

Auto Parts Sector

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THEME

Opportunities and risks related to parts sourcing for next-gen Prius

- **Next-gen Prius parts sourcing begins:** Toyota Motor has begun the process of selecting suppliers for parts for its next-generation Prius. The Prius is driving Toyota's domestic production and sales as the company's core passenger car model. It is also set to be the first model created under Toyota's new development framework, the Toyota New Global Architecture (TNGA). Suppliers are therefore engaged in a fierce battle to win orders order to 1) sustain orders for currently supplied components, and 2) position themselves for future sales expansion. Parts sourcing for the new Prius should provide us with important insights about which suppliers will be able to thrive under TNGA and to overcome the structural decline in component sales per vehicle as smaller cars come to account for a larger share of global auto production.
- **Opportunities and risks for parts suppliers:** Parts makers that win orders for the new Prius will be in a good position to receive orders for parts for other Toyota models. However, Toyota evidently seeks to lower component costs, especially for conventional parts, by 30–40% from the levels for the current Prius model. This means smaller sales per vehicle for parts suppliers. The only way to maintain or increase sales per vehicle will be to win orders for parts that are now supplied by other makers or for new parts to be included in the new model. We have estimated the sales per vehicle for the current Prius model for each of Toyota's six group parts suppliers. In addition, we project each supplier's expected sales per vehicle for the new Prius, taking into account their opportunities for expanding sales by winning orders for parts not currently supplied. Our study indicates that Denso may be able to increase its average sales per vehicle, while Aisin Seiki and Toyota Industries should be able to maintain current levels of sales per vehicle. However, Toyota Boshoku, Tokai Rika, and Toyoda Gosei are likely to see a sharp drop in their sales per vehicle.
- **Stock call:** Based on the study in this report, we reiterate our OUTPERFORM ratings for Denso (6902, TP ¥4,050) and Aisin Seiki (7259, TP ¥3,700), both of which supply Toyota with numerous higher-value-added components and therefore are in good positions to maintain or increase their average sales per vehicle. We reiterate our UNDERPERFORM rating on Toyota Boshoku (3116, TP ¥1,050) because its product offerings include many interior components that fall into mature technological areas and are likely to be negatively affected by changes in Toyota's model mix.

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Parts sourcing for next-gen Prius moves into full swing

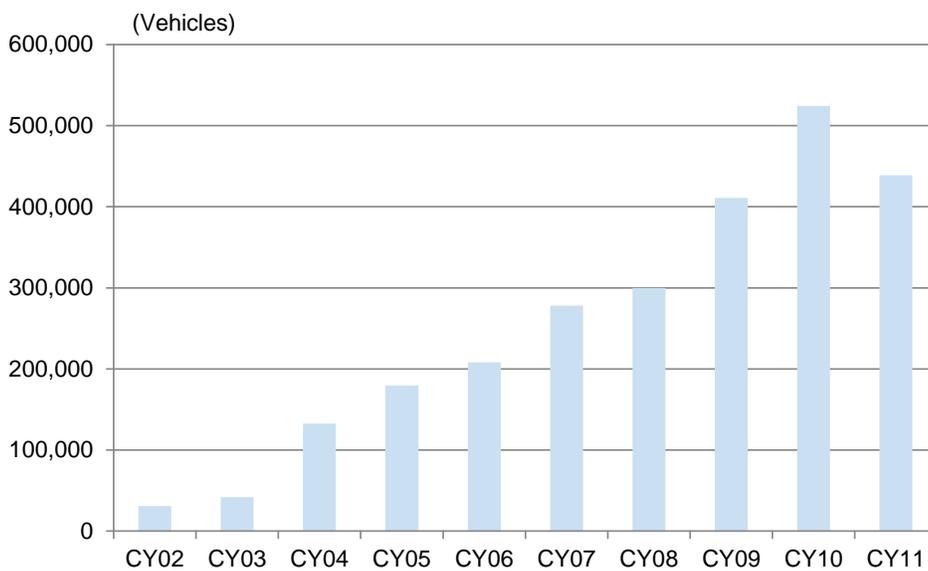
Fierce competition for orders

Toyota Motor has begun in earnest the process of selecting suppliers for parts for its next-generation Prius. Toyota plans to launch the new Prius in 1H 2015. Considering the overall schedule required to meet that launch date—including design stages, production line preparation, evaluations, and trial production runs—the automaker probably needs to decide on the suppliers for all parts by this summer. The Prius has become the key engine behind Toyota’s domestic production and sales and is therefore positioned as the company’s core passenger car model. The new model will be the first car created under the Toyota New Global Architecture (TNGA). Suppliers are therefore engaged in a fierce battle to win orders in order to sustain orders for currently supplied components as well as to position themselves for future sales expansion.

Key points regarding the new Prius

Toyota is planning worldwide marketing of the new Prius, the fourth generation of Toyota’s marquee hybrid, and therefore aims for a major reduction in the vehicle’s cost. Contrary to recent media reports, such as Nikkei Shimbun, Toyota has not yet arrived at a final decision about making the new Prius in North America. Regardless of that outcome, the new Prius will be a core model for domestic sales, and to ensure that it is able to produce the car at relatively high-cost production facilities in Japan and still sell it overseas, Toyota must make it very cost-competitive. This inevitably means tight cost targets for outsourced parts. The new Prius will also be the first vehicle produced under TNGA, Toyota’s new development framework, and the first to apply the “C” platform now under development. This new platform likely will entail the standardization of components for six vehicle models, including the new Prius. We accordingly believe that Toyota’s parts procurement group will promote sourcing with a view to possible future horizontal developments. Parts sourcing for the new Prius therefore will likely provide us with important insights about which parts suppliers will be able to thrive under TNGA and demonstrate the ability to overcome the structural decline in component sales per vehicle as smaller cars account for a larger share of global auto production.

Figure 1: Toyota Prius – Domestic sales volume trends



Note: Includes Prius, Prius EX, Prius α

Source: Company data, Marklines, Credit Suisse estimates

Figure 2: TNGA – Platform integration

Platform	Domestic Volume	Vehicle
MPC	100,000	Passo, bB
B	400,000	Vitz, ist, Aqua, Belta, Ractis, Sienta
NBC	50,000	Succeed Wagon, Probox Wagon
MC	450,000	Corolla Fielder, Corolla Axio, Premio, Allion, Wish, Isis
New MC	1,000,000	Rav4, Auris, Corolla Rumion, CT, Blade, Vanguard, HS, Prius, Prius PHV, Avensis, SAI, Prius α, MarkX Zio, Estima, Estima HV, Vellfire, Alphard
K	50,000	Harrier, Harrier HV, RX, Camry
N	75,000	IS, MarkX, Crown Royal Saloon, Crown Athlete, Crown HV, Crown Majesta, LS
New N	-	GS
Specific	-	iQ, Noah, Voxy, LFA, 86, Century, Crown Sedan
Frame	-	FJ Cruiser, Land Cruiser, Land Cruiser Prado, Rush
Specific	-	LFA
Specific	-	86
Specific	-	Century

Source: Company data, Credit Suisse estimates

Figure 3: TNGA – Unit integration

CY	Fuel Type	-1L	1-1.4L	1.4-1.6L	1.6-2L	2-2.5L	2.5-3L	3-4L	4L-
2012	Gas	KF	NR	NZ	ZR	AR	GR	UR	
	Diesel	-	ND	-	AD	KD	-	-	
2018	Gas	KF	NR	ZR	AR	GR	UR		
	Diesel	-	ND	M41/51/47/57/67	KD	-	-		

	2012	2018
Top 3 Share	57.6%	64.8%
Top 3	1	ZR
	2	AR
	3	GR

Source: Company data, Credit Suisse estimates

Opportunities and risks for suppliers

Impacts on suppliers

Toyota aims to reduce auto body costs for the next Prius substantially, and we see its cost requirements as leaving suppliers with a number of challenges. Compared with costs for parts used in current models, Toyota is aiming for cost reductions of 30-40%, mainly for conventional parts. Of course, the cost targets include totals for VE and VA items, but considering the importance of the Prius and the implications for other C-platform vehicles, which are likely to use compatible parts, we believe suppliers will need to come up with competitive estimates even if it means accepting margins that are somewhat tight. With sourcing for the new Crown—the focus of Toyota’s Ryouhin Renka Cost Innovation (RRCI) efforts—when Toyota-affiliated suppliers were unable to prepare cost estimates that met Toyota’s expectations the firm promptly opened the competition for orders to include non-affiliated suppliers. Thus, where in the past Toyota split up its parts orders and focused on its affiliated suppliers, taking the balance between the companies into account when placing its orders, one aspect of the new TNGA framework is that Toyota is promoting competition for orders without taking into consideration whether the potential supplier is part of the Toyota group.

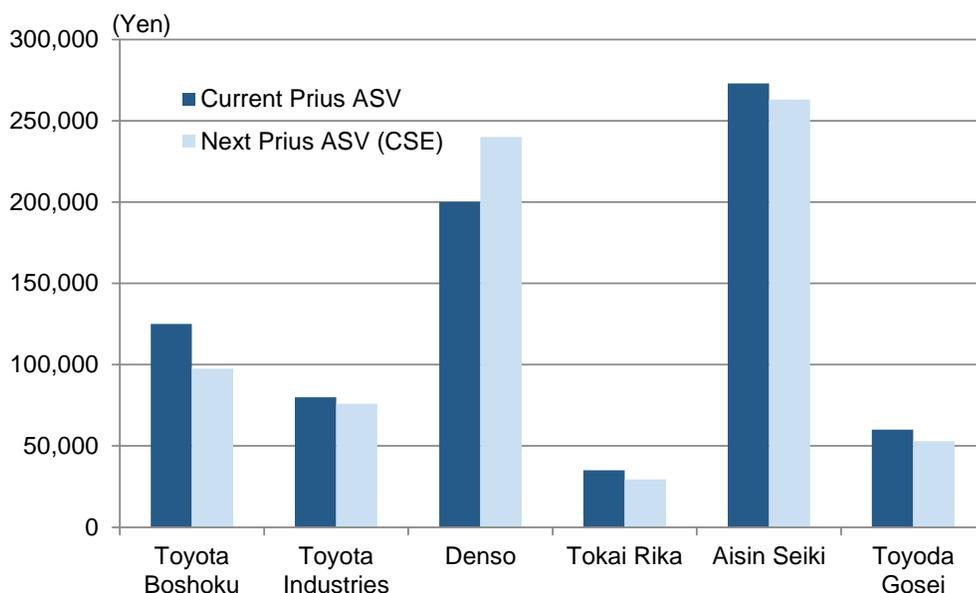
The dilemma of potential growth for volumes versus lower sales per vehicle

In our June 11, 2012 report [Auto Parts Sector: Observations on TNGA: How will Toyota's plans to make better cars affect suppliers](#), we noted that the shift to standardized or common-spec parts would probably appeal to suppliers because it suggested higher volumes per part. The next Prius will be the first model in Toyota’s TNGA strategy and the first C-platform vehicle. Winning orders for the next Prius could help a firm win orders for other models using the same platform. The resulting “all or nothing” order format suggests unprecedented volumes—and upside for earnings—for firms that can meet Toyota’s requirements. On the other hand, cutting parts prices by 30–40% versus costs for current models will mean lower sales per vehicle for suppliers. As such, even if volumes were to hold at previous levels, sales and OP would decline. Under these circumstances, the only ways for suppliers to maintain or lift sales per vehicle are to win orders for parts areas for current models that have been provided by other suppliers, or to win orders for new products.

Sales per Prius for the six Toyota-affiliated suppliers

We have estimated sales per vehicle for the six Toyota affiliates supplying parts for the current Prius and potential sales per vehicle for the next Prius taking increased sales and other factors into consideration. We found that where sales per vehicle could conceivably rise with the next Prius for Denso, it would probably hold at current levels for Aisin Seiki and Toyota Industries and decline substantially for Toyota Boshoku, Tokai Rika, and Toyoda Gosei.

Figure 4: Six Toyota-affiliated suppliers: sales per vehicle for current and next-gen Prius



Source: Credit Suisse estimates

Denso (6902, OUTPERFORM)

For the current Prius, we estimate Denso's sales per vehicle at about ¥200,000. The company handles air conditioners and a full slate of other conventional products unrelated to hybrid systems. In hybrid-related offerings Denso supplies hybrid system ECUs and battery monitor units. As part of sourcing work for the next Prius, Denso plans to offer inverters. With the current Prius, inverters are made wholly in-house by Toyota. Of course, if Denso is only augmenting Toyota's in-house supply it would not see the full impact of volume impacts. Even so, taking into account a cut of about 30% for prices for current products, we believe the addition of inverters would boost Denso's sales per vehicle by about ¥100,000.

Aisin Seiki (7259, OUTPERFORM)

We believe Aisin Seiki books sales per vehicle of ¥250,000-300,000 for the current Prius, with a considerable contribution from sales of hybrid transmissions that form the heart of the Toyota Hybrid System (THS). Other products include engine elements (timing chain covers, electric pumps), auto body parts (door handles, door frames), and regenerative-friction brakes. We expect cost reductions for legacy parts to match Toyota's targets but we believe the company will be in a relatively strong position to resist cuts to prices for hybrid transmissions, a core component and one that Toyota also sources internally. We expect Aisin Seiki to be able to keep sales per vehicle for the next Prius at the current level, with upside from orders from regenerative-friction brakes, ECUs, door locks, and other products the company has missed out on with the current model.

Toyota Industries (6201, NEUTRAL)

Toyota Industries supplies a large number of parts for hybrid systems, such as DC-DC converters, PCU coolers and PCU casings. It also supplies electric compressors (with motors from Denso). We estimate its parts for the Prius account for sales of roughly ¥70,000–80,000 per vehicle. Prius buyers can add an optional socket that enables them to use electronic devices in the vehicle. Toyota Industries supplies the AC inverter for this option. We think Toyota could continue to source these parts from Toyota Industries for the next-generation Prius, but we also see the opportunity for new orders for plastic glazing, which helps to reduce vehicle weight. Toyota Industries already supplies the plastic sunroof for the current Euro-spec Prius α. Using more plastic glazing is likely to be one way that Toyota delivers improvements in fuel efficiency in the new Prius.

Toyoda Gosei (7282, NEUTRAL)

We estimate Toyoda Gosei supplies parts for the current Prius amounting to around ¥50,000–60,000 per vehicle. These include cockpit modules, weather strips, functional components and almost all the airbags (only curtain airbags are supplied by another company). However, most parts supplied by Toyoda Gosei are conventional, and Toyota appears to have set rigorous cost targets for those types of parts in the next Prius. Toyoda Gosei is probably aiming to win orders for new parts to compensate for downward pressure on prices for existing parts. These could include pop-up engine hoods or headlight LEDs.

Tokai Rika (6995, NEUTRAL)

Tokai Rika supplies a number of key components for the current Prius, including switches such as lever combination switches and window switches, as well as gear shift levers, smart keys and seat belts. We estimate its parts total around ¥30,000–40,000 per vehicle. We think the decline in prices for its existing parts will be relatively large. It could see new orders for touch pads, which it already supplies for Lexus models, but we think the chances of this are pretty low, as Toyota is apparently focusing on fuel efficiency and cost with the new Prius, rather than value-added functionality.

Toyota Boshoku (3116, UNDERPERFORM)

We estimate the sales value of Toyota Boshoku's parts in the current Prius at roughly ¥120,000–130,000. It supplies virtually all the cabin materials and parts, such as seats, door trim and roof coverings. It also supplies the engine under covers. As things stand, we think Toyoda Gosei will see significant downward pressure on the value of parts per vehicle for the next Prius. The company has won new orders for motor cores used in the FR hybrid system for the new Toyota Crown. However, even if it secures orders for these cores in the next Prius, we think the value of parts per vehicle is still likely to decline.

Figure 5: Products for current Prius and products potentially used in new Prius

Company	Products applied on the current Prius	New products which could be applied on the new Prius
Toyota Boshoku	Seat Seat strap Door trim Ceiling Engine under cover Others	Motor Core
Toyota Industries	DC-DC converter Electric compressor DC-AC inverter (option) PCU cooler PCU case Others	Plastic rear hatch window
Denso	Battery control unit Battery cooling system Electric compressor motor HVAC Meter HV ECU Sensor Others	Inverter
Tokai Rika	Lever combination switch Window switch Shift lever Smart key Seat belt Others	Touch pad
Aisin Seiki	HV transmission Timing chain case Electric pump Crank case Piston Intake manifold Cylinder head cover Door frame Door handle Seat adjuster Seat track Bumper HV damper Regenerative braking system Others	Regenerative braking system ECU Grill shutter Door lock Others
Toyoda Gosei	Cockpit module Radiator grill Garnish Weather strip Fuel hose Brake hose Engine cover Air duct Driver airbag Passenger airbag Side airbag Knee airbag Others	Curtain airbag Pop-up hood Head lamp LED

Source: Company data, Credit Suisse estimates

Issues related to the TNGA

TNGA framework still not clear

Toyota is implementing the TNGA framework as part of its sourcing strategy. However, the concept is yet to be clearly defined in the field. For example, in parts sourcing for the next Prius, suppliers are hoping that the TNGA approach will enable them to win business for standardized Prius parts that will be used in other models. However, they are still being asked to put in bids for Prius business without any idea of potential economies of scale, because Toyota is only asking for estimates based on the number of planned parts for the Prius alone. Toyota's design teams and parts sourcing teams also appear to be interpreting the TNGA framework differently. Standardizing parts procurement under the TNGA offers significant benefits, but Toyota is likely to face some difficulty in maintaining the mutually beneficial relationships and balance of the supply chain due to its past focus on sharing orders among a large number of companies. Parts procurement is a challenging business, but Toyota could miss a golden opportunity to boost competitiveness over the longer term (including at suppliers) if the current weak yen and favorable operating environment leads to delays in implementing radical cost improvement measures such as a shift to parts standardization.

Stock calls

Continue to favor suppliers of high value-added parts

We believe the parts sourcing process for the next-generation Prius will provide a good insight into (1) the winners and losers in the automotive parts industry as Toyota steps up its TNGA approach, and (2) how suppliers will respond to the structural issue of a decline in parts value per vehicle amid the global shift to smaller models. We reiterate our OUTPERFORM ratings on Denso (6902, TP ¥4,050) and Aisin Seiki (7259, TP ¥3,700), which both have strong lineups of high value-added products, giving them a strong buffer against the decline in parts value per vehicle. We also maintain our UNDERPERFORM rating on Toyota Boshoku (3116, TP ¥1,050), which mainly has technology in relatively mature fields and has a high exposure to cabin parts that are vulnerable to deterioration in the model mix.

Companies Mentioned (Price as of 08-Mar-2013)

Aisin Seiki (7259.T, ¥3,520, OUTPERFORM, TP ¥3,700)
Daihatsu Motor (7262.T, ¥1,987)
Denso (6902.T, ¥4,145, OUTPERFORM, TP ¥4,050)
Tokai Rika (6995.T, ¥1,800)
Toyota Boshoku (3116.T, ¥1,305, UNDERPERFORM[V], TP ¥1,050)
Toyota Industries (6201.T, ¥3,440)
Toyota Motor (7203.T, ¥4,910)

Disclosure Appendix

Important Global Disclosures

I, Masahiro Akita, certify that (1) the views expressed in this report accurately reflect my personal views about all of the subject companies and securities and (2) no part of my compensation was, is or will be directly or indirectly related to the specific recommendations or views expressed in this report.

Price and Rating History for Aisin Seiki (7259.T)

7259.T	Closing Price	Target Price	
Date	(¥)	(¥)	Rating
31-Aug-11	2,543	3,330	O *
17-Oct-11	2,580	3,150	
17-Nov-11	2,210	2,300	N
08-Mar-12	2,778	3,250	O
05-Oct-12	2,224	3,050	
20-Nov-12	2,241	3,100	
15-Jan-13	2,826	3,350	
25-Feb-13	3,310	3,700	

* Asterisk signifies initiation or assumption of coverage.



Price and Rating History for Denso (6902.T)

6902.T	Closing Price	Target Price	
Date	(¥)	(¥)	Rating
31-Aug-11	2,427	3,220	O *
17-Oct-11	2,433	3,120	
17-Nov-11	2,170	2,390	N
11-Jan-12	2,115	2,400	
07-Mar-12	2,618	2,800	
29-May-12	2,383	2,900	
22-Aug-12	2,744	3,100	
05-Oct-12	2,478	2,850	
20-Nov-12	2,534	3,050	O
15-Jan-13	3,215	3,650	
25-Feb-13	3,750	4,050	

* Asterisk signifies initiation or assumption of coverage.



Price and Rating History for Toyota Boshoku (3116.T)

3116.T	Closing Price	Target Price	
Date	(¥)	(¥)	Rating
31-Aug-11	1,128	1,410	N *
17-Oct-11	1,016	1,150	
17-Nov-11	803	750	
11-Jan-12	792	800	
07-Mar-12	941	900	
29-May-12	856	950	
05-Oct-12	807	850	
15-Jan-13	1,039	950	
26-Feb-13	1,227	1,050	U

* Asterisk signifies initiation or assumption of coverage.



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Price Target: (12 months) for Aisin Seiki (7259.T)

Method: Our ¥3,700 target price for Aisin Seiki is based on RFR 0.825%, beta of 1.335 and fair-value P/E of 12x premised on an equity risk premium of 6.5% and applied to our FY3/14 EPS forecast of ¥308.3.

Risk: Risks that may impede Aisin Seiki's share price from achieving our ¥3,700 target price include: Yen appreciation and a decline in use of automatic transmissions.

Price Target: (12 months) for Denso (6902.T)

Method: We apply a theoretical P/E of 15x, based on a risk-free rate of 0.825%, an equity-risk premium of 6.5% and beta 1.286 to our FY3/14E EPS of ¥269.9 to derive our ¥4,050 target price for Denso.

Risk: Risks that could cause the share price to diverge from our ¥4,050 target price for Denso include: Yen appreciation and renewed cartel issues.

Price Target: (12 months) for Toyota Boshoku (3116.T)

Method: We base our ¥1,050 TP for Toyota Boshoku on theoretical P/E of 11x applied to our FY3/14 EPS estimate of ¥95.5. Assumptions for the theoretical P/E include RFR of 0.825%, ERP6.5% and beta 1.573.

Risk: Risks that may cause the share price to diverge from our ¥1,050 target price for Toyota Boshoku include better-than-expected demand for Toyota vehicles and an early recovery in European margins.

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