

# Infrastructure

## Hybrid Annuity Model – gaining momentum

INDIA | INFRASTRUCTURE | Sector Update

30 March 2017

### Spurt in order awards, especially on HAM model

NHAI's order award activity has been highly erratic in FY17. After a strong show during April-June 2016 period, Aug-Dec 2016 saw subdued order award activity. Multiple factors like change of NHAI chairman, demonetization and land acquisition issues were responsible for the slackening of momentum. However, **in the last two months, the order award activity has picked up again, especially HAM projects – as many as 10 projects have been awarded in March 2017.** While NHAI will still end up significantly short of its target of awarding 15,000km (7,000km till Feb 2017) – we see this strong momentum continuing beyond March 2017, leading to robust order award activity in FY18.

### High orderbook concentration of HAM projects

On the back of recent HAM project wins, orderbooks of some of the developers have developed high concentration of HAM projects. For players like **Sadbhav Engineering, MBL Infra and PNC Infra, almost 50% of their orderbooks (including L1) comprises of HAM projects.** While NHAI has de-risked HAM model to a large extent, we remain cautious about companies going aggressive over this relatively 'new' model of road development – and would keep a keen eye on the financial closure / execution timelines.

### HAM projects – More like deferred EPC, than BOT

NHAI has taken great care to ensure that HAM is viewed as a deferred EPC model, rather than a modified BOT model. With 40% contribution coming from NHAI, the project execution is significantly de-risked. Also, since the amount of annuity is linked via fixed percentages to the project cost, the uncertainty related to revenues (traffic growth and tariff hike) has also been eliminated. Lastly, shorter duration of projects (15 years vs. 20-25 years for a BOT project) also ensures the developers are able to unlock and rotate capital sooner.

**The IRR dynamics of HAM projects call for highly disciplined bidding and execution.** The financial bid comprises of two parameters – 'Bid Project Cost' and 'First year O&M cost'. The only variable that the developers can use to generate superior returns here is, the project cost. Since the grant component and the two revenue streams (excluding O&M reimbursement) are linked to the project cost, companies can generate significant IRRs, by quoting that number higher. Hence, **the winning bids in all the HAM projects awarded have been 'above' the NHAI cost** – unlike most EPC projects, where developers bid for project costs lower than the NHAI cost. **Our calculation shows that 5% higher project cost bid can lead to almost 4% incremental IRR from the project.**

### Financial closures – concerns being pacified

One of the primary concerns with the HAM projects has been the delay in financial closure of these projects. Reportedly, some of the larger PSU banks have not been willing to finance the HAM projects, citing very little equity stake of the developer in the projects, given 40% of project cost is funded by NHAI. Hence **we saw that virtually no projects were able to achieve financial closure, till Aug-2016.**

Over the last few months, **NHAI has held meetings with various financial institutions, pacifying their concerns over the model.** While the country's largest lender remains reluctant to finance HAM projects, other financial institutions have come onboard. After NHAI's intervention, 10 projects have achieved financial closure. **As per our recent interaction with NHAI, 12 more projects are expected to achieve financial closure by mid-April 2017.**

While the HAM projects offer a unique opportunity, easing burden on all stakeholders, we remain cautious about how aggressively companies approach this, as yet unproven, development model. **We would keep a keen eye on the financial bids, concentration of HAM project in orderbooks and timelines of financial closure and execution.**

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## Spurt in order awards, especially on HAM model

NHAI's order award activity has been highly erratic in FY17. While there was a strong show during April-June 2016 period, Aug-Dec 2016 saw subdued order award activity. Multiple factors like change of NHAI chairman, demonetization and land acquisition issues were responsible for the slackening of momentum. However, in the last two months, the order award activity has picked up again, especially HAM projects. While NHAI will still, almost certainly, end up significantly short of its target of awarding 15,000km (7,000km till Feb-2017) – we see this strong momentum continuing beyond March-2017, leading to robust order award activity in FY18.

The last few months have seen strong momentum in HAM project awards, with as many as 10 projects being awarded in March-2017.

### HAM projects awarded by NHAI

Name of Project	Winners	Project Cost (Rs mn)	Length (km)	Award Date
Delhi - Meerut Expressway (Pkg - III)	Apco Infratech & Chetak Enterprises	10,576	22.0	Jan-16
Delhi - Meerut Expressway (Pkg - I)	Welspun Enterprises	7,014	9.0	Jan-16
Meerut - Bulandshahar	Apco Infratech & Chetak Enterprises	6,832	61.0	Jan-16
Rampur - Kathgodam	Sadbhav Infrastructure Projects Ltd.	6,030	43.0	Mar-16
Rampur - Kathgodam	Sadbhav Infrastructure Projects Ltd.	5,250	50.0	Mar-16
Kashedi Parshuram Ghat	Agroh Infra	5,851	NA	Mar-16
Nagpur City Bypass (Pkg-1)	MEP Infra & Sanjose India Infra JV	4,939	34.0	Mar-16
Arawali Kante	MEP Infra & Sanjose India Infra JV	5,566	40.0	Mar-16
Nagpur City Bypass (Pkg-2)	MEP Infra & Sanjose India Infra JV	5,878	28.0	Mar-16
Chutmalpur Ganeshpur & Roorkee - Gagalheri	MBL Infra	8,250	53.0	Mar-16
Gagalheri - Saharanpur - Yamunanagar	MBL Infra	10,400	51.5	Mar-16
Kante Waked	MEP Infra & Sanjose India Infra JV	8,056	51.0	May-16
Laddowal Bypass	Eagle Infra	3,702	17.0	May-16
Samarala chowk to Ludiana	Gawar	8,527	13.0	May-16
Bhavnagar – Talaja	Sadbhav Infrastructure Projects Ltd.	6,500	48.0	May-16
Una – Kodinar	Sadbhav Infrastructure Projects Ltd.	4,950	41.0	May-16
Talaja - Mahua	MEP Infra & Sanjose India Infra JV	6,242	45.0	May-16
Kagavadar - Una	Agroh Infra	7,236	41.0	May-16
Salasar - Nagaur	DRA Infra	6,732	119.6	Jun-16
Mahua – Kagavadar	MEP Infra & Sanjose India Infra JV	5,869	40.0	Jun-16
Kodinar - Veraval	Agroh Infra	8,300	41.7	Jul-16
Dausa - Kauthun	PNC Infra	6,887	83.5	Jul-16
Simla Bypass	Chetak Enterprises	15,832	27.5	Aug-16
Phagwara Rupnagar	GR Infraprojects	11,696	80.8	Aug-16
Lucknow Sultanpur	Dilip Buildcon	20,160	123.0	Aug-16
Kalmath Zarap	Dilip Buildcon	6,536	44.0	Aug-16
Kharar Ludhiana	Ashoka Buildcon	16,000	76.0	Aug-16
BRT Tiger Reserve - Bangalore	Sadbhav Infrastructure Projects Ltd.	7,995	170.0	Sep-16
Binjhabahal Telebani	Oriental Structures Engg	10,090	78.3	Oct-16
Tarsod Fagne	MBL Infra	4,580	87.3	Nov-16
Tuljapur Ausa	Dilip Buildcon	9,111	55.8	Feb-17
Chitradurga Davanagere	PNC Infra	14,340	72.0	Mar-17
Ranastalam Anandpuram	Ashoka Buildcon	11,870	47.0	Mar-17
Waranga Mahagaon	Sadbhav Infrastructure Projects Ltd.	10,710	66.8	Mar-17
Bidhre Dhule	Sunil Hitech	9,820	67.2	Mar-17
Mahagaon Yavatmal	Dilip Buildcon	11,606	80.2	Mar-17
Yavatmal Wardha	Dilip Buildcon	10,433	64.9	Mar-17
Wardha Butibori	Dilip Buildcon	10,655	59.2	Mar-17
Jhansi Khajuraho Pck 1	PNC Infra	14,100	76.3	Mar-17
Jhansi Khajuraho Pck 2	PNC Infra	13,100	85.4	Mar-17
Udaipur Bypass	Sadbhav Infrastructure Projects Ltd.	8,910	23.8	Mar-17
<b>Total</b>		<b>3,67,130</b>	<b>2,318</b>	

Source: NHAI, Companies, PhillipCapital India Research

## High orderbook concentration of HAM projects

On the back of recent HAM project wins, orderbooks of some of the developers have developed high concentration of HAM projects. Players like Sadbhav Engineering, MBL Infra and PNC Infra have almost 50% of their orderbooks (incl L1) comprising of HAM projects.

While NHAI has de-risked HAM model to a large extent, we remain cautious about companies going aggressive over this relatively 'new' model of road development – and would keep a keen eye on the financial closure / execution timelines.

### High share of HAM projects in the orderbooks of few developers

Company	Orderbook 3QFY17	Current orderbook incl L1, recent wins	HAM Projects	HAM Share of orderbok	No of HAM projects
MEP Infra	36,550	36,550	36,550	100%	6
MBL Infra	40,000	40,000	23,230	58%	3
PNC Infra	48,700	97,127	48,427	50%	4
Sadbhav Engg	77,082	1,04,697	50,345	48%	7
Ashoka Buildcon	62,203	74,073	27,870	38%	2
Dilip Buildcon	1,31,240	1,83,877	68,501	37%	6
<b>Total</b>	<b>3,95,774</b>	<b>5,36,323</b>	<b>2,54,923</b>	<b>48%</b>	<b>28</b>

Source: NHAI, Companies, PhillipCapital India Research

### Leading developers in the HAM segment, and their project wins

Name of Project	Winners	TPC (Rs mn)	Length (km)
Rampur - Kathgodam	Sadbhav Infra	6,150	43.0
Rampur - Kathgodam	Sadbhav Infra	5,710	50.0
Bhavnagar – Talaja	Sadbhav Infra	8,170	48.0
Una – Kodinar	Sadbhav Infra	5,545	41.0
BRT Tiger Reserve - Bangalore	Sadbhav Infra	7,995	170.0
Waranga Mahagaon	Sadbhav Infra	10,710	66.8
Udaipur Bypass	Sadbhav Infra	8,910	23.8
Nagpur City Bypass (Pkg-1)	MEP Infra & Sanjose	5,373	34.0
Nagpur City Bypass (Pkg-2)	MEP Infra & Sanjose	6,458	28.0
Arawali Kante	MEP Infra & Sanjose	5,986	40.0
Kante Waked	MEP Infra & Sanjose	8,056	51.0
Talaja - Mahua	MEP Infra & Sanjose	6,130	45.0
Mahua – Kagavadar	MEP Infra & Sanjose	5,980	40.0
Lucknow Sultanpur	Dilip Buildcon	20,160	123.0
Kalmath Zarap	Dilip Buildcon	6,536	44.0
Tuljapur Ausa	Dilip Buildcon	9,111	55.8
Mahagaon Yavatmal	Dilip Buildcon	11,606	80.2
Yavatmal Wardha	Dilip Buildcon	10,433	64.9
Wardha Butibori	Dilip Buildcon	10,655	59.2
Chutmalpur Ganeshpur & Roorkee - Gagalheri	MBL Infra	9,420	53.0
Gagalheri - Saharanpur - Yamunanagar	MBL Infra	11,840	51.5
Udaipur Bypass ( <i>Cancelled</i> )	MBL Infra	7,790	23.8
Tarsod Fagne	MBL Infra	5,207	87.3
Dausa - Kauthun	PNC Infra	6,887	83.5
Chitradurga Davanagere	PNC Infra	14,340	72.0
Jhansi Khajuraho Pkg-1	PNC Infra	14,100	76.3
Jhansi Khajuraho Pkg-2	PNC Infra	13,100	85.4
Kharar Ludhiana	Ashoka Buildcon	16,000	76.0
Ranastalam Anandpuram	Ashoka Buildcon	11,870	47.0

Source: NHAI, Companies, PhillipCapital India Research

## HAM projects – More like deferred EPC, than BOT

NHAI has taken great care to ensure that HAM is viewed as a deferred EPC model, rather than a modified BOT model.

- With 40% contribution coming from NHAI, the project execution is significantly derisked.
- With the amount of annuity is linked via fixed percentages to the project cost, the uncertainty related to revenues (traffic growth and tariff hike) has also been eliminated.
- Lastly, shorter duration of projects (15 years vs. 20-25 years for a BOT project) also ensures that developers are able to unlock capital sooner.

A typical HAM model has three streams of cash inflows and three streams of cash outflows.

### HAM Model – construction and tariff period dynamics

Construction period		Tariff period	
40% contribution from NHAI Rs 400mn		Revenue streams	
		Fixed semi annuity payments for remaining 60% of project cost	Cumulative Rs 600mn (adjusted for inflation)
Bid project cost Rs 1000mn	Debt availed Rs 400mn	Semi annual interest payment for unfunded project cost	@ Bank rate + 300bps, on the declining O/S balance
	Equity from developer Rs 200mn	O&M reimbursement	As quoted by the developer, indexed to inflation
		Expense streams	
		Actual O&M cost incurred	
		Interest payment on the debt availed	As per lenders' terms
		Principal repayment of the debt availed	As per lenders' terms

Source: NHAI, PhillipCapital India Research

## IRR dynamics for HAM project

The IRR dynamics of HAM projects call for highly disciplined bidding and execution. The financial bid comprises of two parameters – ‘Bid Project Cost’ and ‘First year O&M cost’. The NHAI ‘model’ then calculates the NPV of these two numbers automatically, and their summation becomes the ‘bid parameter’ for the developer – on which the developers compete.

### HAM bidding model – input and output parameters

Parameter (Rs mn)	Quoted Value	Parameter (Rs mn)	Determined Value
Bid Project Cost	1,000	NPV of bid project cost	860.95
First year O&M quote (Annual)	10	NPV of O&M	81.24
		Bid Price	<b>942.19</b>

Source: NHAI, PhillipCapital India Research

Assuming all developers quote the O&M cost at their actual expected O&M costs (since it forms a very small part of the NPV), the only variable which the developers can use to generate superior returns here is, the project cost. Since the grant component and the two revenue streams (excluding O&M reimbursement) are linked to the project cost, companies can generate significant IRRs, by quoting that number higher. Our calculation shows that 5% higher project cost bid can lead to almost 4% incremental IRR from the project.

For this reason, despite HAM being closer to EPC model than to BOT, winning bids in all the HAM projects have been 'above' the NHA1 cost – unlike most EPC projects, where developers bid for project costs lower than the NHA1 cost.

**HAM Model – theoretical case – Bid cost same as project cost**

TPC (actual cost)	1,000													
Bid project cost	1,000													
Upfront grant	400													
Equity	120													
Debt	480													
<b>Total</b>	<b>1,000</b>													
<b>Project period year</b>		<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	.....	<b>14</b>	<b>15</b>	<b>16</b>	<b>17</b>	<b>18</b>
<b>Tariff period year</b>					<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	.....	<b>11</b>	<b>12</b>	<b>13</b>	<b>14</b>	<b>15</b>
<b>Construction cost</b>		<b>20%</b>	<b>45%</b>	<b>35%</b>										
Expenditure	1,000	200	450	350	-									
Grant	400	80	180	140	-									
Equity	120	24	54	42										
Debt	480	96	216	168										
Bid project cost	1,000													
Annuity payment schedule	60%				2.6%	2.7%	2.9%	3.1%	.....	4.7%	4.9%	5.1%	5.5%	5.7%
<b>Annuity payments</b>	<b>600</b>				<b>27</b>	<b>29</b>	<b>31</b>	<b>33</b>	.....	<b>49</b>	<b>52</b>	<b>54</b>	<b>58</b>	<b>60</b>
Closing balance of annuities				636	609	580	549	517		225	173	119	60	(0)
<b>Interest earned</b>	<b>10.0%</b>				<b>62</b>	<b>59</b>	<b>56</b>	<b>53</b>		<b>25</b>	<b>20</b>	<b>15</b>	<b>9</b>	<b>3</b>
Total cash inflow					89	88	87	86		74	72	69	67	63
Less: Interest payments	9.0%				42	38	35	32		8	5	2	0	0
Less: Debt repayment					37	37	37	37		37	37	37	-	-
Less: Depreciation					40	40	40	40		40	40	40	40	40
PBT					8	10	12	14		26	27	27	27	23
Less: Tax					2	2	2	3		5	5	5	5	5
<b>FCFE</b>		<b>(24)</b>	<b>(54)</b>	<b>(42)</b>	<b>9</b>	<b>11</b>	<b>13</b>	<b>15</b>	.....	<b>24</b>	<b>25</b>	<b>25</b>	<b>62</b>	<b>59</b>
<b>IRR</b>	<b>11.57%</b>													

Source: NHA1, PhillipCapital India Research

**HAM Model – actual bidding by developers – Bid cost higher than project cost**

TPC (actual cost)	1,000													
Bid project cost	1,050													
Upfront grant	420													
Equity	116													
Debt	464													
<b>Total</b>	<b>1,000</b>													
<b>Project period year</b>		<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	.....	<b>14</b>	<b>15</b>	<b>16</b>	<b>17</b>	<b>18</b>
<b>Tariff period year</b>					<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	.....	<b>11</b>	<b>12</b>	<b>13</b>	<b>14</b>	<b>15</b>
<b>Construction cost</b>		<b>20%</b>	<b>45%</b>	<b>35%</b>										
Expenditure	1,000	200	450	350	-									
Grant	420	84	189	147	-									
Equity	116	23	52	41										
Debt	464	93	209	162										
Bid project cost	1,050													
Annuity payment schedule	60%				2.6%	2.7%	2.9%	3.1%	.....	4.7%	4.9%	5.1%	5.5%	5.7%
<b>Annuity payments</b>	<b>630</b>				<b>29</b>	<b>30</b>	<b>32</b>	<b>34</b>	.....	<b>52</b>	<b>55</b>	<b>57</b>	<b>61</b>	<b>63</b>
Closing balance of annuities				668	639	609	577	542		236	181	125	63	(0)
<b>Interest earned</b>	<b>10.0%</b>				<b>65</b>	<b>62</b>	<b>59</b>	<b>56</b>		<b>26</b>	<b>21</b>	<b>15</b>	<b>9</b>	<b>3</b>
Total cash inflow					94	93	92	90		78	76	72	71	67
Less: Interest payments	9.0%				40	37	34	31		8	5	2	0	0
Less: Debt repayment					36	36	36	36		36	36	36	-	-
Less: Depreciation					39	39	39	39		39	39	39	39	39
PBT					15	17	19	21		31	32	32	32	28
Less: Tax					3	3	4	4		6	6	6	6	6
<b>FCFE</b>		<b>(23)</b>	<b>(52)</b>	<b>(41)</b>	<b>15</b>	<b>17</b>	<b>18</b>	<b>20</b>	.....	<b>28</b>	<b>29</b>	<b>28</b>	<b>64</b>	<b>61</b>
<b>IRR</b>	<b>15.21%</b>													

Source: NHA1, PhillipCapital India Research

## Financial Closures – concerns being pacified

One of the primary concerns with the HAM projects has been the delay in financial closure of these projects. Reportedly, some of the larger PSU banks have not been willing to finance the HAM projects, citing very little equity stake of the developer in the projects, given 40% of project cost is funded by NHAI. Hence we saw that virtually no projects were able to achieve financial closure, till Aug-2016.

*After NHAI's intervention, 10 projects have achieved financial closure and 12 more are expected to achieve it by mid-April 2017*

Over the last few months, NHAI has held meetings with various financial institutions, pacifying their concerns over the model. While the country's largest lender still remains reluctant to finance the HAM projects, other financial institutions have come onboard. After NHAI's intervention, 10 projects have achieved financial closure. As per our recent interaction with NHAI, 12 more projects are expected to achieve financial closure by mid-April 2017.

### HAM projects that have achieved financial closure

Project	Developer	Project	Developer
Delhi - Meerut Expressway (Pkg - I)	Welspun Enterprises	Nagpur City Bypass (Pkg-1)	MEP Infra
Rampur - Kathgodam	Sadbhav Infra	Arawali Kante	MEP Infra
Rampur - Kathgodam	Sadbhav Infra	Nagpur City Bypass (Pkg-2)	MEP Infra
Bhavnagar – Talaja	Sadbhav Infra	Kante Waked	MEP Infra
Una – Kodinar	Sadbhav Infra	Mahua – Kagavadar	MEP Infra
Kharar Ludhiana	Ashoka Buildcon		

Source: Companies, PhillipCapital India Research

## Valuations & Recommendations

### Infrastructure sector – PC coverage universe

Company	CMP	Rating	Price Target	% Upside	EPC Target Multiple	EPC Valuation	BOT/Others Valuation
IRB infra*	234	BUY	280	20%	6.0	105	175
Ashoka Buildcon*	192	BUY	205	7%	7.0	136	69
NCC	81	BUY	115	42%	15.0	115	-
J Kumar	274	UR	NA	NA	NA	NA	-
KNR	183	BUY	190	4%	15.0	174	15
ITD Cementation	170	SELL	125	-26%	15.0	125	-
PNC Infra	116	BUY	140	21%	15.0	120	20
HCC	40	BUY	71	78%	15.0	45	26
Ahluwalia	308	BUY	350	14%	15.0	350	-

Source: PhillipCapital India Research (\* EPC Target multiple EV/EBITDA; for all other P/E)

### EPC sector – Valuation table

Company	Mkt Cap Rs bn	CMP Rs	P/E		EV/EBITDA		ROE		D/E		P/BV	
			FY18E	FY19E	FY18E	FY19E	FY18E	FY19E	FY18E	FY19E	FY18E	FY19E
NCC	45.0	81	13.0	10.6	7.2	6.4	8.9	9.9	0.5	0.5	1.1	1.0
J Kumar	20.7	274	15.1	11.3	7.5	6.2	9.2	11.0	0.4	0.4	1.4	1.2
KNR	25.7	183	19.9	16.2	11.3	9.4	12.6	13.4	0.2	0.1	2.5	2.2
ITD Cementation*	26.4	170	27.8	20.4	11.1	9.4	14.8	16.9	0.7	0.7	4.1	3.5
PNC Infra	29.8	116	13.5	14.5	10.1	8.4	12.5	10.5	0.1	0.1	1.7	1.5
Ahluwalia	20.6	308	16.8	13.3	9.5	7.8	20.1	20.9	0.1	0.0	3.4	2.8
HCC	40.4	40	20.2	13.4	10.6	8.7	7.0	9.5	0.5	0.4	1.4	1.3

Source: Bloomberg, PhillipCapital India Research (\*FY18 equivalent to CY17 for ITDC)

### BOT sector – Valuation table

Company	Mkt Cap Rs bn	CMP Rs	P/E		EV/EBITDA		ROE		D/E		P/BV	
			FY18E	FY19E	FY18E	FY19E	FY18E	FY19E	FY18E	FY19E	FY18E	FY19E
IRB Infra	82.2	234	12.7	12.1	6.7	5.7	9.9	9.7	2.6	2.4	1.3	1.2
Ashoka Buildcon	35.9	192	29.6	25.2	7.0	6.2	5.9	6.5	2.0	1.8	1.7	1.6
Sadbhav Engg*	51.8	302	NA	NA	7.4	5.9	NA	NA	4.4	4.0	2.6	2.3

Source: Bloomberg, PhillipCapital India Research (\*Bloomberg estimates)

## Rating Methodology

We rate stock on absolute return basis. Our target price for the stocks has an investment horizon of one year.

Rating	Criteria	Definition
BUY	>= +15%	Target price is equal to or more than 15% of current market price
NEUTRAL	-15% > to < +15%	Target price is less than +15% but more than -15%
SELL	<= -15%	Target price is less than or equal to -15%.

## Management

Vineet Bhatnagar (Managing Director)	(91 22) 2483 1919
Kinshuk Bharti Tiwari (Head – Institutional Equity)	(91 22) 6246 4101
Jignesh Shah (Head – Equity Derivatives)	(91 22) 6667 9735

## Research

<b>Automobiles</b>	<b>IT Services</b>	<b>Pharma &amp; Specialty Chem</b>
Dhawal Doshi (9122) 6246 4128	Vibhor Singhal (9122) 6246 4109	Surya Patra (9122) 6246 4121
Nitesh Sharma, CFA (9122) 6246 4126	Shyamal Dhruve (9122) 6246 4110	Mehul Sheth (9122) 6246 4123
<b>Banking, NBFCs</b>	<b>Infrastructure</b>	<b>Strategy</b>
Manish Agarwalla (9122) 6246 4125	Vibhor Singhal (9122) 6246 4109	Naveen Kulkarni, CFA, FRM (9122) 6246 4122
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