | deepak.mittal@crisil.com |
| Prosenjit Ghosh | Associate Director, Industry & Customised Research | +91 22 3342 8008 | prosenjit.ghosh@crisil.com |

### Business Development – Equity Research

**Ahmedabad / Mumbai**
Vishal Shah – Regional Manager, Business Development
Email : vishal.shah@crisil.com I Phone : 9820598908

**Delhi**
Arjun Gopalkrishnan – Regional Manager, Business Development
Email : arjun.gopalakrishnan@crisil.com I Phone : 9833364422

**Bengaluru / Mumbai / Pune**
Vivek Tandon – Regional Manager, Business Development
Email : vivek.tandon@crisil.com I Phone : 9967714970

**Kolkata**
Priyanka Murarka – Regional Manager, Business Development
Email : priyanka.murarka@crisil.com I Phone : 9903060685

**Chennai / Hyderabad**
Urmil Shah – Regional Manager, Business Development
Email : urmil.shah@crisil.com I Phone : 9819916595

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- All opinions and forecasts reviewed by a highly qualified panel with over 200 years of cumulative experience
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- First research house to release exchange-commissioned equity research reports in India

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- Ranking of Indian mutual fund schemes covering 73 per cent of assets under management and Rs.5 trillion (USD100 billion) by value
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## Our Office

**Ahmedabad**
706, Venus Atlantis
Nr. Reliance Petrol Pump
Prahladnagar, Ahmedabad, India
Phone: +91 79 4024 4500
Fax: +91 79 2755 9863

**Bengaluru**
W-101, Sunrise Chambers,
22, Ulsoor Road,
Bengaluru - 560 042, India
Phone:+91 80 2558 0899
+91 80 2559 4802
Fax: +91 80 2559 4801

**Chennai**
Thapar House,
43/44, Montieth Road, Egmore,
Chennai - 600 008, India
Phone:+91 44 2854 6205/06
+91 44 2854 6093
Fax: +91 44 2854 7531

**Hyderabad**
3rd Floor, Uma Chambers
Plot No. 9&10, Nagarjuna Hills,
(Near Punjagutta Cross Road)
Hyderabad - 500 482, India
Phone: +91 40 2335 8103/05
Fax: +91 40 2335 7507

**Kolkata**
Horizon, Block 'B', 4th Floor
57 Chowringhee Road
Kolkata - 700 071, India
Phone: +91 33 2289 1949/50
Fax: +91 33 2283 0597

**New Delhi**
The Mira, G-1,
1st Floor, Plot No. 1 & 2
Ishwar Nagar, Mathura Road,
New Delhi - 110 065, India
Phone: +91 11 4250 5100
+91 11 2693 0117/121
Fax: +91 11 2684 2212

**Pune**
1187/17, Ghole Road,
Shivaji Nagar,
Pune - 411 005, India
Phone: +91 20 2553 9064/67
Fax: +91 20 4018 1930

CRISIL Limited
CRISIL House, Central Avenue,
Hiranandani Business Park, Powai, Mumbai – 400076. India
Phone: +91 22 3342 3000 | Fax: +91 22 3342 8088
www.crisil.com

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