Mesoblast MSB.AX MSB AU

HEALTH CARE & PHARMACEUTICALS

NOMURA
EQUITY RESEARCH

Forum flash

MSB to start phase 3 clinical trial of its stem cell product for bone marrow transplantation

June 14, 2011

Rating Remains	**Buy**
Target price Increased from 10.00	AUD 10.45
Closing price June 14, 2011	AUD 8.53
Potential upside	+22.5%

Action: MSB presents at Nomura Asian Equity Forum

MSB is to launch phase 3 clinical trial of its product for augmenting bone marrow transplantation in cancer patients by 3Q11. If successful, MSB could take its product to the US$300mn US market as early as 2013.

Catalyst 1: cardiac disease trials remain on track

MSB highlighted its favourable Phase 2 results in congestive heart failure and recent data showing that its stem cell product improves blood flow in ischemic heart muscle. Six months after treatment with a single injection of MSB's stem cell product there was significant improvement in blood flow to ischaemic heart muscle, with 51% reduction in myocardial ischaemia (lack of blood supply). We believe these results are relevant in that they demonstrated a large benefit to treatment; and they were statistically significant (p=0.01). We believe these results demonstrate the potential to treat patients suffering from cardiac disease. If successful, MSB could contest the global stent market, worth US$5.3bn, as early as 2015.

Catalyst 2: orthopaedic trial starting phase 2 stage

MSB is to start a phase 2 trial for repair of degenerating intervertebral discs in 3Q11. Also noted its cervical and lumbar fusion Phase 2 clinical trials remain on track.

Pipeline highlighted: intravenous market potential

MSB plans to develop an intravenous drug delivery system, which has the potential treat a range of inflammatory conditions such as diabetes, lung disorders (asthma), joint conditions, neurological conditions (MS).

30 Jun	FY10		FY11F		FY12F		FY13F
Currency (AUD)	Actual	Old	New	Old	New	Old	New
Revenue (mn)	0	116	116	154	154	183	183
Reported net profit (mn)	-15	67	67	94	94	116	116
Normalised net profit (mn)	-15	67	67	94	94	116	116
Normalised EPS	-0.1	0.3	0.3	0.3	0.3	0.4	0.4
Norm. EPS growth (%)	na	na	na	9.1	9.1	22.4	22.4
Norm. P/E (x)	na	N/A	26.8	N/A	24.9	N/A	20.4
EV/EBITDA	na	N/A	22.6	N/A	15.6	N/A	12.1
Price/book (x)	33.3	N/A	4.5	N/A	3.8	N/A	3.2
Dividend yield (%)	na	N/A	na	N/A	na	N/A	na
ROE (%)	-46.4	25.0	25.0	17.3	17.3	17.7	17.7
Net debt/equity (%)	net cash	net cash	net cash	net cash	net cash	net cash	net cash

Source: Nomura estimates

Key company data: *See page 2 for company data and detailed price/index chart.*
Rating: *See report end for details of Nomura's rating system.*

Key data on Mesoblast

Income statement (AUDmn)

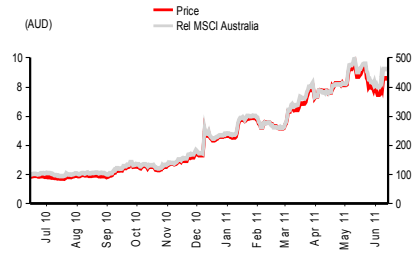
Year-end 30 Jun	FY09	FY10	FY11F	FY12F	FY13F
Revenue	**0**	**0**	**116**	**154**	**183**
Cost of goods sold	0	0	0	-1	-1
Gross profit	**0**	**0**	**116**	**153**	**182**
SG&A	-10	-11	-25	-33	-37
Employee share expense					
Operating profit	**-10**	**-11**	**91**	**120**	**145**
EBITDA	**-10**	**-11**	**92**	**128**	**154**
Depreciation	0	0	-2	-8	-9
Amortisation	0	0	0	0	0
EBIT	-10	-11	91	120	145
Net interest expense	1	1	7	15	20
Associates & JCEs					
Other income	-3	-4	-2	0	0
Earnings before tax	**-12**	**-15**	**96**	**135**	**165**
Income tax	0	0	-29	-40	-50
Net profit after tax	**-12**	**-15**	**67**	**94**	**116**
Minority interests	0	0	0	0	0
Other items					
Preferred dividends					
Normalised NPAT	**-12**	**-15**	**67**	**94**	**116**
Extraordinary items	0	0	0	0	0
Reported NPAT	**-12**	**-15**	**67**	**94**	**116**
Dividends	0	0	0	0	0
Transfer to reserves	**-12**	**-15**	**67**	**94**	**116**
Valuation and ratio analysis					
FD normalised P/E (x)	na	na	26.8	24.9	20.4
FD normalised P/E at price target (x)	na	na	34.4	31.9	26.1
Reported P/E (x)	na	na	26.3	24.1	19.7
Dividend yield (%)	na	na	na	na	na
Price/cashflow (x)	na	na	16.2	22.6	18.5
Price/book (x)	43.0	33.3	4.5	3.8	3.2
EV/EBITDA (x)	na	na	22.6	15.6	12.1
EV/EBIT (x)	na	na	23.0	16.6	12.9
Gross margin (%)	100.0	100.0	99.8	99.4	99.3
EBITDA margin (%)	-5,375.1	-199,515.4	79.6	82.9	84.1
EBIT margin (%)	-5,439.4	-202,302.4	78.1	77.9	79.1
Net margin (%)	-6,594.6	-268,743.5	58.0	61.3	63.0
Effective tax rate (%)	na	na	30.0	30.0	30.0
Dividend payout (%)	na	na	0.0	0.0	0.0
Capex to sales (%)	91.3	1,583.9	1.5	5.0	5.0
Capex to depreciation (x)	2.2	0.8	1.0	1.0	1.0
ROE (%)	-47.2	-46.4	25.0	17.3	17.7
ROA (pretax %)	-83.9	-124.2	34.5	23.2	28.0
Growth (%)					
Revenue	na	-97.0	2,110,163.9	32.7	19.1
EBITDA	na	na	na	38.3	20.8
EBIT	na	na	na	32.4	20.9
Normalised EPS	na	na	na	9.1	22.4
Normalised FDEPS	na	na	na	7.8	22.4
Per share					
Reported EPS (AUD)	-0.10	-0.11	0.31	0.34	0.41
Norm EPS (AUD)	-0.10	-0.11	0.31	0.34	0.41
Fully diluted norm EPS (AUD)	-0.10	-0.11	0.30	0.33	0.40
Book value per share (AUD)	0.19	0.24	1.79	2.13	2.55
DPS (AUD)	0.00	0.00	0.00	0.00	0.00

Source: Nomura estimates

Notes

MSB commenced generating revenue in 1H11

Price and price relative chart (one year)



(%)	1M	3M	12M
Absolute (AUD)	10.9	47.6	321.2
Absolute (USD)	17.2	60.0	395.0
Relative to index	11.4	46.6	321.3
Market cap (USDmn)	2,576.4		
Estimated free float (%)	55.0		
52-week range (AUD)	8.45/1.71		
3-mth avg daily turnover (USDmn)	5.94		
Major shareholders (%)			
Silviu Itescu	25.0		
Cephalon Inc	20.0		

Cashflow (AUDmn)

Year-end 30 Jun	FY09	FY10	FY11F	FY12F	FY13F
EBITDA	-10	-11	92	128	154
Change in working capital	-1	-1	31	2	2
Other operating cashflow	2	3	-12	-26	-30
Cashflow from operations	**-9**	**-9**	**111**	**104**	**127**
Capital expenditure	0	0	-2	-8	-9
Free cashflow	**-9**	**-9**	**110**	**96**	**118**
Reduction in investments	3	4	5	0	0
Net acquisitions	0	0	0	0	0
Reduction in other LT assets	0	0	-11	0	0
Addition in other LT liabilities	0	0	250	0	0
Adjustments	-3	-5	-244	0	0
Cashflow after investing acts	**-9**	**-10**	**110**	**96**	**118**
Cash dividends	0	0	0	0	0
Equity issue	11	26	124	0	0
Debt issue	0	0	0	0	0
Convertible debt issue					
Others	0	0	0	0	0
Cashflow from financial acts	**11**	**26**	**124**	**0**	**0**
Net cashflow	**2**	**16**	**234**	**96**	**118**
Beginning cash	14	17	32	266	362
Ending cash	17	32	266	362	480
Ending net debt	-17	-32	-266	-362	-480

Source: Nomura estimates

Notes

We forecast MSB to have A$266mn in cash at FY11F

Balance sheet (AUDmn)

As at 30 Jun	FY09	FY10	FY11F	FY12F	FY13F
Cash & equivalents	17	32	266	362	480
Marketable securities	0	0	0	0	0
Accounts receivable	0	1	2	2	3
Inventories	0	0	0	0	0
Other current assets	0	0	0	0	0
Total current assets	**17**	**34**	**268**	**365**	**483**
LT investments	9	5	0	0	0
Fixed assets	0	0	0	0	0
Goodwill	0	0	116	116	116
Other intangible assets	0	0	388	388	388
Other LT assets	0	0	11	11	11
Total assets	**27**	**40**	**783**	**880**	**998**
Short-term debt	0	0	0	0	0
Accounts payable	1	2	11	13	16
Other current liabilities	0	0	22	22	22
Total current liabilities	**1**	**2**	**33**	**35**	**38**
Long-term debt	0	0	0	0	0
Convertible debt					
Other LT liabilities	0	0	250	250	250
Total liabilities	**1**	**2**	**283**	**285**	**288**
Minority interest	0	0	0	0	0
Preferred stock	0	0	0	0	0
Common stock	62	88	481	481	481
Retained earnings	-41	-56	12	106	222
Proposed dividends					
Other equity and reserves	4	6	8	8	8
Total shareholders' equity	**26**	**38**	**500**	**595**	**710**
Total equity & liabilities	**27**	**40**	**783**	**880**	**998**
Liquidity (x)					
Current ratio	14.28	21.01	8.14	10.39	12.80
Interest cover	na	na	na	na	na
Leverage					
Net debt/EBITDA (x)	na	na	net cash	net cash	net cash
Net debt/equity (%)	net cash	net cash	net cash	net cash	net cash
Activity (days)					
Days receivable	420.5	55,780.0	5.3	5.2	5.2
Days inventory	na	na	0.0	0.0	0.0
Days payable	na	na	8,745.7	5,053.8	4,032.0
Cash cycle	na	na	-8,740.4	-5,048.6	-4,026.8

Source: Nomura estimates

Notes

We expect MSB to meet its timelines negotiated as part of the CEPH deal

Young at heart

Mesoblast gave a presentation today at the 8th Nomura Asia Equity Forum in Singapore, where it provided clinical and commercial updates on its proprietary adult stem cell technology platform. The biotech company's primary focus is on progressing its drug delivery system for treatment of cardiovascular, spinal orthopaedic and inflammatory conditions.

MSB announced that it will launch a Phase 3 clinical trial of its product for augmenting bone marrow transplantation in cancer patients by 3Q11. If successful, MSB could take its product to the US$300mn US market as early as 2013.

Highlights from the Forum include updated clinical trial timelines and updated estimates of market size

With respect to its cardiovascular treatment, MSB highlighted its favourable Phase 2 results in congestive heart failure and recent data showing that its stem cell product improves blood flow in ischemic heart muscle. Six months after treatment with a single injection of MSB's stem cell product there was significant improvement in blood flow to ischaemic heart muscle, with 51% reduction in myocardial ischaemia (lack of blood supply). We believe these results are relevant in that they demonstrated a large benefit to treatment; and they were statistically significant (p=0.01). MSB intends to commence a Phase 2b trial of its stem cells in c150 patients with refractory angina by end CY11. We believe these results demonstrate the potential to treat patients suffering from heart failure, acute myocardial infarction, chronic refractory angina, and vascular heart disease. If successful, MSB could contest the global stent market, worth US$5.3bn, as early as 2015.

With respect to its spinal orthopaedic investigations, Mesoblast announced that it would start a Phase 2 trial for repair of degenerating intervertebral discs in 3Q11; MSB also noted that the cervical and lumbar fusion Phase 2 clinical trials remain on track.

Mesoblast also highlighted its plan to develop an intravenous drug delivery system, which has the potential treat a range of inflammatory conditions such as diabetes, lung disorders (asthma), joint conditions, and inflammatory neurological conditions such as Multiple Sclerosis. This highlighted the breadth and depth of MSB's pipeline for additional market opportunities in the future. We continue to believe MSB is a platform biotechnology company, with a number of growth drivers.

In this note, we:

- Describe the Phase II trial cardiac results for MSB;
- Outline the condition known as angina, and its market size;
- Highlight potential other near-term catalysts for the stock; and
- Summarise what it means for MSB.

What are MPCs?

Mesenchymal precursor cells (MPCs, also known as mesenchymal stem cells) are adult stem cells that have the ability to become solid organs and tissues such as bone, heart muscle and cartilage. They do not have immunological markers and will therefore cause no immune reaction when injected into a foreign host. This means MPCs can be harvested as a generic product for any recipient from any donor.

The proprietary technology being commercialised by MSB enables the efficient extraction, isolation and scale-up of MPCs. This technology has allowed for the potential application of commercial, off-the-shelf MPCs harvested from relatively few, non-specific donors in a wide range of serious medical issues. MSB aims to capitalise on its patents that relate to the identification, extraction and culture of adult mesenchymal precursor cells.

1. MSB's Phase II trial results in angina

In a subset analysis of the ongoing Phase II 60-patient United States trial of MSB's heart stem cells (known as Revascor) for congestive heart failure, 22 patients were found to

Myocardial Ischemia is a condition of insufficient blood flow to the heart muscle via the coronary arteries, often resulting in chest pain (angina)

have reduced myocardial blood flow at baseline by SPECT perfusion scan, indicating the presence of ischemic heart muscle. Of these, 17 were randomized to receive treatment with Revascor while five were randomized as controls. Six months after treatment with a single injection of Revascor there was significant improvement in blood flow to the ischemic heart muscle, with 51% reduction in myocardial ischemia (p=0.01). In contrast, no change in blood flow to the ischemic heart muscle was seen at six months in the controls. In the trial, there were no adverse events associated with MPC at any dose.

How is a SPECT scan performed?

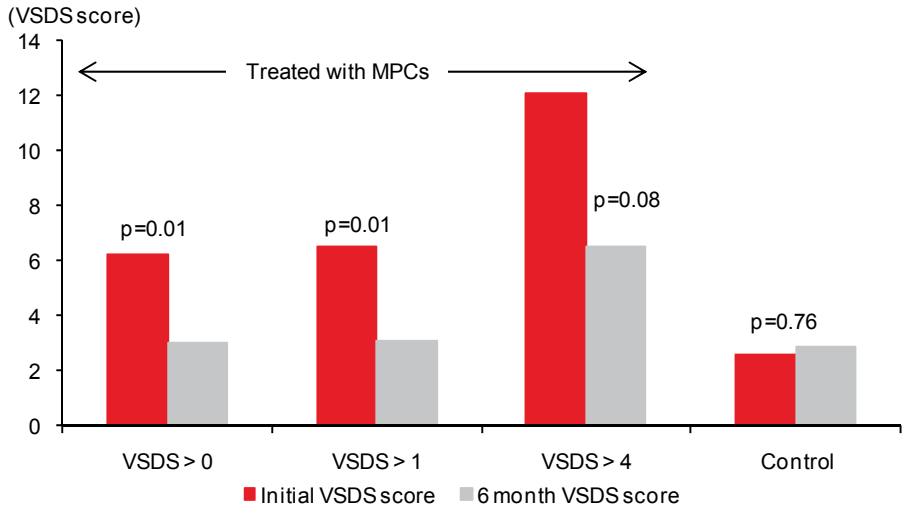
SPECT (MPS) has been demonstrated to have an overall accuracy of about 83% (sensitivity: 85%; specificity: 72%), and is comparable with other non-invasive tests for ischemic heart disease.

Visual interpretation of MPS images is based on tomograms divided into a number of segments. Each segment is scored by an expert using a scoring system for perfusion variables, namely:

- 0 - Normal;
- 1 - Mildly abnormal;
- 2 - Moderately abnormal;
- 3 - Severely abnormal; and
- 4 - Absence of segmental uptake.

Subsequently, the visual summed scores for stress (VSSS) and summed scores for rest (VSRS) are calculated by summing of respective segmental perfusion scores. The visual summed difference score (VSDS) is computed as the difference between VSSS and VSRS (ie, VSSS minus VSRS). Essentially, the difference between the two scores (VSDS) identifies the degree of ischemia, ie, mild (> 0), moderate (>2) or severe (> 4). If the SDS score is 0, then the patient is considered to be non-ischemic.

Fig. 1: MSB MPC's: Changes in VSDS depending on severity of ischaemia



Source: Company data

The number of patients with VSDS>4 was less than half as many as those in VSDS>0 or VSDS>1. This may explain the higher p values in the more severely ischaemic patients.

Decrease in MACE

These improvements in blood flow and in myocardial ischemia in patients treated with Revascor were accompanied by a 75% reduction in the risk of Major Adverse Cardiac Events (MACE) over a mean follow-up period of 21 months compared with controls with myocardial ischemia and no change in blood flow. MACE are defined as a clinical composite of death due to cardiac causes, non-fatal heart attacks, or revascularization episodes.

There was a 75% reduction in the risk of Major Adverse Cardiac Events (MACE)

Understanding p-values

The logic of hypothesis testing and p-values is convoluted. Suppose a new treatment appears to outperform the standard therapy in a research study. We are interested in assessing whether this apparent effect is likely to be real or could just be a chance finding: p-values help us to do this.

In calculating the p-value, we first assume that there really is no true difference between the two treatments (this is called the null hypothesis). We then calculate how likely we are to see the difference that we have observed just by chance if our supposition is true (that is, if there is really no true difference). This is the p-value.

So the p-value is the probability that we would observe effects as big as those seen in the study if there was really no difference between the treatments. If p is small, the findings are unlikely to have arisen by chance and we reject the idea that there is no difference between the two treatments (we reject the null hypothesis). If p is large, the observed difference is plausibly a chance finding and we do not reject the idea that there is no difference between the treatments.

Note that we do not reject the idea, but we do not accept it either: we are simply unable to say one way or another until other factors have been considered. But what do we mean by a 'small' p-value (one small enough to cause us to reject the idea that there was really no difference)? By convention, p-values of less than 0.05 are considered 'small'. That is, if p is less than 0.05 there is a less than one in 20 chance that a difference as big as that seen in the study could have arisen by chance if there was really no true difference. With p-values this small (or smaller) we say that the results from the trial are statistically significant (unlikely to have arisen by chance). Smaller p-values (say $p<0.01$) are sometimes called 'highly significant' because they indicate that the observed difference would happen less than once in a hundred times if there was really no true difference.

2. What is angina?

Nearly 7 million people in the United States suffer from angina.

Angina is chest pain or discomfort that occurs when an area of the heart muscle doesn't get enough arterial blood. Angina may feel like pressure or squeezing in the chest. Angina is a symptom of an underlying heart problem, usually coronary heart disease (CHD). CHD is the most common type of heart disease in adults. Nearly seven million people in the United States suffer from angina. About 400,000 people go to their doctors with new cases of angina every year. In the United States, there are over one million patients with refractory angina not amenable to cardiovascular therapies. The incidence of refractory angina in the US is over 200,000 new patients annually.

Coronary artery disease is estimated to have cost the US government, directly and indirectly, US$177bn in 2010.

Fig. 2: Coronary Artery disease – facts and figures

Country/Region	Source & Year	Cardiovascular disease or CVD	Coronary artery disease
United States	American Heart Association report, 2006	In 2006, CVD was the leading cause of death in the United States, claiming 831,272 lives, or 34.3% of all deaths.	Coronary artery disease is the greatest contributor of CVD deaths and accounted for 425,425 deaths in the United States in 2006 or approximately one in every six deaths. Over 17 million people in the United States have a history of heart attack or angina pectoris (chest pain due to coronary of heart attack or angina pectoris (chest pain due to coronary disease) or both, and approximately 1.2 million Americans will have a new or recurrent coronary attack this year.
Europe & the EU	European Heart Network, 2008	Each year, CVD accounts for 4.3 million deaths, or 48% of all deaths, in Europe and over two million deaths, or 42% of all deaths, in the EU.	Coronary artery disease is the most common single cause of death in Europe and the EU, accounting for approximately 1.92 million deaths per year in Europe, or 21% of all male deaths and 22% of all female deaths in Europe; and 741,000 deaths per year in the EU, or 15% of all female deaths and 16% of all male deaths in the EU.
Australia	The Australian Institute of Health and Welfare report, 2007	CVD was the primary cause of death in 2007, accounting for 22,727 deaths, or around a third of deaths that year.	Coronary artery disease kills more Australians than any other disease, accounting for 22,727 deaths in 2007, or 16.5% of all deaths.

Source: RVA data

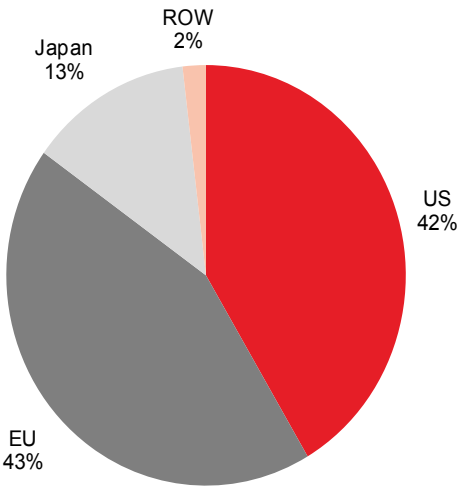
Currently, the main goals of treatment of angina are to: 1) reduce pain and discomfort and how often it occurs; and 2) prevent or lower the risk of heart attack and death by treating the underlying heart condition. Treatments for angina include:

- Lifestyle changes: including diet and controlled exercise;
- Medicines: including nitrates, beta blockers, calcium channel blockers, ACE inhibitors, oral anti-platelet medicines, and anticoagulants;
- Medical procedures: If lifestyle changes and medicines don't control angina, both angioplasty and coronary artery bypass grafting (CABG) are commonly used to treat heart disease. Angioplasty opens blocked or narrowed coronary arteries. During angioplasty, a thin tube with a balloon or other device on the end is threaded through a blood vessel to the narrowed or blocked coronary artery. Once in place, the balloon is inflated to push the plaque outward against the wall of the artery. This widens the artery and restores blood flow. Sometimes a small mesh tube called a stent is placed in the artery to help keep it open after the procedure. During CABG, healthy arteries or veins taken from other areas in your body are used to bypass (that is, go around) your narrowed coronary arteries; and
- Cardiac rehabilitation: this includes exercise training, education, counseling, and training.

Nomura viewpoint

Should the clinical trials for MSB in angina continue to be positive, then Revascor has the potential to become a major competitive threat to the well-established coronary stent market, in our view. The global stent market was estimated at US$5.3bn in 2009.

Fig. 3: Size of coronary stent market (US$5.3bn in 2009)



Source: World-wide Stent market (2009)

In coronary stenting, the key clinical measures of success or failure of the therapy are:

- Target Lesion Revascularisation: which measures the incidence of restenting or bypass surgery required due to failure of the initial coronary angioplasty and stenting; and
- Major Adverse Coronary Events (MACE): being events of death, ischemia or heart attack, where the target is to have as low a rate of MACE as possible. In this trial, MSB's MACE declined 75%. Comparisons of declines in MACE rates in coronary stenting are difficult, due to different stenting products/procedures.

As many as 30% of patients suffer re-stenosis following a coronary stent placement, according to a New England Journal of Medicine study in 1994. This would likely be less of an issue with MSB.

The results released by MSB were relevant in that they demonstrated a large benefit to treatment and they were statistically significant (p=0.01). MSB will be monitoring for re-stenosis in its treated patients.

3. Other near-term catalysts for MSB – CHF trial

In 2009, MSB began a Phase IIa Congestive Heart Failure (CHF) Clinical Trial, with the aim of determining whether a single intra-myocardial injection of allogeneic MPC was useful in the treatment of Congestive Heart Failure.

What is heart failure?

Congestive Heart Failure (CHF) is a chronic condition characterised by the heart's inability to pump blood effectively to the body, resulting in shortness of breath, tiredness, potential organ damage and, ultimately, death. It usually occurs as a result of damaged heart tissue lost in, and progressively after, a heart attack, due to the sharp and then progressively increasing lack of blood flow and overworking of the weakened heart. This can be quantified as a measure of the ejection fraction (the percentage of blood ejected from the heart) via echocardiogram. An ejection fraction (EF) of 40% or less defines moderate to severe CHF. A heart considered healthy gives an EF range of 55-65%. Almost 50% of heart attack victims go on to develop heart failure within six years. There are around 5m CHF sufferers in the US alone and a further 550,000 new cases each year stemming from 1.25m new heart attacks. Current drug treatment of CHF does not regenerate heart muscle or tissue, but rather seeks to alleviate symptoms and reduce heart stress to prolong what is otherwise inevitable heart-function deterioration. We believe US$3.1bn is spent annually in the US on medical durables for CHF.

Trial results expected in 3QCY11

We continue to believe that should this trial continue to demonstrate significant results, this would be a major positive for the stock. We expect the end of the clinical trial in June 2011. Should the final results be positive, then we expect that MSB and its partner will approach the US FDA regarding initiating a Phase III clinical trial in congestive cardiac failure. The hard end-points achieved to date will likely form the basis for the key primary end-points for FDA Phase 3 trial in heart failure patients. We continue to forecast the start of US revenues for MSB from Revascor in FY15.

4. What does it mean for MSB?

As a result of this news, we have not changed our forecasts. We see treatment of cardiovascular conditions such as angina as a major potential opportunity for MSB. In developing a scenario analysis for the opportunities being developed by MSB, we assume MSB will get its product to market within the timeframes listed in the figures below. We also assume the company will ultimately achieve 5% market share in the US market, and that this will remain constant. Our assumptions are shown in the following Figure.

Fig. 4: Scenario analysis assumptions

Health inflation	5%
market share for MSB	5%
US$/A$ exchange rate	1.0
MSB NPATmargin (%)	20%

Source: Nomura estimates

We calculate that the NPV of the potential opportunities developed by MSB is A$17.14. Outputs from our analysis are shown below.

Fig. 5: Outputs from MSB scenario analysis

Market opportunity	Estimated year of market entry	NPV per share (A$)
Cardiac	2015	$2.33
Diabetes	2016	$7.70
OA of the knee	2016	$0.66
Bone marrow regen.	2014	$1.57
Macular degeneration	2016	$0.99
Spinal Fusion	2016	$0.61
Disc regeneration	2016	$0.20
Bone repair	2015	$3.06
	Total value	**$17.14**
61% risk weighting of portfolio (in line with trial stage)		**$10.45**

Source: Nomura estimates

Hence, our risk-weighted valuation for MSB is A$10.45 (=0.61xA$17.14).

Other reasons why we like MSB

- **MPCs are a paradigm shift in bone-graft substitute technology** – having analysed the literature, and after discussions with our industry contacts, we believe that the potential inclusion of MPCs in bone-graft substitutes is a step change in the technology of these substitutes. We think that this is likely to make a synthetic bone graft much more likely to ingrow into existing bone;
- **We predict strong growth rates in volume and pricing of bone-graft technology** – our analysis of bone-graft technology suggests pricing for these products will likely remain strong, driven by a lack of supply in a market with high barriers to entry. Indeed, discussions with industry contacts suggest that in a revision joint replacement, a bone-graft substitute is the most expensive piece of equipment used. The current price is A$11,000 for a 10cc vial, and up to two vials of bone-graft substitute may be used in a single revision joint replacement;
- **Strong levels of IP protection** – we believe that MSB's principal US patent is 7,122,178. This was issued on 17 October 2006 after first being filed on 7 July 2000. Hence, we believe the patent will not expire in the US before 2020. The patent relates

to MPCs and is a method of enriching the cells, including the step of enriching for cells based on at least two markers. Recent advances have led to the development of novel monoclonal antibodies (MAbs), which recognise antigens on MPCs. MSB has patents over the antibody -purified collection and multiplication of STRO3 cells; and

- **Other opportunities in cartilage regeneration** – we believe that MPC technology can be applied to other types of cells other than bone, pancreatic cells, cartilage, and cardiac muscle.

Valuation and risks

Our target price for MSB is A$10.45 per share. Our assumptions include:

- **Equity beta** – due to its inherent risks, MSB will have a higher beta than most other industrial companies. We assume that the company's equity (and asset) beta is 1.80, in line with the average beta for higher-risk biotech opportunities.
- **Nominal long-run growth rate** – given the potentially high growth rate of this business, and in line with those of other high-growth companies in the market, we assume a nominal long-run growth rate of 5% and a real long-run growth rate of 2.5%.

Risks to our investment view

There is still a good deal of uncertainty around MSB's viability in most of its prospective markets. Pre-clinical trials, although positive, give no firm indication of a product's true viability, and full foresight on future market conditions is difficult to obtain. In its favour, MSB's base product is found naturally in the body, and we see little reason to believe that injections of concentrated numbers would cause serious health issues or be relatively less effective in doing their natural job. Cancer concerns arising from the use of embryonic stem cells have not been mirrored in the use of adult stem cells. Problems associated with overgrowth of bones or tissue in sensitive areas are more likely, but less of a concern. If this becomes an issue, we believe that potentially it could be controlled by appropriate dosage and thus would affect the product's viability only marginally. To date, all preclinical and Phase II trials have shown good indications for the product's viability.

We believe that there is potential simply because no other product can directly rebuild the components of organs, tissue, bone, and muscle. As it stands, there have been no significant adverse effects or health issues and all Phase II or pre-clinical trials indicate a product with market viability. Its distinctive technology platform and clinical progress probably also places it in the strongest position for its markets relative to its stem-cell competitors. Therefore, we believe this is an attractive investment opportunity for investors with a higher-risk appetite.

Appendix A-1

Analyst Certification

I, David Stanton, hereby certify (1) that the views expressed in this Research report accurately reflect my personal views about any or all of the subject securities or issuers referred to in this Research report, (2) no part of my compensation was, is or will be directly or indirectly related to the specific recommendations or views expressed in this Research report and (3) no part of my compensation is tied to any specific investment banking transactions performed by Nomura Securities International, Inc., Nomura International plc or any other Nomura Group company.

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Mentioned companies

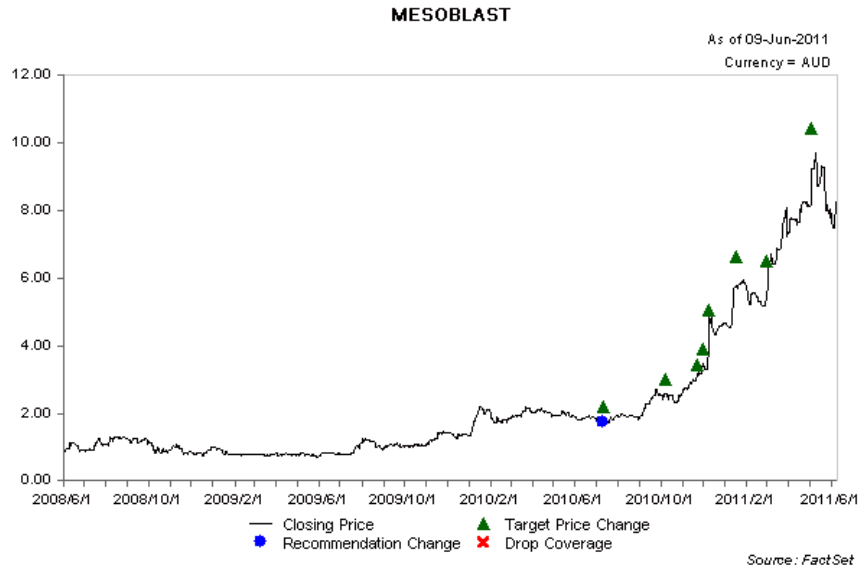
Issuer name	Ticker	Price	Price date	Stock rating	Sector rating	Disclosures
Mesoblast	MSB AU	AUD 8.53	14-Jun-2011	Buy	Not rated	

Previous Rating

Issuer name	Previous Rating	Date of change
Mesoblast	Not Rated	12-Jul-2010

Mesoblast (MSB AU) **AUD 8.53 (14-Jun-2011)** Buy (Sector rating: Not rated)

Rating and target price chart (three year history)



Date	Rating	Target price	Closing price
03-May-2011		10.45	8.19
01-Mar-2011		6.51	5.42
18-Jan-2011		6.66	5.76
08-Dec-2010		5.08	4.05
30-Nov-2010		3.92	3.46
22-Nov-2010		3.44	3.19
08-Oct-2010		3.01	2.60
12-Jul-2010		2.21	1.74
12-Jul-2010	Buy		1.74

For explanation of ratings refer to the stock rating keys located after chart(s)

Valuation Methodology We value MSB (with a TP of $10.45) using DCF analysis, with a WACC of 16.05%. Our assumptions include:• Equity beta – due to its inherent risks, MSB will have a higher beta than most other industrial companies. We assume that the company's equity (and asset) beta is 1.80, in line with the average beta for higher-risk biotech opportunities.• Nominal long-run growth rate – given the potentially high growth rate of this business, and in line with those of other high-growth companies in the market, we assume a nominal long-run growth rate of 5% and a real long-run growth rate of 2.5%.

Risks that may impede the achievement of the target price There is still a good deal of uncertainty around MSB's viability in most of its prospective markets. Pre-clinical trials, although positive, give no firm indication of a product's true viability and full foresight on future market conditions is difficult to obtain. In its favour, MSB's base product is found naturally in the body, and we see little reason to believe that injections of concentrated numbers would cause serious health issues or be relatively less effective in doing their natural job.

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Explanation of Nomura's equity research rating system for Asian companies under coverage ex Japan published prior to 30 October 2008

STOCKS
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