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Good & Clean 3.0: Battleships

Against the backdrop of Europe's impossible fiscal position and the Indian economy's marked deceleration, investors need to focus on "battleship stocks" with strong balance sheets, strong operating cash flows and clear competitive advantages. Given the adverse economic situation, rather than relying upon traditional notions of "defensive" sectors, we use Piotroski's F-Score to identify battleships. We therefore retire our Good & Clean (G&C) 2.0 portfolio and introduce G&C 3.0: Battleships. The first two G&C portfolios have outperformed the BSE200 by 12.7% since inception in mid-March.

A world in tatters

Over the past week, our research has highlighted that Europe's fiscal position is beyond repair (and hence requires large scale sovereign default) and the sustained deceleration in Indian economic growth. While our previous research has shown the impossibility of rescuing Europe, the persistence of a 'near-crisis' environment in the West led us on 17th October to cut our FY13 GDP growth for India to 6.2% (from 7.2%). With this marked deterioration in economic conditions, it becomes imperative to focus on battleship stocks which pass a battery of financial tests (rather than simply relying upon traditional notions of "defensive" sectors).

Piotroski's F-Score

Piotroski's F-Score is a quantification of a firm's financial health through the use of 9 financial statement based parameters which fall into three categories:

- **Profitability**: positive RoA, Increasing RoA (YOY), positive CFO, CFO greater than PAT;
- **Capital structure changes and debt servicing ability**: declining debt:equity (YOY), improving current ratio (YOY); and
- **Operating efficiency**: improving operating margin (YOY), improving asset turnover (YOY).

Joseph Piotroski, in his 2002 paper *'Value Investing - The use of historical financial statement information to separate winners from losers,'* showed that these measures of financial health taken together are a powerful source of investment returns.

Applying the F-Score to the Indian market

We applied the F-Score to the **BSE500** over FY06-FY11. Firms with an F-Score of "**8 out of 8**" (around 16 stocks/year) outperformed the BSE500 on an equal weighted basis by **17%** on a CAGR basis while outperforming on a market cap weighted basis by **12%** CAGR. Similarly, firms with an F-Score of "**7 or better**" (around 68 stocks/year) outperformed the BSE500 equal weighted universe by **9%** CAGR while outperforming on a market cap weighted basis by **18%** CAGR. *Strikingly, applying a further valuation screen (say, P/B) to these F-Score driven portfolios did not meaningfully improve investment performance.*

Good & Clean 3.0

Since the "7 or better" portfolio gives us comparable investment performance to the "8 out of 8" portfolio, we apply the "7 or better" F-Score on the BSE500 universe to arrive at the final list of potential portfolio stocks. We then run these stocks through our forensic accounting model to weed out suspect names. This then gives us the final set of 36 stocks which constitute G&C 3.0 (see Exhibit A). In parallel, we retire G&C 2.0. The first two versions of G&C (versions 1 & 2 were launched on 17th March and 22nd June respectively) have outperformed the BSE200 by 12.7% since mid-March.

Analyst contacts

Saurabh Mukherjea, CFA
Tel: +9122 3043 3174
saurabhmukherjea@ambitcapital.com

Gaurav Mehta
Tel: +9122 3043 3255
gauravmehta@ambitcapital.com

Exhibit A: G&C 3.0- Battleship Stocks

Company	Mkt Cap (US$ mn)
O N G C	45,769
ITC	32,209
NMDC	19,340
Tata Motors	10,863
Power Grid Corpn	9,219
Siemens	5,632
B P C L	4,708
Bosch	4,464
Ranbaxy Labs.	4,302
Titan Inds.	3,983
Oracle Fin.Serv.	3,512
Cadila Health.	3,136
Castrol India	2,376
GlaxoSmith Consumer	1,983
SJVN	1,804
Coromandel Inter	1,761
Pidilite Industries	1,644
Biocon	1,401
Jubilant Food.	1,167
Indian Hotels	1,049
Eicher Motors	902
Blue Dart Express	764
G S F C	692
Akzo Nobel	681
TTK Prestige	626
Guj Pipavav Port	597
Arvind Ltd	543
Novartis India	530
Sobha Developers	458
VST Inds.	420
Fag Bearings	420
SRF	368
Gateway Distriparks	317
Vardhman Textile	261
Persistent Systems	256
Ent.Network	241

Source: Ambit Capital research, Bloomberg

Section 1: A world in tatters

As highlighted in our recent Economics & Strategy research over the past week, we are increasingly concerned both about the state of Europe and the sustained deceleration in economic growth in India.

On the European front, our back-of-the-envelope maths shows the impossibility of rescuing Europe. Consider the following facts with respect to the PIGS:

- Over the past five years (spanning CY05-10) PIGS' Net Sovereign Debt has been growing at a CAGR of 6% per annum whereas their Nominal GDP (which is a decent proxy of their ability to service this debt) has grown at a mere 2% per annum over the same period.
- Over the past year the situation has worsened for obvious reasons. Net Sovereign Debt expanded at 8% YoY in CY10 whilst their Nominal GDP growth is 1% YoY in CY10.
- The average Debt-GDP ratio for the PIGS exceeds 100% as at the end of 1QCY11 with Greece recording the highest debt: GDP ratio of 150% (thus marking a 700bps jump over 4QCY10) followed by Italy whose debt GDP ratio stands at 120%. **The total amount of sovereign debt outstanding across the four PIGS is around $3.3 trillion** with Italy accounting for $2 trillion, Spain for $0.7 trillion, Portugal for $0.2 trillion and Greece for $0.4 trillion.

Once you look at the numbers in this fashion, you realize that even if Greece can be rescued through an "orderly default", the sheer impossibility of the other PIGS countries servicing their sovereign debt obligations on a sustainable basis means that a run on them is inevitable. And this time given the sheer scale of the debts these countries have incurred (Italy is the world's third biggest sovereign bond market), nobody (not the ECB, not EFSF, not the IMF) has the funds to save the day. Instead a trillion dollar "hair cut" for bondholders will probably be required to bring the PIGS' sovereign debt burdens down to more manageable levels. Such a hair cut or default will be the largest in history and will almost certainly lead to risk aversion levels and the cost of capital shooting up globally for a few years to come.

On the domestic front, we have highlighted in our recent research that the fate of Indian GDP growth is linked to the prospects of the Western world through the investment demand conduit. Given our expectation of persistence of a 'near-crisis' environment in the Western world over the next year, on 17th October 2011 we revised our forecast of GDP growth in FY13 down to 6.2% YoY (previous estimate, 7.2% YoY). This is a result of weak investment demand growth, which in turn affects industrial sector growth and services sector growth.

In light of this marked deterioration in economic conditions, we believe investors need to focus on battleship stocks i.e. companies with strong balance sheets, strong operating cash flows and straightforward business models with clear competitive advantages.

Relying on traditional notions of what constitutes defensive sectors (eg. FMCG, Pharma, IT) won't be enough given the adversity of the economic situation facing us. Hence in this note we revisit our Good & Clean (G&C) portfolio which, whilst it has been spectacularly successful in beating the BSE200, is built around sectors which are deemed to be defensive. To build a G&C portfolio which can deal with the storms which are likely to buffet us in the year ahead we use in this note an array of financial tests plus our tried & tested forensic accounting model.

Section 2: G&C- Performance to Date

Since the inception of our Good and Clean (G&C) portfolio in mid-march, it has outperformed the BSE 200 by 12.7% points (on an equal weighted basis). Of this outperformance, 9.4% points are attributed to the first G&C portfolio (from 17th March to 21st June 21, 2011) and 3.3% points to G&C 2.0 (from 22nd June to 18th October).

A performance summary of our G&C portfolios is shown below.

Exhibit 1: Good & Clean- Performance Highlights for the first two portfolios

Performance Highlights	G&C 1.0	G&C 2.0	Cumulative
Run Period	17Mar 2011-21Jun 2011	22Jun 2011-18Oct 2011	17Mar 2011-18Oct 2011
Equal Wtd Returns (%)	5.9	(2.7)	3.3
MCap Wtd Returns (%)	0.9	(1.0)	(0.1)
BSE500 Returns (%)	(2.9)	(6.0)	(8.9)
BSE200 Returns (%)	(3.5)	(5.9)	(9.4)
Portfolio Alpha (Eq Wtd versus BSE500) (%)	8.9	3.3	12.2
Portfolio Alpha (Eq Wtd versus BSE200) (%)	9.4	3.2	12.7

Source: Ambit Capital research

The G&C 2.0 portfolio which we are retiring in this note consisted of the following stocks.

Exhibit 2: G&C 2.0- Portfolio

Company	Bloomberg Code
PETRONET LNG LTD	PLNG IN Equity
APOLLO HOSPITALS ENTERPRISE	APHS IN Equity
REDINGTON INDIA LTD	REDI IN Equity
NESTLE INDIA LTD	NEST IN Equity
OIL & NATURAL GAS CORP LTD	ONGC IN Equity
BOSCH LTD	BOS IN Equity
BIOCON LTD	BIOS IN Equity
SIEMENS INDIA LTD	SIEM IN Equity
TITAN INDUSTRIES LTD	TTAN IN Equity
BHARTI AIRTEL LTD	BHARTI IN Equity
ORACLE FINANCIAL SERVICES	OFSS IN Equity
RANBAXY LABORATORIES LTD	RBXY IN Equity
HINDUSTAN PETROLEUM CORP	HPCL IN Equity
TORRENT PHARMACEUTICALS LTD	TRP IN Equity
EXIDE INDUSTRIES LTD	EXID IN Equity
CONTAINER CORP OF INDIA LTD	CCRI IN Equity
MANGALORE REFINERY & PETRO	MRPL IN Equity
DABUR INDIA LTD	DABUR IN Equity
WHIRLPOOL OF INDIA LTD	WHIRL IN Equity

Source: Ambit Capital research

Section 3: Piotroski's F-Score

Joseph Piotroski, in his 2002 paper '*Value Investing- The use of historical financial statement information to separate winners from losers,*' showed that a measure of the financial health of a firm can be a powerful source of investment returns. To be specific he used a 9 parameter based approach to arrive at what he called the F-Score, his measure of the financial health of a firm. These 9 parameters can be broadly classified into the following categories:

1. **Profitability**

   a. **Positive RoA** - This parameter looks at whether the firm produces positive returns on its assets. A positive RoA is scored as 1 while a negative RoA gets a score of 0.

   b. **Increasing RoA (YoY)** - The objective here is to see if the return on assets has increased this year with respect to the last year. An increase in RoA is scored as 1 while a decline is scored as 0.

   c. **Positive CFO** - This variable gets a 1 score if the firm generates a positive cash flow from operations and 0 is the CFO is negative.

   d. **CFO greater than PAT** - The aim here is to ensure that the positive RoAs are not just a function of creative accounting but are actually translating into positive cash flows for the firm. CFO greater than PAT gets a 1 score while a CFO less than PAT leads to a score of 0.

2. **Leverage, liquidity and source of funds**

   a. **Declining D/E (YoY)** - A decline in long term Debt:Equity (D/E) is seen as being positive for the financial health of the firm. Declining D/E gets scored as 1 and 0 otherwise.

   b. **Improving current ratio (YoY)** - A current ratio (measured as current assets / current liabilities) greater than last year's is an indication of improving financial health and is scored as 1. A declining current ratio similarly is scored as 0.

   c. **No equity offering in the previous year** - Use of external financing is taken as a negative signal as it implies a lack of internal fund generation ability. Hence a firm which has raised equity in the last year gets a 0 here and 1 otherwise.

3. **Operating efficiency**

   a. **Improving operating margins (YoY)** – Operating profit margins that have improved compared to the previous year are a positive for the firm's financial health and get a 1 while declining margins are scored as 0.

   b. **Improving asset turnover (YoY)** - An improvement in asset turnover (total sales by total assets) implies greater productivity from the asset base and hence is scored as 1 and 0 otherwise.

With each firm scoring a binary 1 or 0 on each of these variables, the F-Score will range between 0 and 9 with 9 being the firms with the best financial health and 0 being firms with the worst financial health. This according to Piotroski is a powerful source of investment returns. We now implement this approach in the Indian context. <u>Please note that the F-Score cannot be applied to banks and NBFCs given the nature of the metrics given above.</u>

Section 4: The F-Score in the Indian context

We use 8 of the 9 parameters outlined by Piotroski to arrive at our F-Scores for Indian firms. We leave out the "equity issuance" parameter as, leaving aside IPOs, there have been very few meaningful fund raises (in FY10 or in FY11).

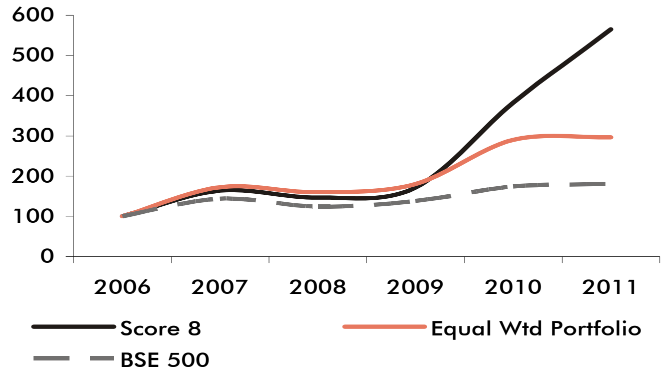
To measure the effectiveness of the F-Score, we conduct historical back testing based on the score alone *without any valuation based criterion*. The performance of firms that score "8 out of 8" from within the BSE500 universe is outlined in the two exhibits below. The "8 out of 8" portfolio outperforms the BSE500 every year on a market cap weighted basis. The cumulative outperformance over five years is **12%** (on a CAGR basis). The 8 out of 8 portfolio also outperforms on an equal weighted basis by **17%** (on a CAGR basis).

Exhibit 3: Top F-Score (8 on 8)

		Performance			
		Equal Weighted		Mkt Cap Wtd	
Year	**No. of Stocks**	**Absolute**	**Rel. to Eq Wtd Portfolio**	**Absolute**	**Rel. to BSE500**
06-07	17	64%	-9%	56%	12%
07-08	25	-10%	-3%	-13%	1%
08-09	14	17%	4%	22%	11%
09-10	9	124%	63%	57%	30%
10-11	15	48%	45%	10%	6%
CAGR		**41%**	**17%**	**23%**	**12%**

*Source: Ambit Capital research. * The 06-07 row refers to investment performance from July '06 to June '07 using F-scores based on FY06 data. The 07-08 row refers to investment performance from July '07 to June '08 using F-scores based on FY07 data. And so on.*

Exhibit 4: Top F-Score (8 on 8)



Source: Ambit Capital research. The above worms show the growth of Rs 100 invested in the beginning and cumulated over the entire period.

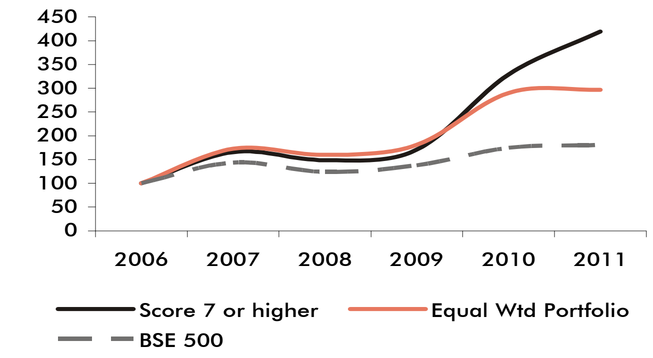
Firms that score 7 or better (F-Scores of 7 or 8) outperform the broader markets as well – see exhibits below. The "7 or better" portfolio outperforms the BSE500 by an **18%** CAGR on a market cap weighted basis and **9%** CAGR on an equal weighted basis.

Exhibit 5: F-Score 7 or better

		Performance			
		Equal Weighted		Mkt Cap Wtd	
Year	**No. of Stocks**	**Absolute**	**Rel. to Eq Wtd Portfolio**	**Absolute**	**Rel. to BSE500**
06-07	74	65%	-7%	65%	21%
07-08	81	-10%	-3%	-12%	2%
08-09	71	14%	1%	24%	13%
09-10	35	93%	32%	78%	51%
10-11	81	28%	25%	12%	8%
CAGR		**33%**	**9%**	**29%**	**18%**

*Source: Ambit Capital research. * The 06-07 row refers to investment performance from July '06 to June '07 using F-scores based on FY06 data. The 07-08 row refers to investment performance from July '07 to June '08 using F-scores based on FY07 data. And so on.*

Exhibit 6: F-Score 7 or better



Source: Ambit Capital research. The above worms show the growth of Rs 100 invested in the beginning and cumulated over the entire period.

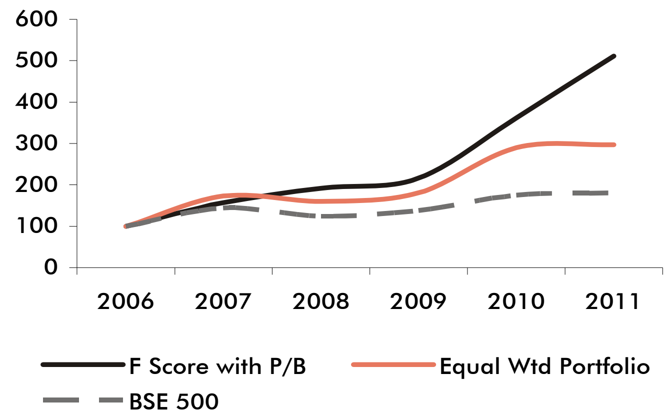
Next, we tried incorporating a valuation metric to the F-score. *We added P/B restrictions to the F-Score criterion but did not find any meaningful improvement in performance*. As an example, the results from a combination of the "7 or better" F-Score condition with a P/B restriction of "less than 1.5" are shown below.

Exhibit 7: Performance-F-Score 7 or better & P/B < 1.5

		Performance			
		Equal Weighted		Mkt Cap Wtd	
Year	**No. of Stocks**	**Absolute**	**Rel. to Eq Wtd Portfolio**	**Absolute**	**Rel. to BSE500**
06-07	10	57%	-16%	48%	4%
07-08	8	22%	30%	-10%	3%
08-09	12	13%	0%	16%	5%
09-10	4	68%	7%	54%	28%
10-11	13	41%	39%	23%	19%
CAGR		**39%**	**10%**	**24%**	**11%**

*Source: Ambit Capital research. * The 06-07 row refers to investment performance from July '06 to June '07 using F-scores based on FY06 data. The 07-08 row refers to investment performance from July '07 to June '08 using F-scores based on FY07 data. And so on.*

Exhibit 8: Performance-F-Score 7 or better & P/B < 1.5



Source: Ambit Capital research. The above worms show the growth of Rs 100 invested in the beginning and cumulated over the entire period.

Conclusions

Since the "7 or better" portfolio produces investment performance comparable to the "8 out of 8" portfolio but gives us more stock picks (around 60 stocks/year versus around 15 stocks/year), we will run the F-Score with a restriction of "7 or better".

Furthermore, we will not apply any valuation restriction to the F-Score as is does not meaningfully improve investment performance. Good Indian companies (as defined by the F-score), it appears, outperform regardless of what multiples they are trading at.

Section 5: G&C 3.0- Battleships

Applying the F-Score criteria of "7 or better" on the BSE500 using FY11 data gives us around **74** stock picks.

Of these 74 stocks, we discard 25 as they score below their sectoral averages in our forensic accounting model (see our November 2010 note for the details of this forensic accounting model which has become a cornerstone of our work).

We knock out a further 13 stocks as we believe they might have corporate governance issues around promoter integrity, political connections and/or shabby treatment of minority shareholders.

This leads us to the final **36** stocks that form our G&C 3.0: Battleships – see the table on the next page.

Exhibit 9: G&C 3.0- Battleships

Bloomberg Code	Company	Price (₹)	Mkt Cap (US$ mn)	FY12 EV/EBITDA(x)	FY12 P/E(x)	FY12 P/B(x)	FY11 ROE (%)	FY11 D/E(x)	FY11 CFO/PAT(x)	Parameter Failed
Battleship stocks with 3 month ADV > US$ 1mn										
ONGC IN Equity	O N G C	264	45,769	3.7	8.6	1.7	21	0.1	1.9	Improving profit margin
ITC IN Equity	ITC	204	32,209	17.1	26.3	8.8	32	0.0	1.1	Improving current ratio
NMDC IN Equity	NMDC	240	19,340	7.3	11.7	2.9	39	-	0.7	CFO greater than PAT
TTMT IN Equity	Tata Motors	181	10,863	4.5	6.8	2.2	65	2.0	1.2	None
PWGR IN Equity	Power Grid Corpn	98	9,219	9.8	15.1	1.9	DNA	1.9	1.8	Improving asset turnover
SIEM IN Equity	Siemens	816	5,632	15.4	25.8	5.7	25	0.0	1.4	Improving asset turnover
BPCL IN Equity	B P C L	642	4,708	8.4	13.1	1.4	11	1.5	2.7	Improving profit margin
RBXY IN Equity	Ranbaxy Labs.	503	4,302	10.5	15.9	2.8	30	0.8	1.1	None
TTAN IN Equity	Titan Industries	221	3,983	23.2	33.4	13.7	49	0.1	2.4	Improving current ratio
OFSS IN Equity	Oracle Fin.Serv.	2,062	3,512	10.4	15.7	2.7	23	-	0.6	CFO greater than PAT
CDH IN Equity	Cadila Health.	755	3,136	14.1	18.8	5.5	37	0.5	0.9	CFO greater than PAT
SKB IN Equity	GlaxoSmith C H L	2,325	1,983	15.9	22.8	7.2	32	-	1.1	Improving current ratio
CRIN IN Equity	Coromandel Inter	308	1,761	8.5	12.3	3.6	40	0.9	1.3	None
BIOS IN Equity	Biocon	345	1,401	10.9	18.4	3.0	19	0.2	2.2	None
JUBI IN Equity	Jubilant Foodworks	886	1,167	30.4	56.8	20.1	41	0.1	1.8	None
IH IN Equity	Indian Hotels	68	1,049	12.5	37.7	1.7	(3)	1.3	(60.1)	Positive latest year RoA
GSFC IN Equity	G S F C	427	692	3.9	5.1	0.8	30	0.6	1.8	None
TTKPT IN Equity	TTK Prestige	2,727	626	13.8	20.1	7.6	53	0.1	0.9	CFO greater than PAT
ARVND IN Equity	Arvind Ltd	105	543	7.4	10.6	1.2	11	1.4	2.2	None
VST IN Equity	VST Industries	1,342	420	10.6	16.1	DNA	37	-	0.9	CFO greater than PAT
Battleship stocks with 3 month ADV < US$ 1mn										
BOS IN Equity	Bosch	7,008	4,464	11.9	17.8	3.7	23	0.1	1.0	Improving current ratio
CSTRL IN Equity	Castrol India	474	2,376	13.1	20.0	14.7	DNA	0.0	1.0	Improving current ratio
SJVN IN Equity	SJVN	22	1,804	DNA	DNA	DNA	13	0.4	1.5	Increasing RoA (YoY)
PIDI IN Equity	Pidilite Industries	160	1,644	15.0	21.6	4.6	32	0.3	1.1	Improving current ratio
EIM IN Equity	Eicher Motors	1,648	902	6.1	13.7	2.5	16	0.1	1.9	Improving current ratio
BDE IN Equity	Blue Dart Express	1,588	764	14.7	23.4	DNA	19	-	0.4	CFO greater than PAT
AKZO IN Equity	Akzo Nobel	911	681	11.9	15.0	2.6	34	0.0	0.5	CFO greater than PAT
GPPV IN Equity	Guj Pipavav Port	70	597	14.2	26.8	3.4	(10)	1.1	(1.7)	Positive latest year RoA
HCBA IN Equity	Novartis India	818	530	13.0	15.2	DNA	23	0.0	0.6	CFO greater than PAT
SOBHA IN Equity	Sobha Developer.	230	458	9.9	11.2	1.1	10	0.7	2.2	Improving current ratio
FAG IN Equity	Fag Bearings	1,245	420	5.1	11.5	2.3	23	-	1.1	None
SRF IN Equity	SRF	299	368	2.8	4.1	0.9	33	0.6	1.3	None
GDPL IN Equity	Gateway Distr.	145	317	8.4	13.2	1.7	14	0.5	1.1	Increasing RoA (YoY)
VTEX IN Equity	Vardhman Textile	202	261	5.6	5.8	0.5	27	1.1	0.1	CFO greater than PAT
PSYS IN Equity	Persistent Systems	315	256	4.7	9.9	1.5	20	-	1.1	Improving profit margin
ENIL IN Equity	Ent.Network	249	241	9.8	20.5	2.7	5	-	0.8	CFO greater than PAT

Source: Ambit Capital research, Bloomberg, Capitaline. FY12 valuation multiples are calculated using Bloomberg estimates." DNA" indicates that Bloomberg estimates not available.

We have arranged our battleships into two buckets based on 3 month ADV as we appreciate that a number of our clients face ADV based restrictions in their portfolios. While Piotroski's original paper talks about the performance superiority of smaller caps, we reiterate that our backtesting results show that F-score based portfolios consistently outperform market benchmarks on a market cap weighted basis (and not just on a equal weighted basis).

Finally, from the list of "battleship" stocks highlighted by our Research team in the Economy note dated 17th October 2010 - Voltas, Torrent Power, ONGC, Oberoi Realty, Pidilite, Exide, Amara Raja, Navneet Publications - only two stocks – ONGC and Pidilite- pass the battery of financial tests used in this note. Here is why the rest of the stocks fail the F-Score criterion:

- **Voltas**: fails 4 of the 8 tests namely CFO greater than PAT, increasing RoA (YoY), declining D/E (YoY), improving profit margin;
- **Torrent Power**: fails 2 of the 8 tests namely improving current ratio, improving asset turnover;
- **Oberoi Realty**: fails 3 of the 8 tests namely CFO greater than PAT, increasing RoA (YoY), improving asset turnover;
- **Exide**: fails 2 of the 8 tests namely CFO greater than PAT, improving profit margin;
- **Amara Raja**: fails 3 of the 8 tests namely CFO greater than PAT, increasing RoA (YoY), improving profit margin;
- **Navneet Publications**: fails 3 of the 8 tests namely CFO greater than PAT, increasing RoA (YoY), improving asset turnover.

We will soon be displaying our F-scores screen on our website so that clients can open our battleships model and play with the F-score and the P/B parameters.

Institutional Equities Team

Saurabh Mukherjea, CFA **Managing Director – Institutional Equities – (022) 30433174** **saurabhmukherjea@ambitcapital.com**

Research

Analysts	Industry Sectors	Desk-Phone	E-mail
Aadesh Mehta	Banking / NBFCs	(022) 30433239	aadeshmehta@ambitcapital.com
Anand Mour	FMCG	(022) 30433169	anandmour@ambitcapital.com
Ankur Rudra, CFA	Technology / Education Services	(022) 30433211	ankurrudra@ambitcapital.com
Ashvin Shetty	Automobile	(022) 30433285	ashvinshetty@ambitcapital.com
Bhargav Buddhadev	Power / Capital Goods	(022) 30433252	bhargavbuddhadev@ambitcapital.com
Chandrani De, CFA	Metals & Mining	(022) 30433210	chandranide@ambitcapital.com
Chhavi Agarwal	Construction / Infrastructure	(022) 30433203	chhaviagarwal@ambitcapital.com
Dayanand Mittal	Oil & Gas	(022) 30433202	dayanandmittal@ambitcapital.com
Gaurav Mehta	Derivatives Research	(022) 30433255	gauravmehta@ambitcapital.com
Hardik Shah	Technology / Education Services	(022) 30433291	hardikshah@ambitcapital.com
Krishnan ASV	Banking	(022) 30433205	vkrishnan@ambitcapital.com
Nitin Bhasin	Construction / Infrastructure / Cement	(022) 30433241	nitinbhasin@ambitcapital.com
Pankaj Agarwal, CFA	NBFCs	(022) 30433206	pankajagarwal@ambitcapital.com
Parita Ashar	Metals & Mining / Media / Telecom	(022) 30433223	paritaashar@ambitcapital.com
Puneet Bambha	Power / Capital Goods	(022) 30433259	puneetbambha@ambitcapital.com
Rakshit Ranjan, CFA	Mid-Cap	(022) 30433201	rakshitranjan@ambitcapital.com
Ritika Mankar	Economy	(022) 30433175	ritikamankar@ambitcapital.com
Ritu Modi	Cement	(022) 30433292	ritumodi@ambitcapital.com
Shariq Merchant	Consumer	(022) 30433246	shariqmerchant@ambitcapital.com

Sales

Name	Regions	Desk-Phone	E-mail
Deepak Sawhney	India / Asia	(022) 30433295	deepaksawhney@ambitcapital.com
Dharmen Shah	India / Asia	(022) 30433289	dharmenshah@ambitcapital.com
Dipti Mehta	India / Europe	(022) 30433053	diptimehta@ambitcapital.com
Pramod Gubbi, CFA	India / Asia	(022) 30433228	pramodgubbi@ambitcapital.com
Sarojini Ramachandran	UK	+44 (0) 20 7614 8374	sarojini@panmure.com

Production

Sajid Merchant	Production	(022) 30433247	sajidmerchant@ambitcapital.com
Kausalya Vijapurkar	Editor	(022) 30433284	kausalyavijapurkar@ambitcapital.com
Praveen Mascarenhas	Database	(022) 30433251	praveenmascarenhas@ambitcapital.com

Explanation of Investment Rating

Investment Rating	Expected return (over 12-month period from date of initial rating)
Buy	>5%
Sell	≤5%

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Ambit Capital Pvt. Ltd.
Ambit House, 3rd Floor
449, Senapati Bapat Marg, Lower
Parel, Mumbai 400 013, India.
Phone: +91-22-3043 3000
Fax: +91-22-3043 3100