Industry Focus

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India Sugar

New Incentives Positive, but Supply Overhang to Persist

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- **Flexi policy on Ethanol** — Sugar stocks rallied today by over 20% on comments by the Agriculture Minister allowing direct conversion of cane juice to ethanol and more incentives over next few days. While this is positive, we expect sugar supply overhang to persist and don't expect material near-term pickup in sugar prices.
- **Don't expect much price upside** — We calculate that proposed Rs21.5/l price for ethanol has a sugar equivalent price of Rs14/kg. At current cane prices, ethanol margins for UP based mills will be thin, based on our estimated cost of production of Rs20.4/l. Though, sugar supply pressures could ease to some extent.
- **How much sugar can go out of the system?** — Our India oil analyst, Rahul Singh, estimates that at 5% pan India blending, 535m liters of ethanol will be required, which is equivalent to 1.1m tons of sugar (2.2m tons at 10% blending). This is material, but still not enough to curtail near-term inventory accretion.
- **Cane price is joker in the pack** — UP state is likely to announce cane prices soon, which if reduced may materially affect earnings. We see a high probability of UP cane prices being unchanged, which should leave sugar businesses in the red. A potential switch over to a much lower Central govt. advised price (MSP) from state advised price, as reported in press (Source: ET, BS), is also unlikely in our view.
- **Other incentives** — Excise duty deferment and interest free loans to UP-based mills being considered – positive, but not yet in the bag. Given policy related uncertainly, we retain our earnings estimates, price targets for BJH and BRCM.

Figure 1. Replacement Cost per Share: BJHN & BACH

	Ticker	Rating	Price on 19 Sept 07	Asset Replacement Cost	Debt	Discount	Replacement Cost per share after discount
			(Rs)	(RsM)	(RsM)	(%)	(Rs)
Bajaj Hindusthan	BJHN.BO	1M	177.3	49,840	17,500	15%	**185**
Balrampur Chini	BACH.BO	2M	83.25	26,330	4,500	15%	**75**

Source: Citi Investment Research

See Appendix A-1 for Analyst Certification and important disclosures.

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Ethanol policy positive, but supply overhang

The Union Agriculture Minister today stated that the government is looking to allow sugar companies to directly produce ethanol from sugar cane juice (similar to Brazil), rather than the current practice of manufacturing ethanol from molasses, which is a byproduct of sugar. We believe that this will be a positive development for the sugar industry, as this could take out a significant amount of sugar from the system. However, we believe that upside to domestic sugar prices in the near term is limited, given that 1) near-term sugar supply still remains strong and 2) at the proposed price of Rs21.5/litre for ethanol (manufactured from the direct route), the sugar price parity works out to about Rs14/kg, which is about Rs1-rs1.5/kg higher than the current prices prevailing in North India; although it is about Rs2/kg higher than spot prices in South Indian markets.

We estimate that even if sugar manufacturers switch to direct conversion to ethanol, the likely near-term impact on sugar prices (based on our best case scenario) is about Rs1/kg for North Indian mills. As such, in a 10% ethanol blending environment (yet to be notified), we expect about 2.2m tons of sugar to go out of the system. While this is material, it is still unlikely to curtail rising sugar inventories in the FY08E, and we expect the supply overhang to persist in the near term.

Economics of direct conversion to ethanol

Currently, ethanol in India is manufactured from molasses, which is a byproduct of sugar. Switching to direct conversion to ethanol will allow sugar companies to increase the output of ethanol, while cutting the output of sugar. We estimate that for a typical 10,000TCD sugar mill based in the North Indian state of UP, the cost of manufacturing till the operating level will be about Rs20.4/lites, using the direct conversion route. Our calculations are based on assuming current sugar cane price of Rs1250 per ton and average sugar recovery of 10%. Our detailed calculations are enumerated below:

Figure 2. UP State Ethanol Manufacturing Economics From Direct Conversion Route

	Value	Units
Crushing Capacity	10,000	TCD
Crushing Season	160	Days
Sugarcane Crushed	1,600,000	MT
Sugar Recovery	10%	%
Sugar Quantity (in Juice)	16,00000	Ltrs.
Sugar to Alcohol Ratio	65.0	Ltrs / 100 Kg. of Sugar
Alcohol Production	1,040,000	Ltrs.
Fermentation Efficiency	95	%
Distillation Efficiency	98	%
Actual Alcohol Production	**968,240.00**	**Ltrs.**
Sugarcane Price Rs. / MT	**1,250**	**Rs. / MT**
Sugarcane Value	2,000	Rs. Million
COST OF PRODUCTION		
Sugarcane Cost	20.66	Rs. / Ltr.
Milling & Other Costs - Upto Clarified Juice	1.75	Rs. / Ltr.
Conversion Cost - Clarified Juice to Ethanol	2.50	Rs. / Ltr.
Total Production Cost	24.91	
Less: Recoveries from Cogeneration & Press Mud	4.50	Rs. / Ltr.
Net Production Cost	**20.4**	**Rs. / Ltr.**

Source: Company Reports and Citi Investment Research Estimates

At operating cost of Rs20.4/litre, manufacturing ethanol through the direct route is unlikely to leave much margins for the UP-based sugar companies, given a selling price of Rs21.5/litre that has been proposed by the government. However, the margins would improve if the cane price was to be lower, or recovery (or fructose content) was to be higher. In this regard, the sugar mills in South India are at an advantage, as they have a lower cane cost and higher recoveries. We believe that the key advantage for the North Indian mills from this policy is that they would be able to curtail sugar production by switching to ethanol, which may have some positive impact on sugar prices. At the proposed Rs21.5/kg price for ethanol, the sugar price parity is Rs14/kg based on our calculations. At this point, manufacturers will likely become indifferent between sugar and ethanol production.

How much sugar can go out of the system?

According to our oil analyst Rahul Singh, total ethanol required for 5% nationwide blending in FY08E would be about 742m tons and 1485m tons at 10% blending. Based on these estimates, we calculate that a 5% nationwide blending if implemented, could potentially take about 1.14m tons of sugar out of the system, while 10% blending could take about 2.28m tons of sugar out of the system. We enumerate below our calculations detailing the sugar gone to manufacture ethanol directly from cane:

Figure 3. Sugar to Ethanol Conversion

	FY08E	Units
Total Petrol Consumption	11	MT
Total Petrol Consumption	14850	Million Ltrs.
Ethanol required (5% blending)	742.5	Million Ltrs.
Sugar Foregone (65% conversion ratio)	1.14	Million Tons
% of Consumption	5.7	%
Ethanol required (10% blending)	1485	Million Ltrs.
Sugar Foregone (65% conversion ratio)	2.28	Million Tons
% of Consumption	11.4	%

Source: Company Reports and Citi Investment Research Estimates

Will oil companies agree?

Our oil analyst also estimates that at Rs21.5/litre price of ethanol, oil price parity would be in the range of US$55-US$60 per barrel. Thus, at current oil prices of over US$80 per barrel, oil companies would benefit from blending ethanol with petrol.

In addition, our discussion with a leading distillery equipment manufacturer suggests that it would be easy for sugar companies who currently manufacture ethanol from molasses to switch over to the direct conversion route. The companies will need to make some minor changes to the current machinery, which can be done easily and would not entail any significant incremental expenditure. We believe that if sugar companies are assured secure sales of ethanol, most of them are likely to shift toward direct conversion.

Stars may align, but supply overhang

While all factors point toward a possibility of a quick shift toward direct ethanol conversion, we expect that near-term supply overhang will likely cap sugar price upsides to about Rs14-Rs14.5/kg levels over the next 12 months. (We are assuming Rs14/kg in our estimates for UP-based sugar companies). Assuming the best-case scenario of 10% nationwide blending of fuel from FY08E and sugar companies adopting a quick shift toward direct ethanol production, expected sugar production will decline by about 2.2m tons. However, this would still leave a surplus of 2.5m tons and domestic sugar inventory level of 13.4m tons (65.4% of consumption). As such, rising inventory levels are likely to keep sugar prices depressed, although a conversion parity of Rs14/kg between sugar and ethanol may result in sugar prices in North India gravitating toward the conversion parity. We, however, do expect a turn in the sugar price cycle from 08E/09E sugar season, where we expect farmers to cut area under sugarcane and consequently decline in sugar output. This should result in inventory depletion, which could be further accentuated, if direct conversion to ethanol is adopted.

Figure 4. Indian Sugar Demand Supply Estimates (Million Tons)

	FY04	FY05	FY06	FY07E	FY08E	FY09E
Opening Stock	11.6	8.5	4.7	4.4	10.9	13.4
Production	14.0	12.7	19.5	28.5	28.5	21.0
Imports	0.4	2	0	0	0	0
Total Availability	**26.0**	**23.2**	**24.2**	**32.9**	**39.4**	**34.4**
Domestic Consumption	17.3	18.5	19.2	20.0	20.8	21.4
Used for Ethanol					2.2	2.4
Exports	0.2	0	0.6	2	3	2
Total Requirement	17.5	18.5	19.8	22.0	26.0	25.8
Closing Stock	**8.5**	**4.7**	**4.4**	**10.9**	**13.4**	**8.6**
As % of Consumption	*49.1*	*25.4*	*22.7*	*54.5*	*64.4*	*39.9*

Source: ISMA and Citi Investment Research Estimates

Cane cost is the Joker in the Pack

The single most important near-term variable that can have a material impact on UP-based sugar company earnings is the cane price. The UP state government is likely to set the cane price for the 07/08 crushing season, which is due to commence in October. Thus, a cane price announcement is imminent. The best-case scenario, of course, will be a reduction in cane prices. Given a large farming community in UP, and the ensuing political pressures, we believe that that this scenario is unlikely. In the most likely scenario, cane price may be left unchanged, at Rs1250 per ton. However, UP-based mills may be extended interest free loans to make cane payments (this has been demanded by the UP government from the Centre). This would reduce interest burden to a large extent.

However, despite the loans, at Rs1250/ton cane price (even if one assumes that sugar prices move to Rs14/kg, at a 10% recovery rate), sugar companies in UP would still make losses on the sugar business, and may potentially switch most production towards ethanol (assuming that they are allowed to, and are able to carry the necessary changes required for switching to the direct route). In that case, they may still end up making marginal profits on the distillery business, but the key would be cane prices being left unchanged.

Press reports (*Economic Times*) also suggest that the government is considering a uniform national cane pricing policy, which will override the state advised price. Current Central govt. advised price is significantly lower than the UP state advised price. A switch from state to central govt. advised price is likely to face tremendous resistance, and is highly unlikely in our view.

Potential earnings impact?

At this juncture, it is only a theoretical exercise to try and gauge potential earnings impact from the proposed government policies. These policies are yet to be formally notified. In addition, there are a significant number of variables involved (cane prices, ethanol blending ratios, interest costs), on which uncertainly still exists. We believe that a clearer picture will emerge only after the final policy is announced. According to the Agriculture Minister, this is expected in the next 8-10 days. Till then, we would continue to value sugar stocks under our coverage universe [Bajaj Hindusthan (BJH) and Balrampur Chini (BRCM)] based on replacement cost valuation. As such, our earnings incorporate Rs14/kg sugar price, which is where we believe that the FY08 cap would be, even in the event of the new ethanol policy. Of course, it would be an entirely different picture if cane prices are lowered – too early and too difficult to call.

We enumerate below the sensitivity to earnings for BJH and BRCM to cane prices:

Figure 5. BJH – Sensitivity to FY08E Earnings to Cane Price

Change (%)	Sugarcane Cost (Rs./ Ton)	Profit (Rs Mn)	% Divergence
+5%	1312.5	1004.5	-54.9
+4%	1300.0	1249.2	-43.9
+3%	1287.5	1493.9	-32.9
+2%	1275.0	1738.6	-22.0
+1%	1262.5	1983.3	-11.0
Base Case	**1250.0**	**2227.9**	**0.0**
-1%	1237.5	2472.6	11.0
-2%	1225.0	2717.0	22.0
-3%	1212.5	2962.5	33.0
-4%	1200.0	3206.7	43.9
-5%	1187.5	3451.4	54.9

Source: Citi Investment Research

Figure 6. BRCM – Sensitivity to FY08E Earnings to Cane Price

Change (%)	Sugarcane Cost (Rs./ Ton)	Profit (Rs Mn)	% Divergence
+5%	1312.5	1005.0	-36.8
+4%	1300.0	1122.0	-29.4
+3%	1287.5	1238.4	-22.1
+2%	1275.0	1355.0	-14.7
+1%	1262.5	1472.0	-7.4
Base Case	**1250.0**	**1589.0**	**0.0**
-1%	1237.5	1706.0	7.4
-2%	1225.0	1822.0	14.7
-3%	1212.5	1940.0	22.1
-4%	1200.0	2056.0	29.4
-5%	1187.5	2173.0	36.8

Source: Citi Investment Research

We also enumerate below our replacement cost based valuations for BJH and BRCM:

Figure 6. Bajaj Hindusthan – Replacement Cost Analysis

	Capacity (FY08E)	Replacement cost per unit (Rs)	Replacement cost (Rs Million)
Sugar (TCD)	136000	300000	40800
Alcohol (KLPD)	800	3500000	2800
Co-generated Power (MW)	96	40000000	3840
MDF			2400
Total Replacement cost (Rs million)			49840
Total Debt (RsM)			17500
Replacement cost net of Debt (RsM)			32340
Per share replacement cost (Rs)			229.0
Discount to replacement cost (%)			15%
Price Target (Rs)			195.0

Source: Citi Investment Research

Figure 7. Balrampur Chini – Replacement Cost Analysis

	Capacity (FY08E)	Replacement cost per unit (Rs)	Replacement cost (Rs Million)
Sugar (TCD)	73000	300000	21900
Alcohol (KLPD)	420	3500000	1470
Co-gen Power (MW)	74	40000000	2960
Total Replacement cost (Rs million)			26330
Total Debt (RsM)			4500
Replacement cost net of Debt (RsM)			21830
Per share replacement cost (Rs)			88.0
Discount to replacement cost (%)			15%
Price Target (Rs)			75.0

Source: Citi Investment Research

Bajaj Hindusthan (BJHN.BO - Rs177.30; 1M)

Company description

Bajaj Hindusthan (BHL) is India's largest sugar manufacturer and among the 10 largest globally. Its experience in the sugar business spans 70 years with manufacturing plants in UP, and cane crushing capacity of 56,300 TCD, which is likely to increase to 100,000 TCD by FY07. BJH also manufactures industrial alcohol/ethanol, and has capacity of 320 KLPD, which will be expanded to 800KLPD by FY08E. The company plans to sell some of its surplus power from its co-generation unit. Surplus capacity is likely to be 90MW by FY07.

Investment strategy

We maintain our Buy/Medium Risk (1M) rating. The stock has corrected sharply following the decline in domestic and global sugar prices and now trades at a significant discount to the replacement cost of assets, almost a 25% discount, which we believe is close to buy-out valuations. While the company is likely to incur losses in the current sugar downcycle, we see it as well positioned to emerge as a market leader in North India post capacity expansions. Also, as contribution of non-sugar revenue streams increase, the company's earnings will be relatively less volatile due to sugar price fluctuations.

Valuation

Our target price of Rs195 is based on replacement cost analysis, to which we apply a 15% discount, given that the company is making cash losses. We no longer use a P/E-based valuation methodology given sharp sugar price downcycle and uncertainty over UP state government sugar subsidies that could significantly alter our earnings estimates. In this uncertain environment, we believe that asset replacement cost (net of debt) provides base valuations to the stock. We value its sugar assets at Rs300,000 per TCD, which for 136,000TCD gives a value of Rs40.8bn. We value the 800KLPD alcohol assets at Rs3.5m per KLPD, arriving at a value of Rs2.8bn for the assets. We value the co-generation assets at Rs3.8bn, based on Rs40m per MW valuation. Stripped of total debt of Rs17.5bn, the net asset valuation of BJH is Rs32.3bn or Rs229 per share. Applying a 15% discount, we arrive at our price target of Rs195.

Risks

Although our quantitative risk-rating system, which tracks 260-day historical share price volatility, assigns a High Risk to the stock, we rate it as Medium Risk given is has finished its first phase of capacity expansion. The sugar industry in general and BHL in particular, faces significant risks, some of which are structural. Key downside risks are: 1) regulations and the possibility of government intervention in an industry with little pricing power; (2) sugarcane output is governed by agro-climatic factors; an adverse climate could lead to crop failures, affecting raw-material availability; and 3) specific to BJH is execution risk, as the company is aggressively expanding capacity. If the impact of these risks is greater than we expect, the share price will likely have difficulty reaching our target price. The key upside risk would be UP government's planned new sugar policy being more favorable than the earlier policy, which could significantly alter sentiment and drive stock price beyond our price target.

Balrampur Chini Mills (BACH.BO - Rs83.25; 2M)

Company description

Balrampur Chini Mills (BRCM) is one of the largest sugar manufacturers in India. The company is scaling up, has access to good quality sugarcane, and is diversifying into power generation and alcohol (ancillary to sugar production), which should mitigate sugar-price risk. The company would have a cane crushing capacity of 54,500 TCD by the end of FY07E, up from 29,000 TCD at present. The company has also acquired the 7,500 TCD Rauzagaon sugar and cogen power units of Dhampur Sugar Mills.

Investment strategy

We have a Hold/Medium Risk (2M) rating on BRCM. The company looks well positioned to benefit from the strong growth in sugar demand in India (+4%, 2x global demand). However, in the current weak sugar price environment, as well as uncertainty on sugar policy, we expect profits to be under pressure, and do not expect any near term re-rating for the stock. We believe that replacement cost valuation is the best way to value BRCM in the current environment. Based on our replacement cost analysis, we arrive at a value of Rs75 per share, which does not leave much upside from the current stock price. However, we believe that the replacement cost will create a base valuation for the stock, and as such we expect the stock to trade in a narrow range around its current valuations.

Valuation

Our target price of Rs75 is based on a 15% discount to the replacement cost of assets. We apply a 15% discount to reflect cash losses of the sugar business, which we believe will continue for the next 3-4 quarters. We believe that a discount to the replacement cost is warranted till the time cash losses continue. We were earlier using a P/E-based valuation methodology, which we believe is no longer relevant as a sharp sugar price down cycle as well as uncertainty over UP state government sugar subsidies could significantly alter our earnings estimates. In such an uncertain environment, we believe that asset replacement cost (net of debt) will provide the base valuations to the stock. Our replacement cost analysis for BRCM is shown below.

We value the sugar assets of BRCM at Rs300,000 per TCD, which for 73,000TCD gives a value of Rs21.9bn. We value the 420KLPD alcohol assets at Rs3.5m per KLPD, arriving at a value of Rs1.47bn for the assets. We value the 74MW surplus power co-generation assets at Rs2.96bn, based on Rs40m per MW valuation. Stripping off the total debt of Rs4.5bn, the net asset valuation of BRCM in our view is Rs21.83bn or Rs88 per share. Applying a 15% discount to this yields a per share price of Rs75.

Risks

Although our quantitative risk-rating system, which tracks 260-day historical share price volatility, assigns a High Risk to the stock, we rate BRCM as Medium Risk given that the company has successfully completed part of its capacity expansion and has raised capital for the remaining capex. We believe execution and financial risks stand mitigated to a large extent. The following risks could impede the stock from reaching our target price:

- Regulations and the possibility of government intervention in pricing in an industry that has little pricing power.
- Sugarcane output is governed by various agro-climatic factors. An adverse climate could lead to crop failures, affecting raw-material availability.
- The company is aggressively expanding capacity and any delay could hurt its near-term profitability.
- BRCM is looking at investing in power generation, which is a highly regulated industry. Any changes in government regulations could hurt business prospects.

The key upside risk would be if the UP government's planned new sugar policy is more favorable than the earlier policy, which could significantly alter sentiment and drive the stock price beyond our price target.

Appendix A-1

Analyst Certification

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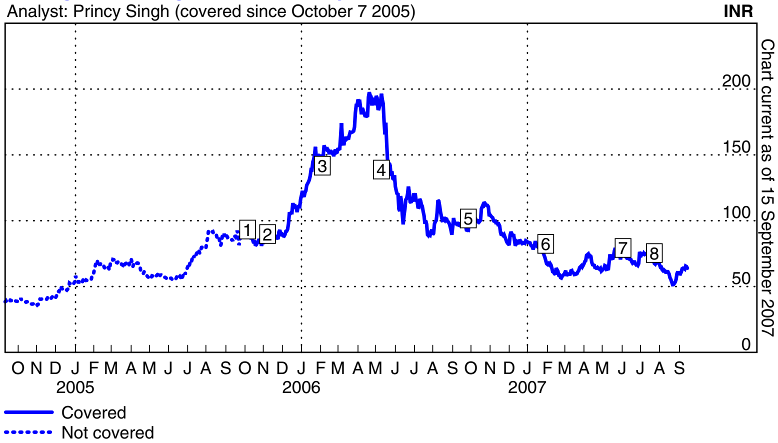
IMPORTANT DISCLOSURES

Balrampur Chini Mills (BACH.BO)

Ratings and Target Price History - Fundamental Research

Analyst: Princy Singh (covered since October 7 2005)



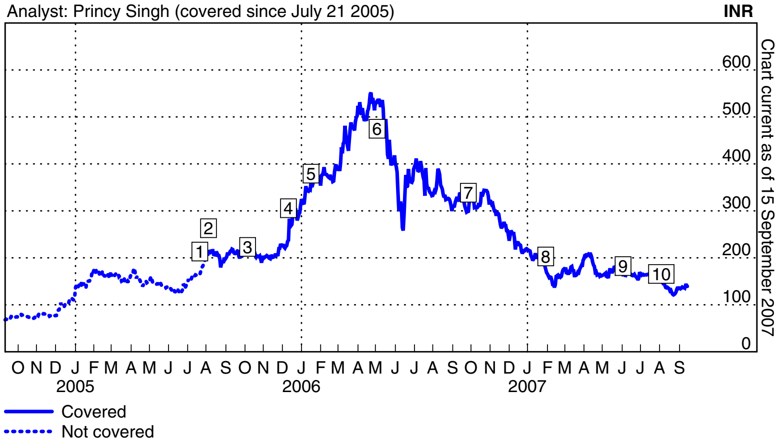
#	Date	Rating	Target Price	Closing Price
1:	6 Oct 05	1H	130.00	87.85
2:	8 Nov 05	1H	*138.00	88.45
3:	3 Feb 06	*1M	*170.00	147.05
4:	10 May 06	1M	*245.00	196.50
5:	27 Sep 06	1M	*130.00	92.70
6:	30 Jan 07	1M	*107.00	NA
7:	4 Jun 07	*2M	*88.00	74.30
8:	24 Jul 07	2M	*75.00	67.55

*Indicates change.

Bajaj Hindusthan (BJHN.BO)

Ratings and Target Price History - Fundamental Research

Analyst: Princy Singh (covered since July 21 2005)



#	Date	Rating	Target Price	Closing Price
1:	21 Jul 05		-	164.45
2:	4 Aug 05	*1H	*216.00	213.35
3:	6 Oct 05	*1M	*280.00	211.80
4:	12 Dec 05	1M	*320.00	237.40
5:	17 Jan 06	1M	*440.00	362.00
6:	3 May 06	1M	*650.00	533.65
7:	27 Sep 06	1M	*467.00	299.00
8:	30 Jan 07	1M	*300.00	NA
9:	4 Jun 07	1M	*229.00	165.70
10:	3 Aug 07	1M	*195.00	151.05

*Indicates change.

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Data current as of 19 July 2007	**Buy**	**Hold**	**Sell**
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% of companies in each rating category that are investment banking clients	71%	70%	70%

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Citi Investment Research's stock recommendations include a risk rating and an investment rating.

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Investment ratings are determined by the ranges described above at the time of initiation of coverage, a change in investment and/or risk rating, or a change in target price (subject to limited management discretion). At other times, the expected total returns may fall outside of these ranges because of market price movements and/or other short-term volatility or trading patterns. Such interim deviations from specified ranges will be permitted but will become subject to review by Research Management. Your decision to buy or sell a security should be based upon your personal investment objectives and should be made only after evaluating the stock's expected performance and risk.

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