kotak Institutional Equities

Google

CONSUMER QUERIMETRIX

Google Trends + Machine Learning = Consumer Insights

PASSENGER CARS: Online evaluation changes rule book for car makers

Vol 1.1: Passenger Cars

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FOREWORD

Kotak Institutional Equities, in collaboration with Google, presents the first edition of Consumer Querimetrix—demystifying Indian consumer insights using Google Trends data. The traditional road works with curated surveys, while we merge big data with machine learning techniques and set the ball rolling with a topic everyone loves—cars!

With most Indians researching online before purchasing cars, the stage is set for stakeholders to get a complete picture—on car launches, last mile hiccups, cannibals and competition. For the investors, 'nowcasting' (near-term predictions) using Google Trends catches inflection points earlier than traditional forecasting models—reminiscent of Rothschild's homing pigeons.

The quantitative modelling has been influenced by Hal Varian and Steven Scott's whitepaper, 'Predicting the Present using Google Trends'. The follow-up work on the original whitepaper, first published in 2009, has evolved considerably over the years tackling questions regarding human intervention in a big-data world.

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Notes:

(a) Google India Private Ltd. will be referred to as Google in the following pages.
(b) Advertising spends correspond to TV and Print media subscribed from TAM.
(c) All graphs in this report are outputs of the analysis done by Kotak and Google for the purpose of this study (unless specified otherwise).
(d) The car sales data used for the analysis is subscribed from SIAM.
(e) All the data quoted from external sources in the report is the latest data available to us.
(f) Conversions and sales are used interchangeably in the report.
(g) All data provided by Google here is Google Trends data alone.
(h) Google Trends is a public web facility of Google Inc., based on Google Search, that shows how often a particular search-term is entered relative to the total search-volume across various regions of the world, and in various languages.

CONSUMER QUERIMETRIX: CONSUMER INSIGHTS DERIVED FROM BIG DATA

Consumer Querimetrix is a tool that infers consumer behavior by analyzing Google search queries. In this first edition of the series, Kotak and Google collaborate to provide consumer insights into India's evolving car-buying journey. Our machine-learning algorithm nowcasts (near-term predictions) consumer activity, capturing inflection points earlier than traditional forecasting tools. We expect this will be useful for companies and investors. Each edition of the series will focus on consumer behavior in a different market.

Consumer Querimetrix—determining consumer behavior using search queries

Query-based telemetry—Consumer Querimetrix derives lead indicators by making a connection between online search queries (Google Trends) and consumer activity. We provide objective machine-learning insights into how digital-led changes in consumer behavior are impacting businesses.

Catching inflection points young—keeping the focus on 'now'

- **Nowcasts reveal inflection points as they begin to manifest.** Google Trends trawls through the digital footprints left by every Google searcher daily. Querimetrix uses this high frequency data to determine what is trending in consumer interest to anticipate turning points in commerce—this 'early' insight can be useful to investors as well as companies.

- **Focus on 'now'.** Consumer Querimetrix focuses on predicting possible surprises rather than the trend. Traditional sales forecasting focuses on the medium-term trends, while nowcasting makes near-term projections using high frequency inputs (like search queries).

Deciphering billions of searches—big data needs machine learning

Querimetrix's machine-learning algorithm identifies the most relevant factors for nowcasting, doing away with human intervention and its accompanying biases. To identify relevant factors, the algorithm uses more than 400 possible predictors as well as Bayesian inference to overcome spurious correlations. We have used the framework proposed by Hal Varian and Steven L. Scott in the whitepaper *'Predicting the Present with Bayesian Structural Time Series'* for this study (click here for whitepaper). Please refer to the Appendix for more details on how Consumer Querimetrix uses machine learning to glean insights from Big Data.

Consumer Querimetrix first edition: Passenger cars

In the inaugural edition of Consumer Querimetrix, we focus on the passenger car industry and highlight the effects of the digital wave on the traditional car-buying process.

- Consumers are simultaneously assessing cars and their financing options online. The effect is visible as car loans are increasingly being sourced outside dealerships. This trend can eat into financing margins earned by dealers and hurt profitability. On the other hand, carmakers with captive finance arms can use this opportunity to differentiate themselves in the online evaluation phase.

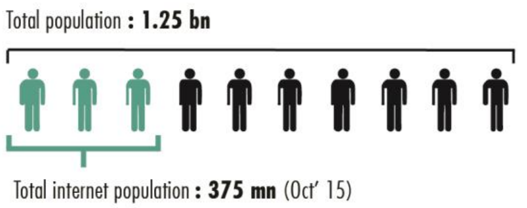
- Maruti Suzuki's retention strategy can be put under pressure because of online classifieds and evolving used car markets. Online classifieds may also be impeding new car sales, as per Querimetrix.

- Hyundai's digital strategy for its compact cars shows promise even as its mid-size offering loses out to Honda City and the Ciaz. However, it would be interesting to monitor Honda's position due to taxi aggregation, SUVs and the Suzuki Ciaz in the premium sedan category.

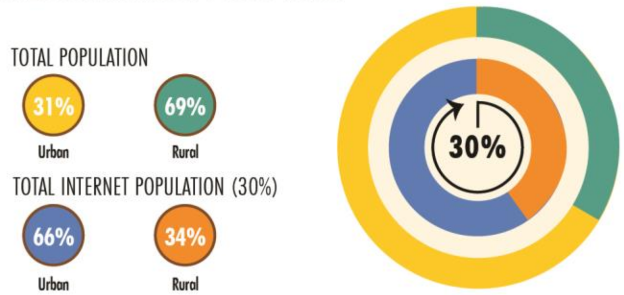
- Maruti Suzuki Baleno has been the most successful car launch in recent times as far as digital inquiries are concerned. It seems to have eclipsed most car launches in terms of search-share and is mirroring the buzz seen during the Ford Ecosport launch in 2013.

India is BIG: in size and potential

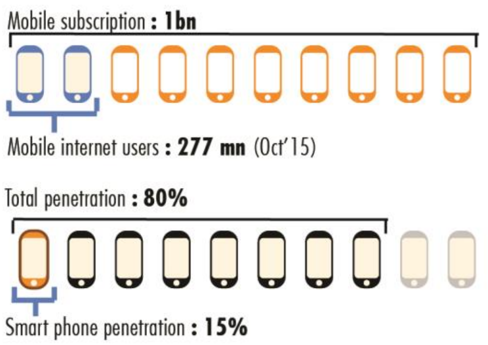
The digital India story



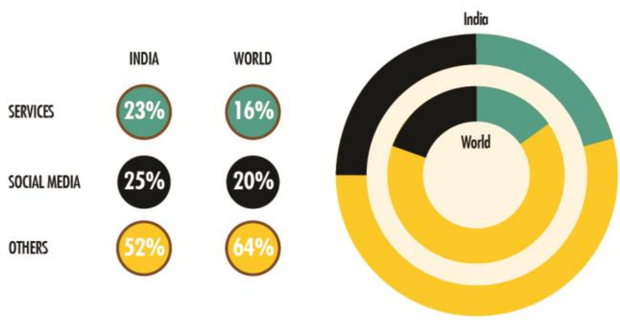
POLES APART: Rural versus urban



MOBILE INDIA: Keep talking



ONLINE BEHAVIOR: Indians are more social than the world



(Source: TRAI, IAMAI, IMRB International, comScore)

Search queries convert human inquiry into DATA

Search engines handle billions of queries monthly

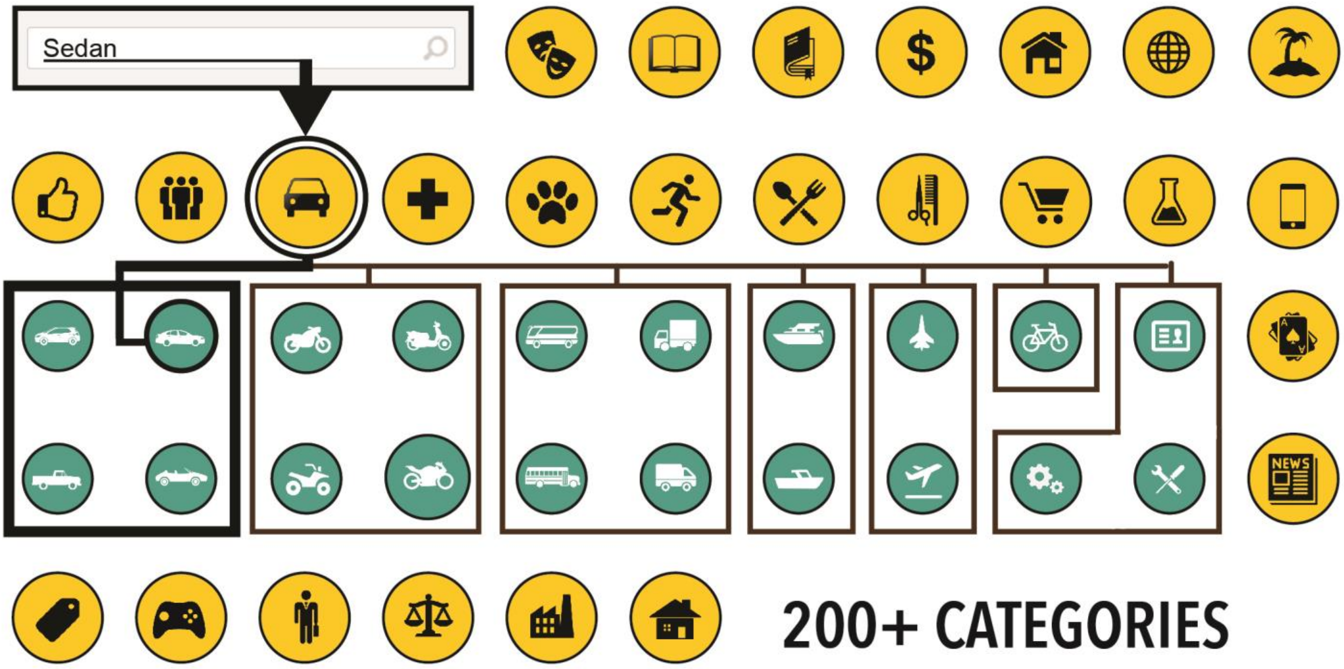
India was the 4th largest search audience in 2013

(Source: India Digital Future in Focus 2013, comScore)

More on all this in the appendix

Consumer insights from search queries: a BIG DATA problem

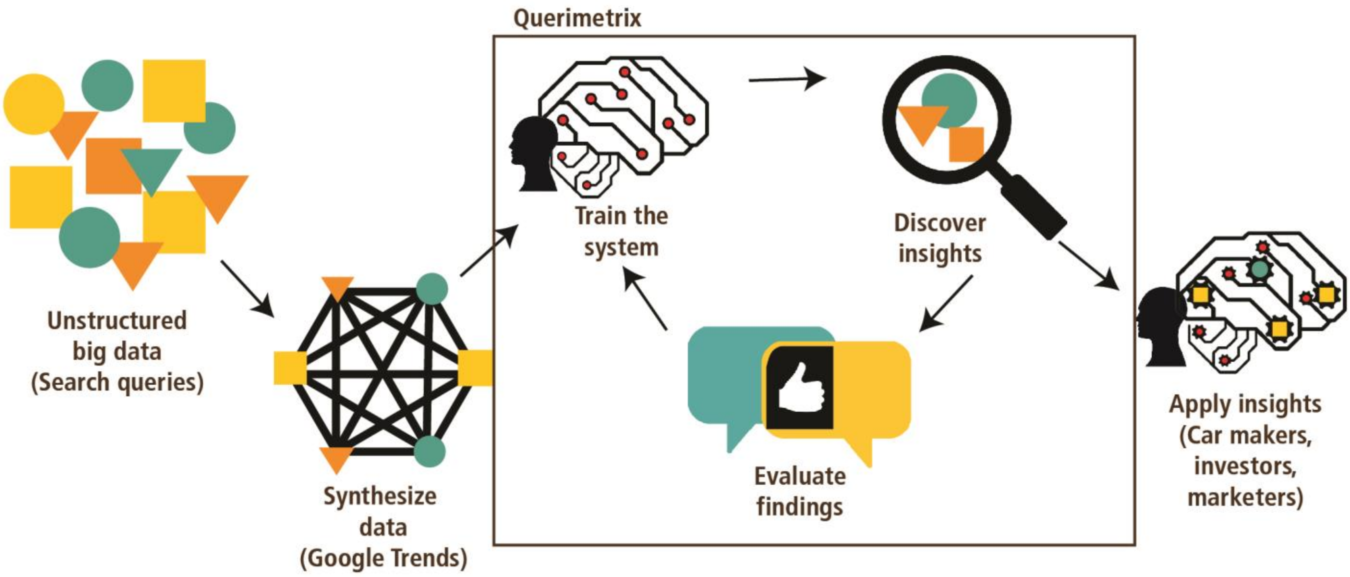
Consumer activity needs to be associated with search categories to derive insights



Consumer Querimetrix: BIG DATA meets machine learning

THE PROBLEM:
Relate real world activity with search queries
Traditional models cannot identify inflection points

THE TOOLS:
Big data = Search categories using Google Trends
Machine learning = Eliminates human intervention



CAR BUYING JOURNEY

Online evaluation changes the rule book for car makers

Querimetrix Edition #1: Key highlights

1. Digital marketplaces are changing the car-buying journey, calling for carmakers to re-assess conventional business practices.

2. Car financing and exchange, activities once confined to the dealership, are occurring online during the evaluation phase itself.

    a. As an effect, car loans are increasingly being sourced outside dealerships. This trend can eat into financing margins earned by dealers.

    b. Maruti's retention strategy, which heavily relies on trade-ins, can be threatened by online classifieds and evolving used car markets.

3. Horizontal classifieds may also be impeding new car sales as first-time buyers possibly substitute entry-level models with used cars options.

4. The Indian car buyer is price-sensitive and unpredictable highly influenced by online evaluation.

5. Not only is the evaluation phase adding two models to the consideration set, it is also causing consumers to eliminate at least one initially considered option.

6. Leading players have seen a gradual drop in search-share since 2010 even as advertising spends rose sharply, indicating rising competition.

7. Even as the consumer decision journey gets more complex, Querimetrix identifies a complex relationship between car sales and search queries.

8. Google Trends can act as a gauge for assessing new car launches. We found a linear relationship between search-share and advance bookings.

9. Baleno was the most successful car launch in recent times as per Google Trends, eclipsing most of the car launches since the Ecosport (2013).

10. For Maruti, more potential car buyers making last-mile searches mean more car sales. This indicates its presence in most consideration sets.

11. Higher last-mile searches for Maruti (like dealer location, offers, models, etc;) not only facilitate demand, they also impede competitor demand.

KEY FINDINGS: DIGITAL MARKETPLACES ARE CHANGING THE CAR BUYER'S JOURNEY

Consumer Querimetrix gives the following insights on Indian passenger cars: (1) digital marketplaces are changing the car-buying journey, calling for carmakers to change the way they engage customers, (2) recent car launches are up against fragmented mindshare of consumers, (3) machine-learning offers many useful insights into the unpredictable price-sensitive car buyer's digital journey and (4) our nowcasting suggests ~195,000 passenger cars will be sold in January.

Changing consumer journey to modify conventional business practices

- **Loan information sought along with car specs online.** Dealers could find their margins eroding as consumers increasingly assess financing options while researching cars online. As an effect, more car loans are likely to be sourced outside dealerships. Carmakers with captive finance arms can use the same opportunity creatively, offering differentiated financing options through a better understanding of residual value.

- **Used car markets could impact new car sales.** Maruti's retention strategy on the back of trade-ins can be affected by online classifieds. Maruti's used car dealership (True Value) could face sourcing challenges with OLX and Quikr cumulatively posting ~2 mn Maruti cars up for sale. We also see quantitative evidence of higher OLX inquiries impeding new car sales in both segments—small and mid-size. As classifieds continue to fuel C2C transactions, warranty or certification of used cars are yet to attract interest on Google searches. We think this could be an area of development and help in organizing the segment. More about this in Chapter 1.

A fickle car buyer's online evaluation is complex and needs demystifying

- **The Indian car buyer is unpredictable and price-sensitive—online and offline.** More than 50% change their initial consideration after online evaluation (source: Nielsen-Google survey), but 87% car buyers change their minds at the showroom (source: Nielsen).

- **Active online evaluation is complex and distorts the impact of brand recall.** A Nielsen-Google study done in 2013 shows that consumers add at least two brands to the consideration set during active evaluation. Therefore, understanding the digital journey of the car buyer can have strategic and operational benefits.

Machine-learning insights using Google Trends shed light on the digital journey

- **Maruti Suzuki cements its position.** In India, more than 25% of car-related search queries are on Maruti Suzuki and its models. Categorizing searches into various phases of the car buying journey, we see a strong relationship between category-wide last-mile inquiries and car sales for Maruti Suzuki. This indicates the implicit presence of Maruti Suzuki in most evaluation sets.

- **Dzire preferred over hatchbacks.** One of the highest selling passenger car models in India (CYTD15), Dzire is generally preferred over hatchbacks (Jazz, i20, Swift and Polo). This indicates a mindset of buying 'a compact sedan for the price of a hatchback'.

- **Hyundai's digital strategy 'funnels' into sale**s. Higher inquiries lead to higher sales for Hyundai's top-selling models (i10 and i20). In fact, the Hyundai i20 seems to be cannibalizing Hyundai i10's monthly sales based on the nowcasting model. Hyundai Eon seems to be hitting the right spot as well, with higher inquiries impeding sales of models such as Alto and Wagon R.

- **Uncompromising Hyundai i20 loses out only to upgrades.** Positive associations with search queries on vertical classified possibly imply positive third-party reviews on the i20. Inquiries for sedans such as Honda City and Suzuki Ciaz seems to impede i20 sales indicating the detrimental effect of upgrades on the model. The recent loss of Hyundai's market share in the price range above ₹0.7 mn backs our claim. Also, this confirms its high-end status in the hatchback category.

- **Vertical and horizontal classifieds show contrasting effects.** Vertical classifieds, especially CarWale, facilitate new car sales even as horizontal classifieds such as OLX impede new car sales. While the former offers neutral opinions and reviews, the latter has aided substitution and could possibly hamper entry-level segments.

- **Mid-size segment—stuck between SUV launches and the aggregation dynamics.** Honda is a leading player in the mid-size segment and digital inquiries for its models influence segment sales. It may feel the heat as Bayesian variable selection signals disruptive forces possibly influencing the segment.

  We can see an impeding effect on sales from (1) new launches in the urban utility vehicles segment which Mahindra currently controls, (2) taxi aggregators such as Ola even as they attempt to increase their fleet sizes by facilitating finance, and (3) classifieds such as OLX which are possibly offering potential car buyers substitutes in the form of used cars. Find more about this in Chapter 2.

Nowcasts expect 195,000 cars to be sold in January

As Google queries on car loan inquiries begin picking up, we anticipate total passenger car sales to grow 16% yoy in January. Hyundai is expected to record compact car sales of ~38,000 cars (up 15% yoy) while Maruti can sell up to ~93,000 compact cars in the same month. The recent launch of the Renault Kwid could spoil the incumbent strong-hold in the entry-level segment with more than 50,000 bookings in the first five weeks post its launch.

Traditional advertising's effectiveness drops amid fragmented mindshare

- **Maruti Suzuki doubles advertising share amid fragmented digital traction.** Amid rising competition, Maruti Suzuki has doubled TV and print advertising spends (based on TAM data) since CY2012 in a quest to maintain its supremacy. In the same period, search-share for Maruti Suzuki seems to have dropped to 25-30% from ~40-50% a few years earlier. Brand awareness for Maruti is unarguable, but we note that the fragmentation has led to escalation in advertising costs per car sale.

- **Google search volumes can be used as a gauge for assessing new car launches.** There exists a linear relationship between search-share and advance bookings during a car launch. Interestingly, higher traditional media spends do not always guarantee higher search-share. This helps identify search-share as a measure of inquiry rather than as an outcome of stimulus.

- **Digital inquiries for the Suzuki Baleno seems to have eclipsed others.** The search-share captured by the recently launched Maruti Suzuki Baleno is far ahead of peers. Although most recent launches delivered relatively lower digital interest, the search-share for the Baleno has reached the pitch last seen during the launch of Ford Ecosport in 2013. Among the rest, Renault Kwid manages to outshine with its aggressive pricing and SUV-type looks.

Chapter 1

DIGITAL DETOUR

Consumers shop online for cars, finance, exchange

Online car evaluation is rising rapidly—we believe digital marketplaces for used cars and car financing can disrupt conventional strategies for every vendor in the value chain. We highlight that (1) car makers with captive financing divisions can offer differentiation as unpredictable price-sensitive buyers assess cars and financing options simultaneously, (2) horizontal classifieds (such as OLX) can disrupt Maruti Suzuki's retention strategies while pre-approved car loans can adversely affect dealer profitability, and (3) horizontal classifieds are deterring new car sales in the compact and mid-size segments.

ACTIVE EVALUATION (DIGITAL MARKETPLACE)

- More than 75% car buyers research online
- 87% car buyers remain unpredictable and price-sensitive (source: Nielsen)

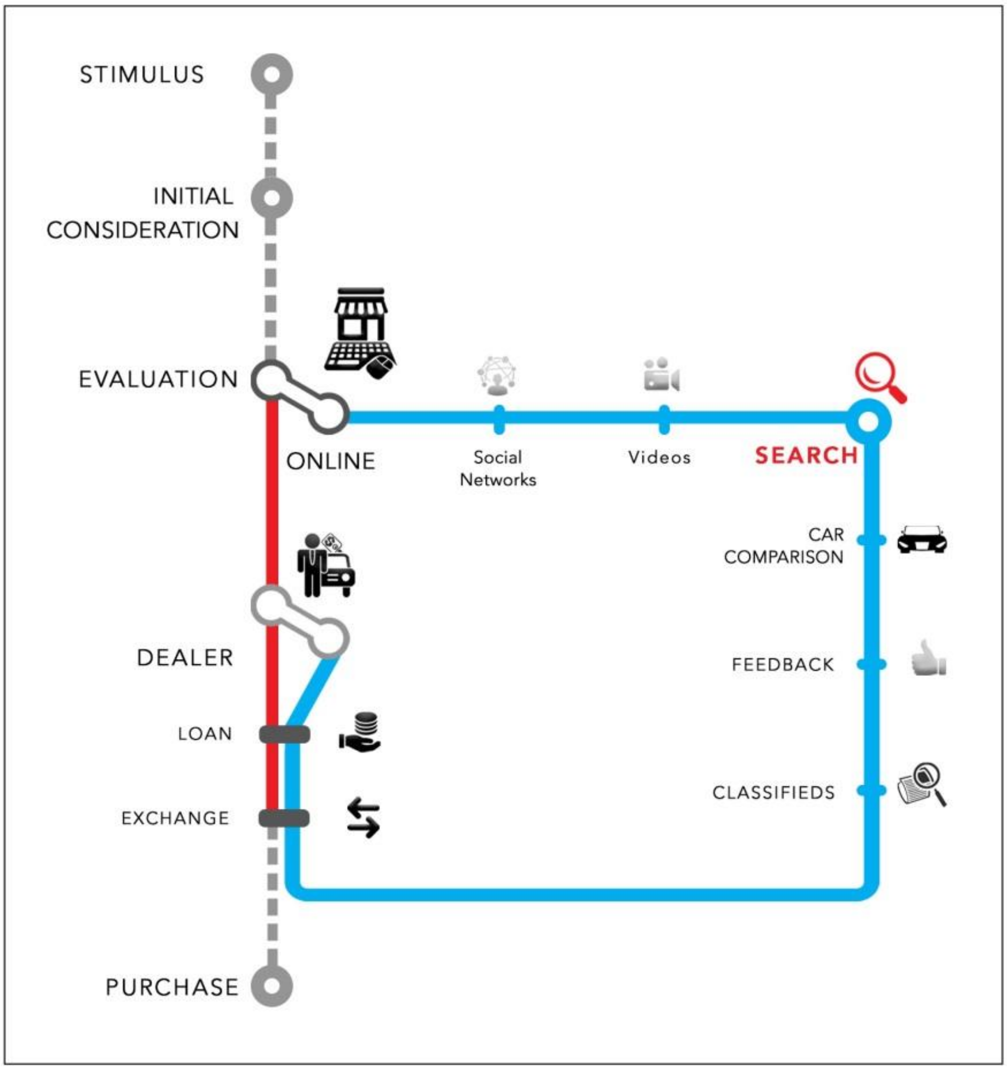
DEALERSHIP

CAR LOANS

- Keywords like 'car compare' highly correlated with 'car loans'
- Sourcing car loans outside dealerships gaining traction
- At least 6-7% of dealer revenues come from loan arrangement fee

USED CAR CLASSIFIEDS

- Only 18% of the used car markets organized
- India's used car market is 2X the new car market; global average near 3X
- Major online classifieds showcased 0.7 mn posts
- Search-share for OLX nears record levels in October
- Horizontal classifieds (OLX) searches negatively related to new car sales
- Vertical classifieds facilitate new car sales through reviews and feedback



DIGITAL DETOUR: CONSUMERS SHOP ONLINE FOR CARS, FINANCE, EXCHANGE

Digital changes everything: more online access, more online bazaars

The Indian car buyer is no longer satisfied without a digital detour—for the urban Indian at least. The consumer's direct online access to financial products and used cars can fundamentally alter the ground rules for vendors of cars and allied products and services. Strategies across the value chain will need to adapt, and keep adapting.

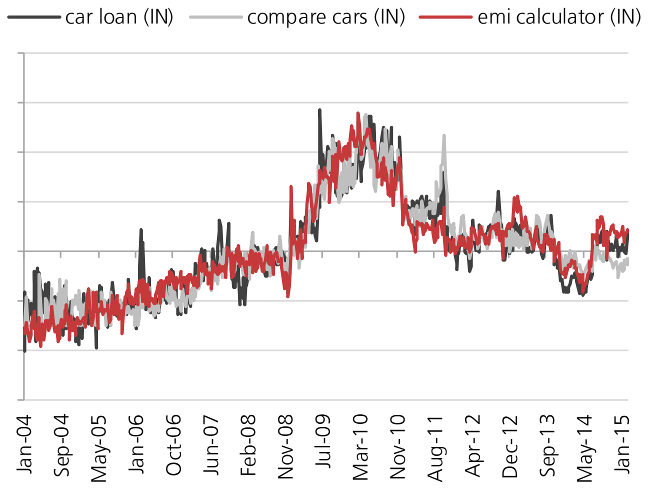
- **Online car evaluation rises**. With more than 75% car buyers researching online before making a purchase (up from 54% in the Google-Nielsen 2012 survey), we note:
  - The traditional 'funnel' model is giving way to a more complex purchasing path where 'initial consideration' may not always guarantee results.
  - Although higher auto-related searches correspond with higher demand for cars, this does not hold true on a brand-wise basis.
- **Digital marketplaces for financial products encourage direct sourcing of car loans**. The drive for financial inclusion is underway and is gathering traction. As per industry reports, car finance penetration remains above 70% despite the recent foray into rural markets. Pre-approved loans are gaining ground and more and more buyers are finding it easy to buy finance online. This presents a changing landscape that will affect most channel partners. The profile of the urban first-time car buyer is marked by youth and easy access to financing options with friendly EMIs.

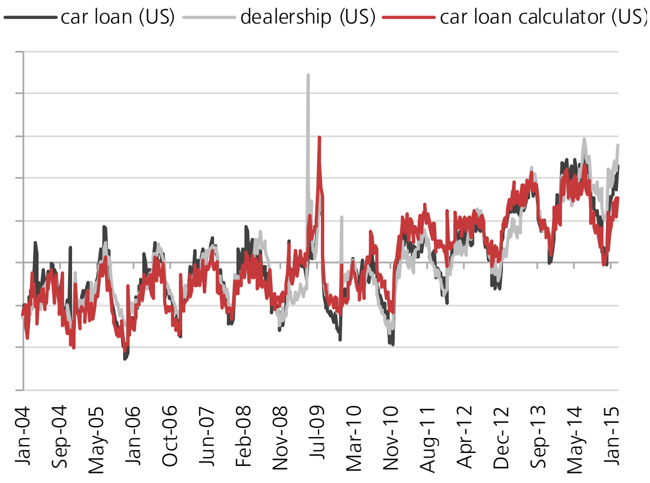
Car financing: decisive factor can become a differentiator

In India, the budget for a car rarely budges. Google search trends suggest that evaluating car options and financing options may be taking place simultaneously (see Exhibit 1). This implies that innovative car financing options can differentiate between similar product offerings in the online evaluation phase.

- **Impact on dealers—the heat is on**. The growing interest in pre-approved loans can adversely affect profitability and may require upstream compensation. Pre-approved car loans could bring down the financing arrangement fee earned by dealers already working on wafer-thin profit margins.
  - **Nearly half the dealerships in India are not profitable**. A JD Power study released in May 2015 expected only 56% of car dealers in India to remain profitable during the year. See Exhibit 2 for the estimated revenue stream of dealers based in Tier-1 cities.
  - **Losing out on financing margins will affect dealer profitability**. Almost 10% of the revenues are generated from financing and insurance margins. Loan financing arrangement fee constitutes 6-7% of the dealer's overall revenue. As costs associated with this revenue stream are negligible, dealer profitability will be affected.

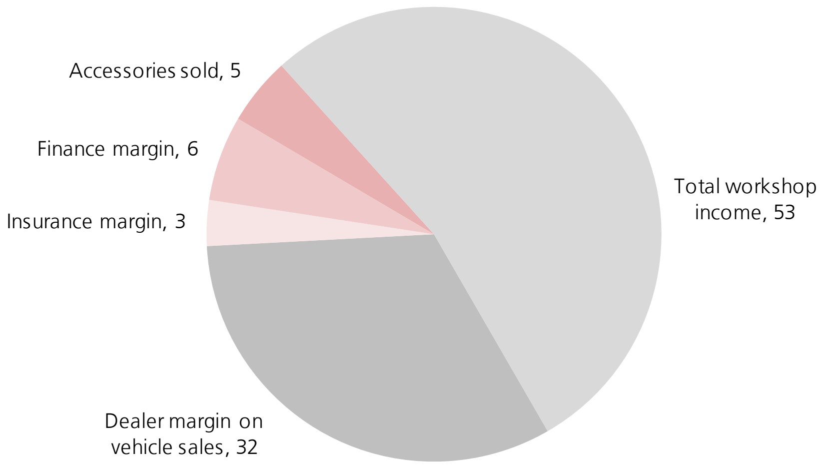
Exhibit 1: Auto financing may be moving up the purchasing funnel in India and relates to searches made during initial consideration
Google Correlate results for the keyword 'car loan' and 'car compare' in India and US, 2004-15





Source: Google Correlate (http://www.google.com/trends/correlate/csv?e=car+loan&t=weekly&p=in)

Exhibit 2: Almost 10% of dealer revenues are generated from financing and insurance margins
Estimated revenue stream for a dealer based out of Delhi (% of total revenue)



Source: Kotak Institutional Equities estimates

Impact on OEMs. Those with captive finance arms can (1) incentivize dealers through financing rather than higher discounts and (2) offer innovative financing options for car buyers using their superior understanding of residual value.

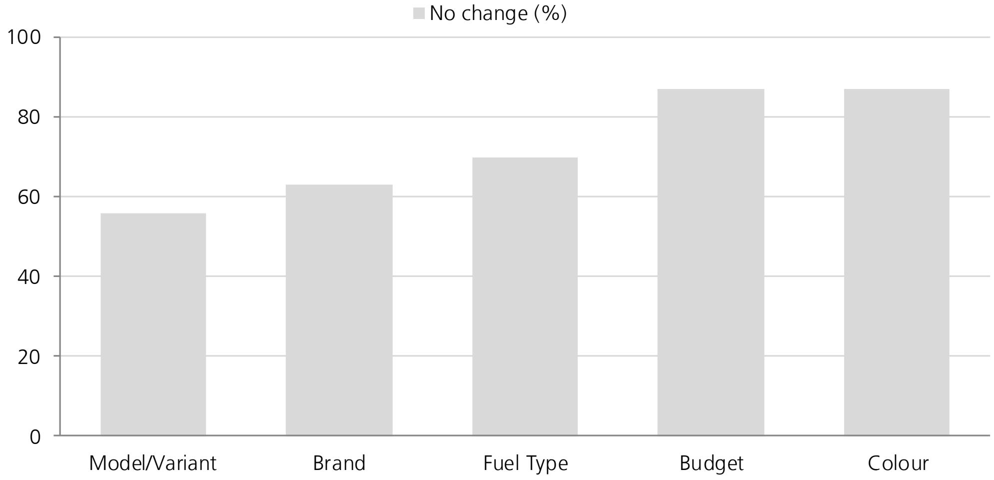
- **Captive finance can differentiate.** Innovative financing schemes can be a decisive differentiator even in the early stages of the purchasing cycle (evaluation phase). Captive finance can offer inventive (riskier) products through a better understanding of residual value and dealership networks. This could help them gain ground on entrenched banks in this space.

- **Channel pressures will have to be addressed by OEMs.** As channel partners face shrinking profitability, OEMs may need to consider dealership incentive as well. OEMs with captive finance arms can offer financing incentivizes, while others may simply have to resort to higher discounts and better inventory management.

The unpredictable, price-sensitive car buyer—it is always about the price

- **Customer loyalty reserved for budget and color.** As per Nielsen, only 13% of customers surveyed stick to the original plan after entering the showroom. Brand loyalty builders would do well to note that 37% changed the brand itself and 44% changed the model from the initial plan. Budget and color were the two factors that could not be influenced (see Exhibit 3). There are many models in the price range of ₹0.4-0.7 mn and price points may not necessarily highlight digital consideration sets.

Exhibit 3: Budget and color cannot be influenced easily
Proportion of car buyers who changed the following factors from initial plan (%)

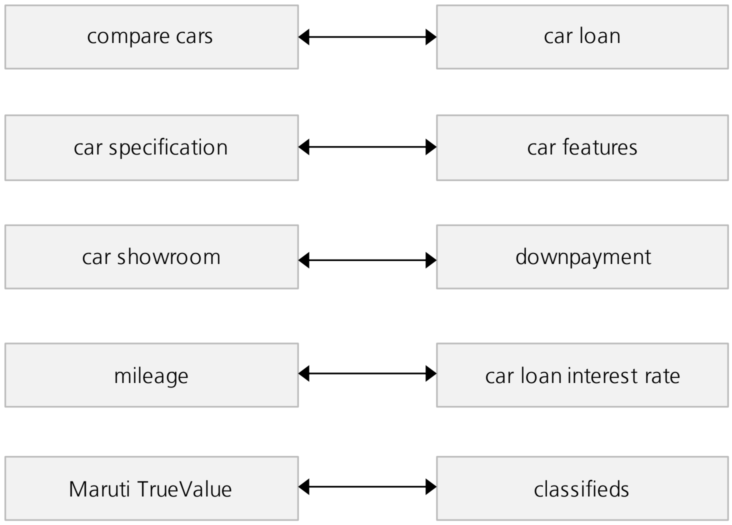


Source: Nielsen India

- **Keywords link product search with loan search.** Google Correlate yields a new twist in the tale—thanks to the digital detour:
  - Keywords such as 'technical specification', 'car comparison' and 'expert reviews' are the most researched in the online phase of the ROPO (research online, purchase offline) method.
  - We used Google Correlate to identify relevant keywords highly correlated with the above mentioned search queries used for online car evaluation.
  - The results run counter to the traditional car-buying method in which car financing options are considered only after the model has been finalized.

- ***Kitne ka*? The online Indian car buyer is preoccupied with price.** Keywords relating to queries that used to be a part of the consideration and evaluation stage, now show a strong correlation with queries on car finance. Exhibit 4 shows the strong association between 'car compare' and 'car loans'. In fact, the last-mile searches such as 'showrooms' relate with 'down payment' while 'mileage' searches show a strong connection with 'car loan interest rates'.

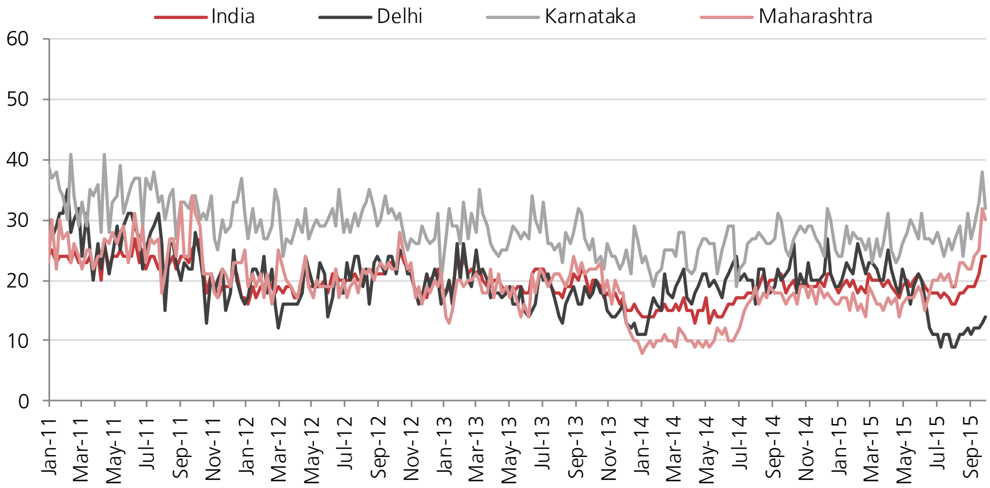
Exhibit 4: The Indian customer is price sensitive across all stages of online research
The word mesh of correlated keywords using Google Correlate



Source: Google Correlate

- **Finance first.** Many car buyers are evaluating financing options even before finalizing the car itself. A recent Swapalease survey (US) indicates that 66% of car buyers would like to see their financing options online and at least half of them would like to secure their finance before visiting the dealer. Good financing deals will continue to catch the attention of potential buyers and if good enough, ensnare the price-sensitive customer as well. Closer to home, Mahindra Financial Services (MMFS) saw insourcing of loans grow 18-20% from 10% in 2013. Exhibit 5 shows the spike in car loan inquiries prior to the festive demand.

Exhibit 5: The seasonal spike in car loan searches evident across many regions
Normalized Google search trends for car loans across various Indian states, 2011-15



Source: Google Trends, Kotak Institutional Equities

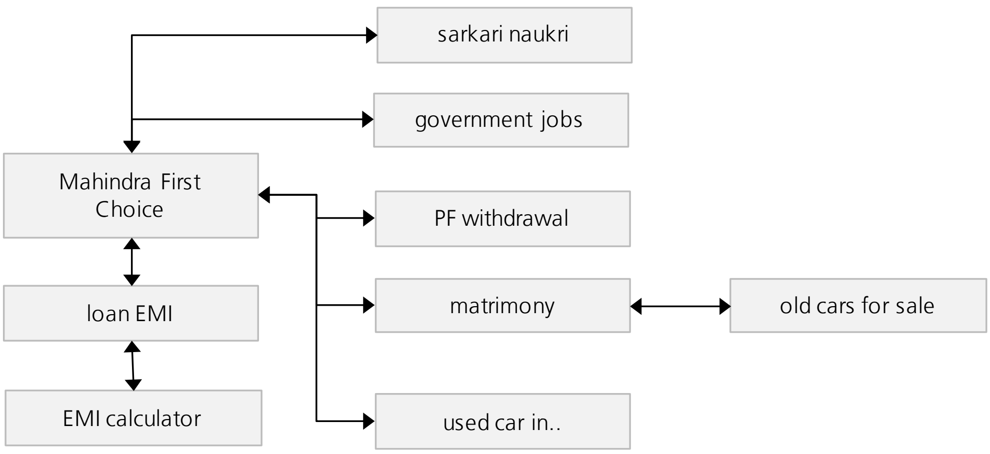
- **Used car market grows online.** Online classifieds have begun to compete with Maruti's True Value and Mahindra's First Choice—offering consumers a potential alternative to used-car dealer network. Interesting takeaways:

  - A strong correlation between 'classifieds' and 'True Value' suggests the interchangeable use of these keywords.

  - True Value is a leading player in the organized used car market selling 370,000 cars (FY2015). Competition in the segment comes from Mahindra First Choice which recorded sales growth of 20% yoy and plans on expanding its outlets aggressively in the next few years. More than half their customers are first-time car buyers looking for entry-level used cars.

- **Marriage and government jobs trigger first-car buys.** We map auto-related keywords and find a strong correlation with Mahindra First Choice in Exhibit 6. From correlated keywords connected to funding the purchase ('PF withdrawal' and 'loan EMI') to event triggers (matrimony and sarkari naukri), the interconnection of keywords tells us a lot on the first-time car buyer looking for Mahindra First Choice online.

Exhibit 6: The interesting search mesh surrounding car purchases
The word mesh of correlated keywords using Google Correlate



Source: Google Correlate

Used car markets fuelled online—could impact new car sales

The emerging correlations between online classifieds and Maruti's True Value dealership network could be a red flag for incumbent strategies and entry-level models.

- **India's used car market is growing, most of it C2C.** Some quick facts::

  - Based on a Crisil study, the used car market in India is currently valued at US$15 bn, growing at ~20% CAGR. It is expected to reach US$45 bn by 2020.

  - Indians sold approximatey 3-3.5 mn used cars last year, nearly 2X more than the new cars bought during the period.

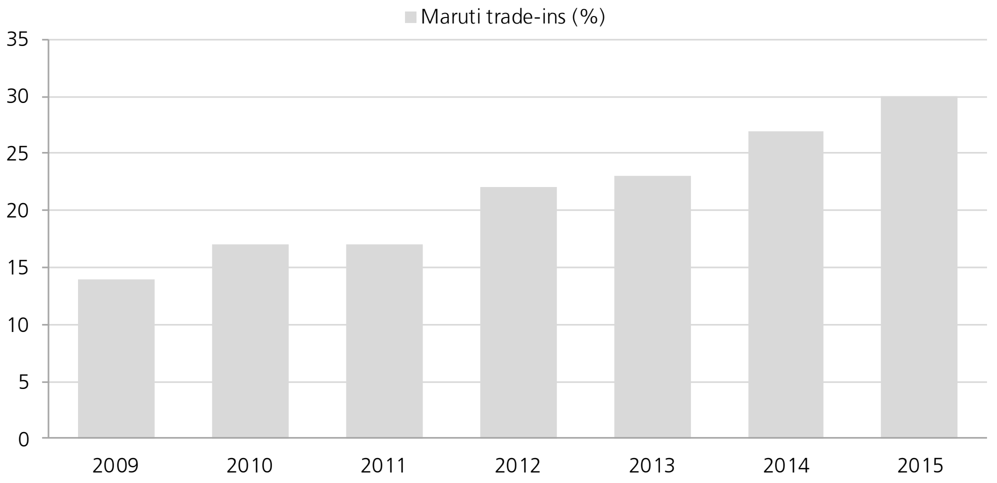
  - Globally, the used car market is 3X the size of the new car market (in units). The Indian used car market is yet to reach these levels.

  - We believe that only 18% of the total market is managed by organized players with more than 30% of the sales coming from C2C transactions.

  - Maruti and Mahindra are the biggest organized contenders in the used-car segment. Hyundai follows along with Toyota—the latest in the fray.

- **Maruti retains customers with trade-in offers.** In the past four years, new entrants have not dented Maruti Suzuki's leadership in India thanks to (1) retention strategies via exchange offers (see Exhibit 7) and (2) focus on rural India's first-time buyers. With 30% of Maruti Suzuki's new vehicle sales being trade-ins (up from 17% FY2011), the strategy clearly works.
  - Maruti True Value is India's largest certified used car dealership network with 867 outlets in 648 cities and the third largest car seller (in FY2015).
  - Leveraging this network, the company offers zero down-payment schemes and a six-month warranty on used cars, thereby leveraging the replacement cycle.

Exhibit 7: More than 30% of the cars sold by Maruti utilize the exchange offer
Trade-ins as a proportion of new vehicle sales for Maruti Suzuki, 2009-15 (%)



Source: Company, Kotak Institutional Equities

- **'True Value' proposition to be tested.** As India goes digital, classifieds and used car portals will be competing with incumbent OEM platforms. Although their intended target is the unorganized used car market, collateral damage may be felt by car makers focusing on retention through trade-ins. The two largest horizontal aggregators have over ~0.7 mn postings among them (see Exhibit 8). The average age of the inventory is 6-7 years with ~40% of the cars being less than five years old (see Exhibit 9). One out of four postings is a Maruti Suzuki model.
  - The concern for Maruti Suzuki's dealership comes predominantly from the sourcing front as owners look for the highest bidders online.
  - The horizontal classified space sees fierce competition between Quikr and OLX, Exhibit 10 gives a fair idea of the Google search queries generated for each portal.

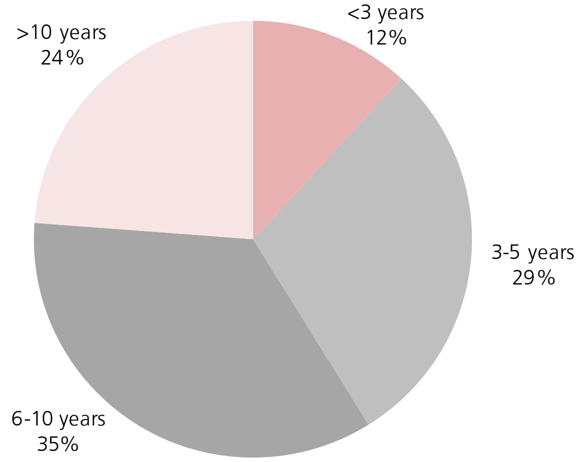
Exhibit 8: Hyundai and Maruti make up half the advertisements on the OLX platform
Total inventory of ads on horizontal classifieds like OLX and Quikr, August 31, 2015

	OLX	(%)	Quikr	(%)	Total	(%)
Total ads	**190,338**	**100**	**556,974**	**100**	**747,412**	**100**
Maruti Suzuki	66,195	35	126,409	23	192,639	26
Hyundai	28,183	15	59,913	11	88,111	12
Tata	23,811	13	44,749	8	68,573	9
Mahindra	14,060	7	24,176	4	38,243	5
Honda	10,458	5	25,767	5	36,230	5
Toyota	9,665	5	18,733	3	28,403	4
Ford	8,797	5	18,564	3	27,366	4
Chevrolet	7,940	4	19,935	4	27,879	4
Skoda	3,822	2	9,125	2	12,949	2
Volkswagen	2,712	1	6,773	1	9,486	1
Fiat	2,540	1	4,655	1	7,196	1

Notes:
(a) Classified ads as on August 31, 2015.

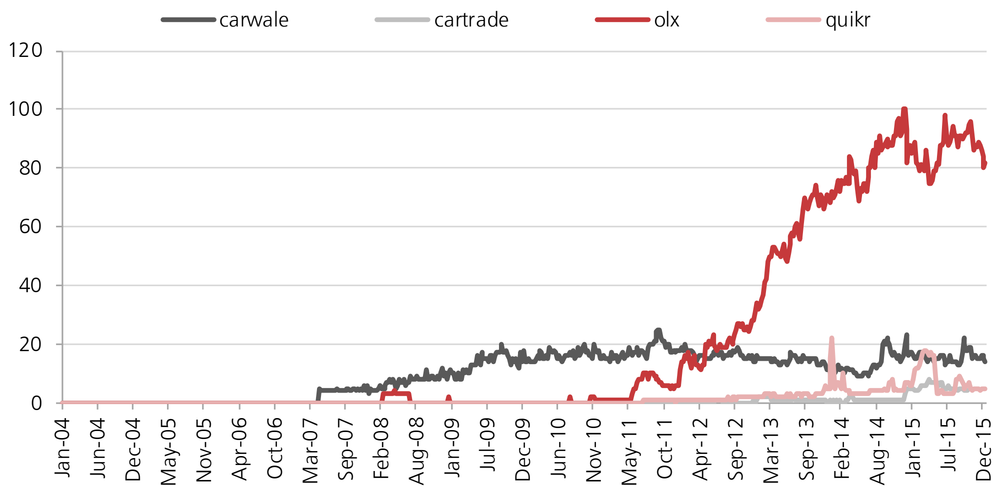
Source: OLX, Quikr

Exhibit 9: Almost 40% of the inventory is less than five years old; average age is 6.5 years
OLX inventory classified into age of car (% of total inventory), October 9, 2015



Source: OLX, Kotak Institutional Equities

Exhibit 10: OLX leads Quikr in auto-related queries on Google
Normalized query trends for India car classifieds, 2004-current



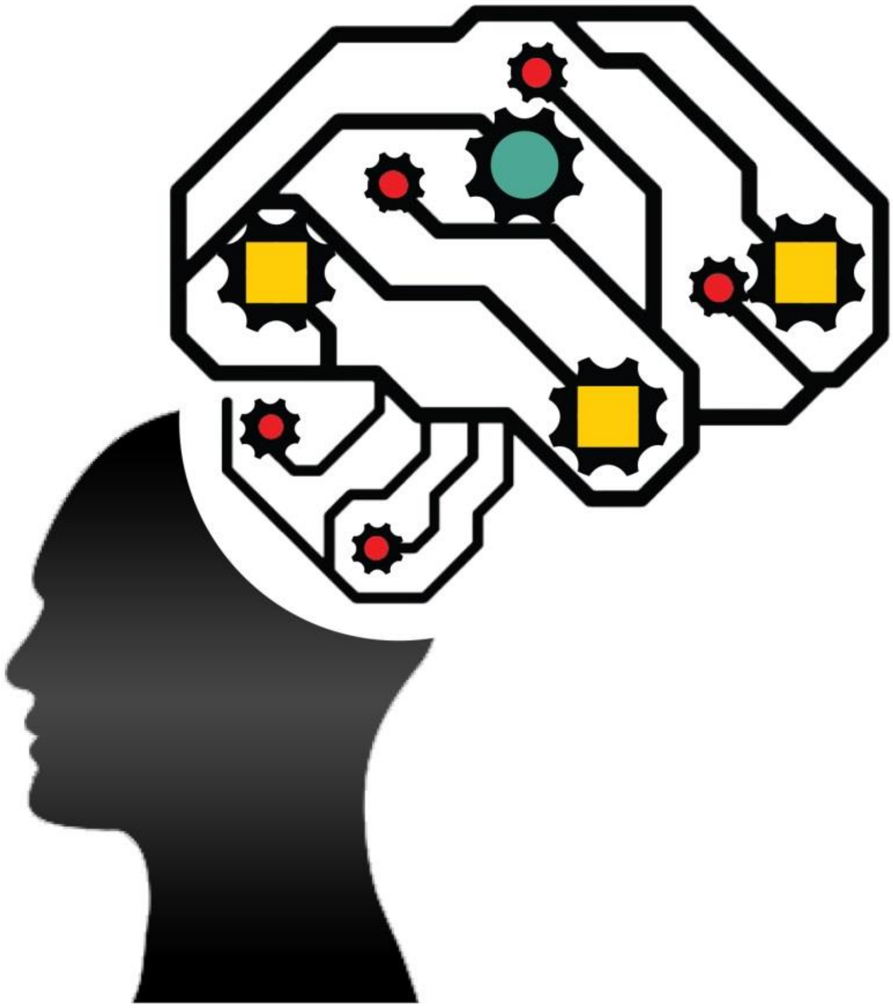
Source: Google Trends, Kotak Institutional Equities

- **Horizontal classifieds (such as OLX) hit new car sales.** Substituting an entry-level new car with a second-hand premium model can affect new car demand. Querimetrix results suggest that:
  - Horizontal classified searches are impacting new car sales in the small and mid-size car segments.
  - Vertical classifieds such as CarWale act as facilitators for various models with their influential reviews.
  - OEMs may have to closely monitor the effect of online classifieds on their used-car dealerships.
  - Even as most new car launches fail to drive the same levels of digital inquiries, car-related OLX searches hit record search-share.
  - Sweeter deals, better financing options and longer warranty periods may become the new norm to offset substitution from these digital aggregators.

- **Car sharing can hit the mid-size segment.** Rising interest in taxi aggregators (Ola and Uber) coincides with the drop in sales in the mid-size segment. The demand for taxis may have shot up this year, but car sharing solutions could disrupt new car purchases as well as replacements in Tier-1 cities. Development in the segment should be closely monitored by OEMs focusing on the premium car segment.

Chapter 2

MACHINE LEARNING



Uncovering the effects of online evaluation

Car buyers get more unpredictable as active evaluation makes the decision journey complicated. Querimetrix tell us that (1) Maruti Suzuki cements its strong position online and offline while Hyundai's digital inquiries for its compact cars complement sales. (2) Car buyers prefer the Honda City and Suzuki Ciaz over Hyundai offerings when considering an upgrade to a sedan. (3) Honda maintains its strong position in the premium segment, but this can be tested by SUV demand, aggregators and Suzuki's well-appreciated premium offering.

INITIAL CONSIDERATION

- Impact of brand recall distorted due to active evaluation

ACTIVE EVALUATION

- At least 3 brands get added during online evaluation (Source: Google)
- Car buyers are adamant only on color and budget (source: Nielsen)
- Hyundai Eon is usually considered along with Maruti's Alto and the Wagon R
- Suzuki's premium offering (Ciaz) being considered along with Honda City
- High search queries coincide with high demand for Hyundai's small cars (i10 & i20)
- Hyundai's premium hatchback loses out to upgrades like Honda City and Suzuki Ciaz

PURCHASE

- Nowcast 195,000 cars for January
- Maruti Suzuki's Dzire preferred over premium hatchbacks
- Honda can feel the heat from SUVs, taxi aggregators and OLX
- Last mile inquiries of Maruti Suzuki cars impedes Hyundai demand

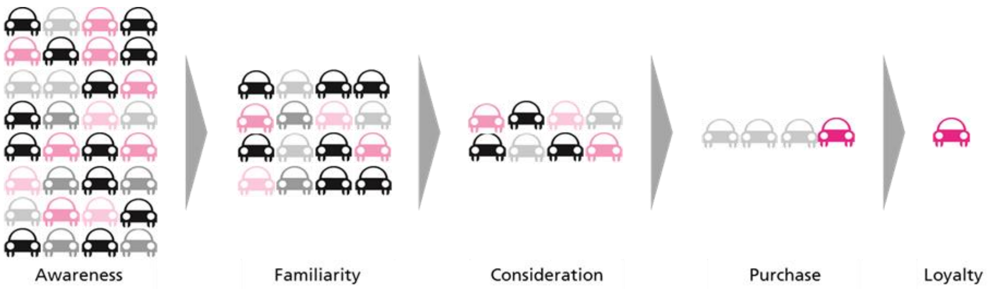
MACHINE LEARNING INSIGHTS: UNCOVERING THE EFFECTS OF ONLINE EVALUATION

Search and sale correlation: tantalizing, sometimes tenuous

Machine learning helps us analyze the effect of online inquiries on car sales at various stages of consumer journey.

- **Digital detour changes the journey, empowers the customer**. The traditional decision-making process (Exhibit 11 illustrates the narrowing 'funnel' between awareness and purchase) is making way for a non-linear consumer decision journey. The new detour makes online evaluation a powerful pit stop—an omni-channel assessment that alters the customer's engagement with the next stop on the journey—the dealership. Global auto players, following the traditional purchasing funnel, spend extravagantly on brand awareness and dealership sops to convert customers.

Exhibit 11: The traditional buying journey was linear and focused around brand recall
The traditional purchasing funnel

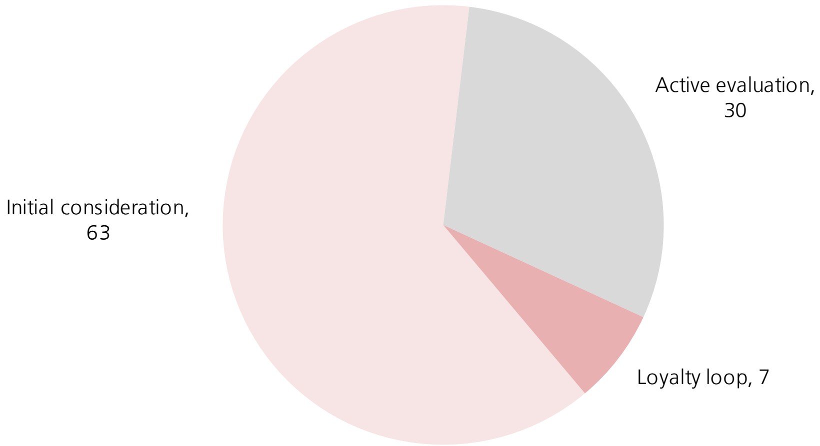


Source: Kotak Institutional Equities

- **Brand recall needs an omni-channel strategy**. Evolving consumer behavior is increasing the importance of omni-channel communication. Today, potential buyers add more brands to their initial consideration during the active evaluation phase. The use of traditional media to ensure brand recall needs to be supplemented with a strong digital presence.

  A Nielsen-Google study done in 2013 shows that consumers add at least two brands to the consideration set while eliminating at least one brand in the active evaluation phase. A McKinsey survey in the US (2009) also showed similar results (see Exhibit 12). At least 30% of the cars purchased did not even feature in the initial consideration set (see Exhibit 13). The mobile revolution has made things even more complicated. A Google-Nielsen consumer study in the auto segment (2012) showed that 54% of the car buyers were changing their initial consideration set, after online research.

Exhibit 12: One-third of cars purchased were not considered initially
Share of purchase of brands added in different stages of the journey (%), 2009



Source: McKinsey consumer decision surveys (US)

Exhibit 13: At least two brands were added in the evaluation phase for the auto sector
Number of brands added in different stages of the journey across sectors (%), 2009

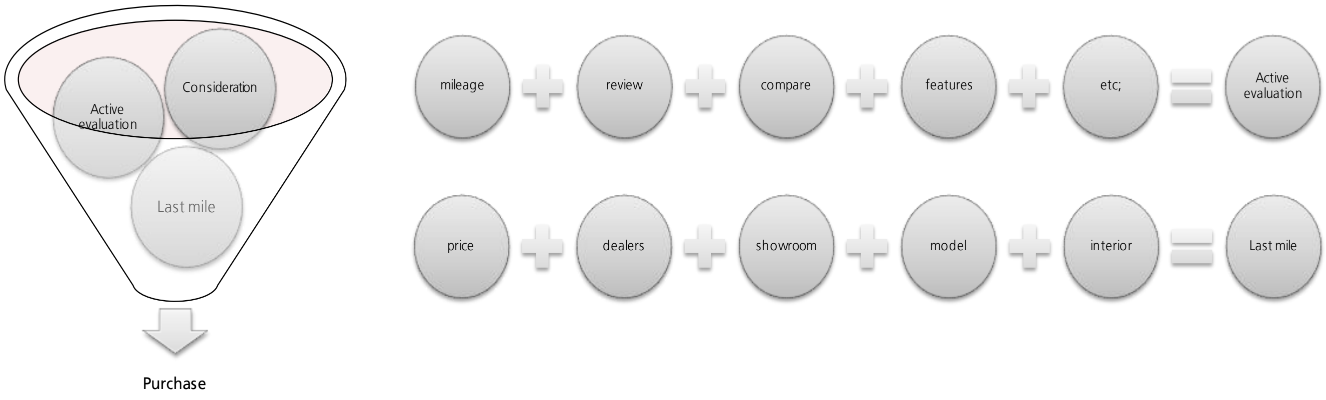
	Share of purchases (%)			Brands added (#)	
	Initial consideration	Active evaluation	Loyalty loop	Initial consideration	Active evaluation
Autos	63	30	7	3.8	2.2
Personal computers	49	24	27	1.7	1.0
Skin care	38	37	25	1.5	1.8
Telecom carriers	38	20	42	1.5	0.9
Auto insurance	13	9	78	3.2	1.4

Source: McKinsey consumer decision surveys (US)

- **Google Trends indicate that search queries correlate to overall segment sales.** We see a strong relationship between car-related search queries and total passenger car sales. Yet, the same relationship cannot be extended to individual OEMs. After all, a potential car buyer will evaluate most of the OEMs in his budget range before opting for one. This partially answers why the relative drop in online search-share is not currently affecting Maruti Suzuki's market share.

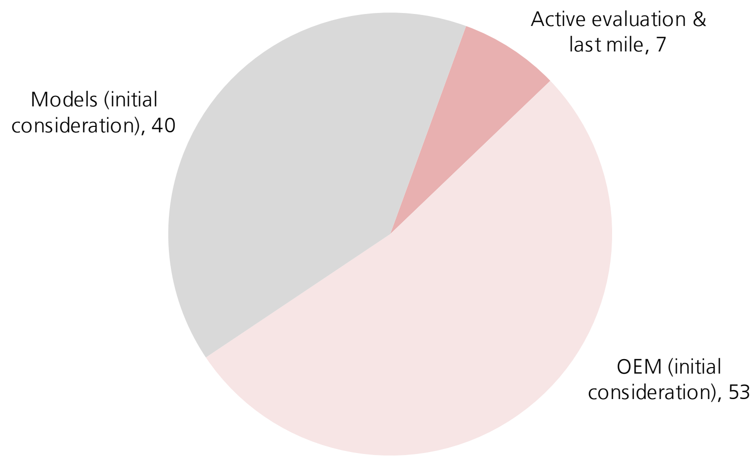
- **At least 7-8% of car-related search queries go beyond names of models and OEMs.** Some search keywords reflect casual browsing while others suggest purchase intent**.** We classify different search keywords used by consumers into different phases of the consumer decision journey—(1) initial consideration, (2) active evaluation and (3) the last mile. Exhibit 14 showcases the different keywords which make up each category and the intention is to assess the effect of each phase. As seen in Exhibit 15, only 7-8% of the total search volumes relate to keywords associated with active evaluation and the last-mile stage. We used keywords like mileage, review, features and specifications as active evaluation inquiries. Model variants, dealer location and discounts can be considered last-mile queries.

Exhibit 14: Search keywords are broken down into three phases of the journey
Classification of the consumer decision journey based on search trends



Source: Kotak Institutional Equities

Exhibit 15: Active evaluation and last-mile inquiries constitute a small portion of Google searches
Auto-related searches classified into phases of the consumer journey (%)



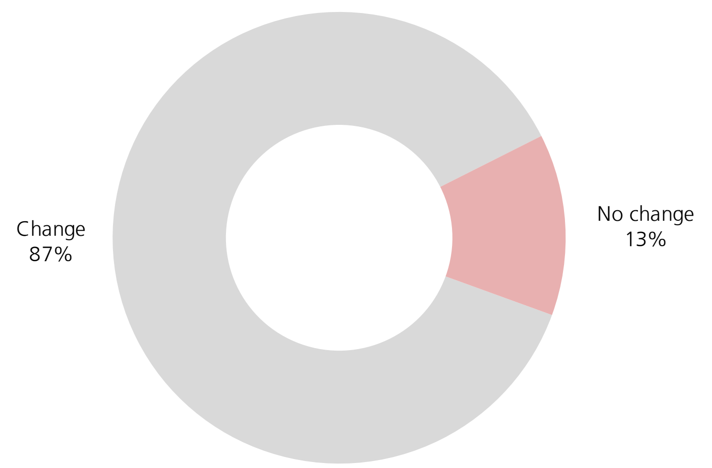
Source: Google Adwords estimates, Kotak Institutional Equities

Related searches chart out the digital journey across car options

The passenger car segment is a heavily contested market, especially between ₹0.5 and ₹0.7 mn with more than 20 models available to the customers to choose from. Additionally, up-to-date car portals help expand a customer's consideration with their recommendation algorithms based on budgets and other requirements.

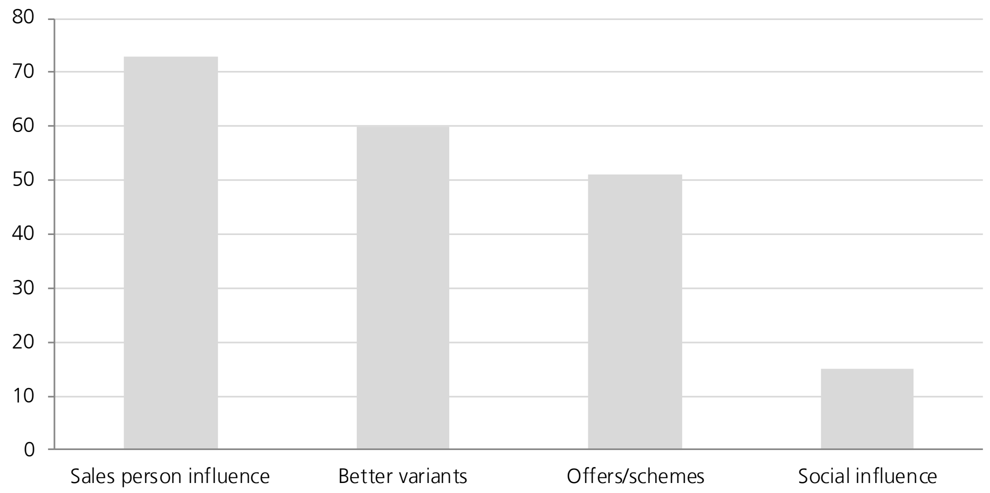
- **Sales effectiveness is an influential factor which needs internal addressing.** As seen in a Nielsen survey, salesmen (dealer's executives) were the biggest factor of influence in a showroom (see Exhibit 16 and 17). It appears many customers are dissatisfied by their lack of knowledge of car features or their ability to compare peer sets. The number of visits to the dealerships is also declining, a possible fall-out of the extensive online research.

Exhibit 16: Almost nine out of 10 car buyers experience a last-mile switch
Proportion of car buyers who change their decision in the last mile



Source: Nielsen India

Exhibit 17: Sales persons' lack of knowledge of comparisons and features peeved car buyers
Key factors which influenced a car buyers in the showroom (% of car buyers)



Source: Nielsen India

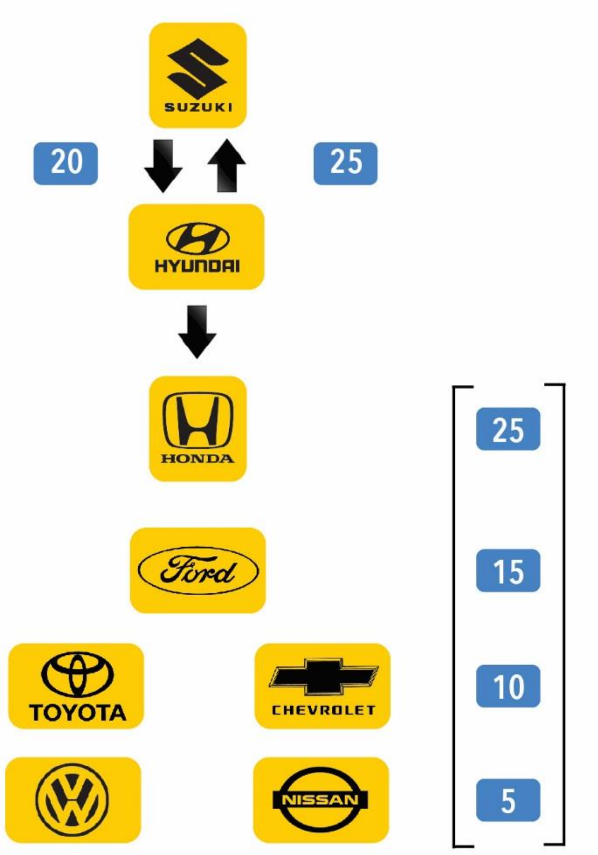
- **Mapping digital competitors: operational and strategic benefits.** Assessing on-ground consideration for prominent models has benefits:

  - Operationally, the sales staff can build in-depth knowledge of a small refined peer set for each model, which is more efficient and effective than a superficial knowledge of a wider universe.

  - Strategically, the targeted competition and on-ground reality may differ quite dramatically. By keeping abreast of campaigns using high frequency information, responsive strategies can be implemented quickly.

- **Related searches give an indication on the typical consideration set.** Upon analyzing google search queries on various automotive brands and models, it is clear that Maruti Suzuki constitutes a major portion of auto-related searches. Surprisingly, only Hyundai shows up as a close competitor in 'Related searches' on Google Trends, indicating its close association with the market leader. A similar exercise for Hyundai shows a number of OEMs come up in varying degrees as the digital comparison opens up (see Exhibit 18). It also suggests that Honda and Ford are followed by others in the mind of the searcher. The complexities of active evaluation are not completely captured by big data crunching, but search relations give us some indication about how the online consumer associates one brand with another.

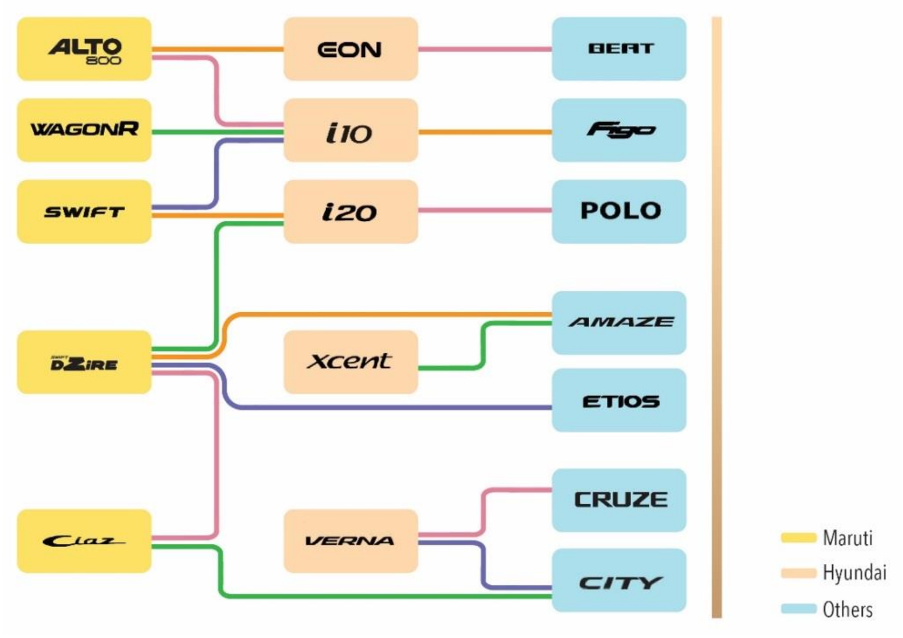
Exhibit 18: There is a higher propensity to search for Maruti after looking at Hyundai
Google Trends related searches brand map, September 4, 2015



Source: Google Trends,Kotak Institutional Equities

- **Model-wise relationship, a ready-reckoner to improve sales effectiveness.** Using search association between models helps sales staff in effectively prioritizing their understanding of competing models. Exploring Google Trends patterns, we find that searches for Maruti Suzuki's entry level hatchbacks, Wagon R and Alto, share a strong relationship with Hyundai's options like the Eon, i10 and Santro. It appears like that the i10 gets cannibalized by the i20, which in turn is evaluated along with compact sedans like the Swift Dzire. We see the Japanese giants (Toyota and Honda) trying to challenge the Swift Dzire for mind-space with their offerings (Etios and Amaze). Ciaz, a recent addition in the Maruti Suzuki portfolio, is being considered along with Honda City during digital evaluations and shows a positive response by being assessed with the best-in-class. Exhibit 19 shows the model map constructed out of related searches for various models.

Exhibit 19: Hyundai's mini and compact model feature with Maruti offerings consistently
Car model interrelationships based on Google Trends related searches



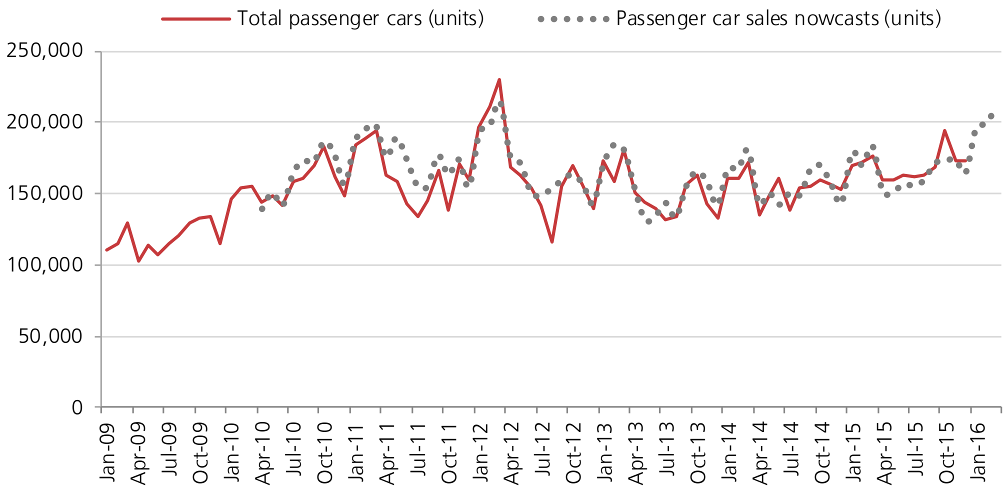
Source: Google Trends, Kotak Institutional Equities

Mining through telemetry—nowcasts and machine learning highlights

There is no doubt that the digital medium influences consumer behavior, but the relationship between sales and these online footprints is complex. The factors driving sales may significantly vary for each brand depending on the audience and competition in its segment.

- **Total passenger car sales—set to sell ~195,000 cars in January.** Analyzing Google Trends data, our nowcasting framework anticipates passenger car sales nearing ~195,000 in the month of January (see Exhibit 20). Although this implies 16% yoy growth, the pie-grabbing by SUVs from the A3 segment could be masking the actual demand for personal cars.

Exhibit 20: Total car sales anticipated to be ~195,000 cars in January
Comparison of Consumer Querimetrix nowcasts of total passenger car sales with actual sales, 2009-16 (units)



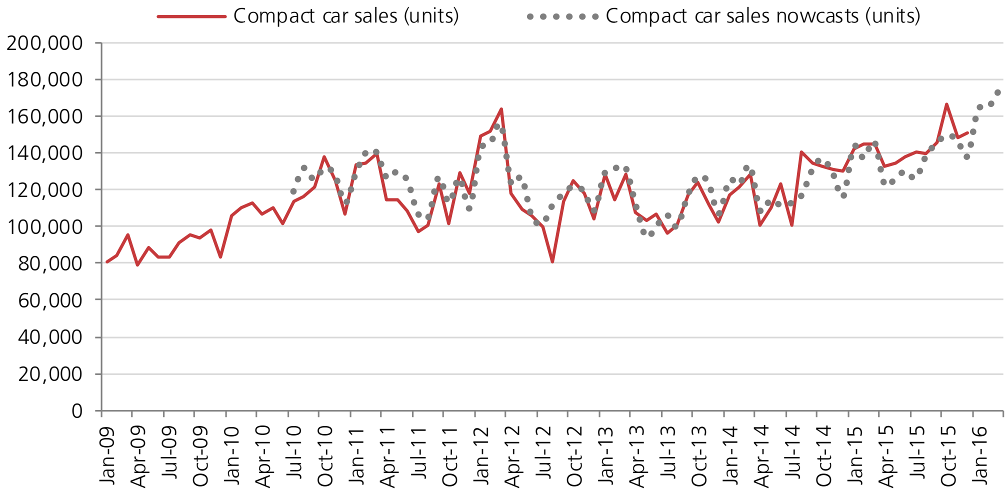
Notes:
(a) Search data considered up to January 12, 2016.
(b) Google Trends data has been used for nowcasting.
(c) Based on the work 'Predicting the Present' by Hal Varian and Steven Scott.

Source: SIAM, Google Trends, Kotak Institutional Equities

- **Mini and compact segment (A1 & A2)—constitutes more than 85% of sales.** From the auto industry sales reports published by SIAM, we learn that Maruti Suzuki controls ~56% of the total market share followed by Hyundai (25%). Tata Motors (6%) and Honda (5%) are a distant third and fourth. The rest of the market comprises seven OEMs. Needless to say, factors affecting Suzuki's and Hyundai's demand in the segment will also drive demand of the segment.

- **Consumer Querimetrix estimates ~164,000 car sales in the compact segment.** Exhibit 21 compares the nowcasts and actual sales in the segment. The effect of Suzuki inquiries on this segment's performance is evident even in the quantitative results. Search query trends suggest vertical classifieds like CarWale are facilitating conversion as higher inquiries are leading to higher new car sales.

Exhibit 21: Compact car sales to reach 164,000 cars this January
Comparison of Consumer Querimetrix nowcasts and total compact car segment sales (a), 2009-16 (units)



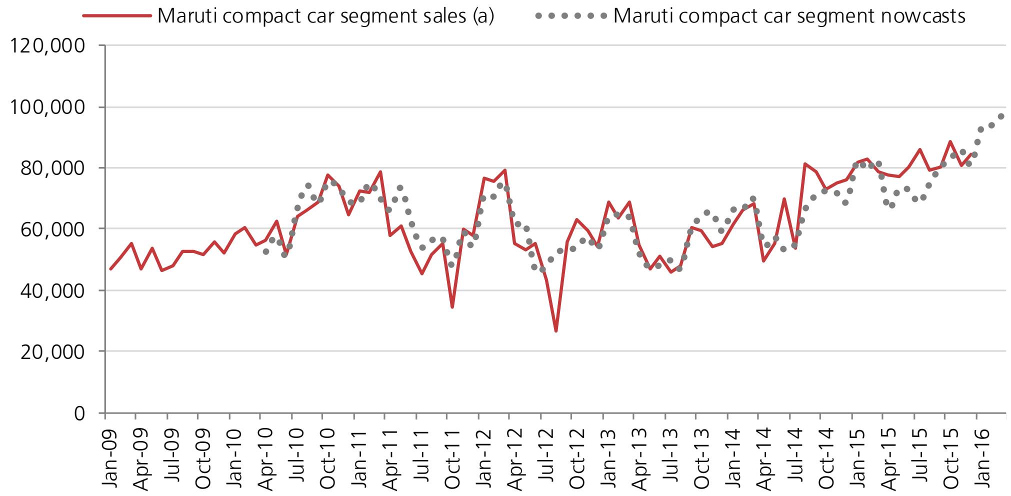
Notes:
(a) Compact car segment is classified as A2 by SIAM.
(b) Google Trends data has been used for nowcasting.
(c) Based on the work 'Predicting the Present' by Hal Varian and Steven Scott.

Source: Google Trends, Kotak Institutional Equities

Maruti Suzuki—sitting pretty even as digital competition heats up

The People's Car, first rolled out in 1983, has etched its place in every Indians heart and mind. Consumer Querimetrix nowcasts demand for ~93,000 Maruti Suzuki cars in the compact car segment in January (see Exhibit 22). We assess some of the factors which show a relationship with the sales trend in the segment.

Exhibit 22: Compact car sales are likely to touch ~93,000 this year
Comparison of Consumer Querimetrix nowcasts and Maruti's compact car segment sales (a), 2009-16 (units)



Notes:
(a) Compact car segment is classified as A2 by SIAM.
(b) Google Trends data has been used for nowcasting.
(c) Based on the work 'Predicting the Present' by Hal Varian and Steven Scott.

Source: Google Trends, Kotak Institutional Equities

- **More potential car buyers mean more car sales for Maruti.** Higher last-mile inquiries on dealers, showroom locations and interiors among others lead to higher car sales for Maruti Suzuki in the segment. This cements the position commanded by the OEM in the segment with its implicit presence in most evaluation sets.

- **Higher last-mile inquiries relate to higher sales.** Consumer Querimetrix found that evaluation of Suzuki on factors like mileage, reviews, features and specifications among others, leads to higher conversions. Spikes in such inquiries lead to a corresponding jump in car sales for Maruti Suzuki.

- **Hyundai Eon query trends indicate digital competitiveness.** Hyundai's rural and semi-urban market offering seems to be hitting the right spots with its digital strategy as higher inquiries for Eon affects Maruti's sales figures negatively during the same month.

- **Honda promotions may be leading to Maruti sales.** Aspirational brands can promote car purchases unintentionally benefiting incumbents. Despite being a part of the car buyer's initial consideration set, Honda doesn't seem to be a challenge to Maruti's leadership in this segment.

Model-wise analysis: Hyundai is being considered along with Maruti Suzuki online

- **Wagon R racing ahead: Hyundai Eon and Ford visible in the rear view mirror**. One of Suzuki's best-selling cars, the Wagon R has a target audience which is predominantly semi-urban and rural in India. Hyundai Eon is usually part of the same set and higher inquiries deter conversion. Chevrolet and Ford are other OEMs considered during the purchase.

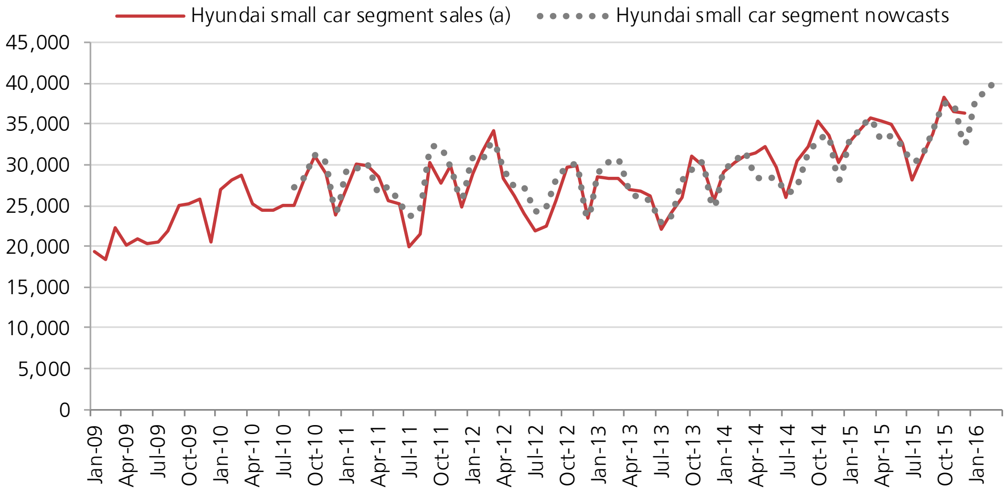
- **Alto: Honda and Hyundai offerings are also assessed**. Maruti Suzuki Alto is one of India's largest selling cars with more than 2.8 mn on the road. Although the Honda Brio, Hyundai i10 and Hyundai Eon are also considered together, only the Eon seems to be posing a real competition. Targeted at the first-time buyer, promotions surrounding heavily marketed models like the Maruti Suzuki Dzire and Volkswagen Vento may also influence sales.

- **Swift Dzire: digital favorite of India.** As per search query data, Maruti Suzuki Swift and the Dzire variant record one of the highest digital inquiries on Google in India. The typical evaluation set for the Swift Dzire buyer comprises hatchbacks including Honda Jazz, Hyundai i20, Maruti Suzuki Swift, Ciaz and the Volkswagen Polo. This indicates the mind-set of buying a 'compact sedan for the price of a hatchback'. In line with the relationship taxi aggregators like Ola cabs share with the mid-size car segment, model sales seem to be deterred by higher inquiries for taxi aggregators.

Hyundai—findings compliment digital marketing strategy

Hyundai is set to record sales figures of ~38,000 cars in January or 15% yoy growth (see Exhibit 23). Some of the insights derived from the algorithm are given below:

Exhibit 23: Hyundai to cross record high of ~38,000 compact car sales in January
Comparison of Consumer Querimetrix nowcasts and Hyundai's compact car segment sales (a), 2009-16 (units)



Notes:
(a) Compact car segment is classified as the A2 segment.
(b) Google Trends data has been used for nowcasting.
(c) Based on the work 'Predicting the Present' by Hal Varian and Steven Scott.

Source: Google Trends, Kotak Institutional Equities

- **CarWale acts as a facilitator: neutral reviews influence buyers**. Vertical classifieds indicate facilitating conversion to Hyundai while OLX may be impacting new car sales adversely. The 'hassle-free buying assistance' offered on the portal may be considered an enabler. It also indicates that neutral reviews could favor the OEM in this segment

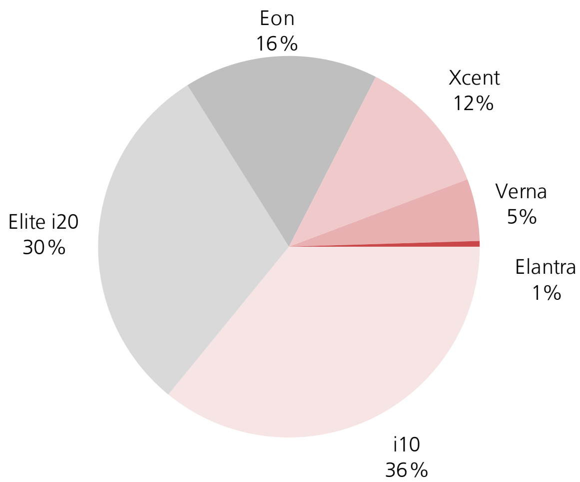
- **Searches for Hyundai Eon funnel down to a purchase in the segment**. The funnel seems to be working at least for one segment as higher search queries of Hyundai Eon are resulting in better sales volumes for the mini and compact segment. Honda Amaze, a compact sedan, seems to be considered as an upgrade option while buying Hyundai's mini and compact variants.

- **Last-mile inquiries of Maruti Suzuki impede sales.** Although intuitively obvious, last-mile inquiries on Maruti Suzuki such as dealer locations, offers, models and interiors are seen to affect Hyundai's sales negatively. Active evaluation of Nissan has a similar effect on Hyundai sales as well.

Hyundai i10 and i20: digital marketer's delight

The machine learning algorithm identifies an ideal association between search engine queries and car sales of Hyundai's top selling models—i10 and i20. These two models alone constitute more than 60% of the company's CYTD15 sales (see Exhibit 24).

Exhibit 24: The i10 and i20 models constitute more than 60% of sales
Hyundai Motor's passenger car model mix (%), 2015



Notes:
(a) Data recorded till November 2015.

Source: SIAM, Kotak Institutional Equities

- **Funnel lives on for some: for the Hyundai i10.** Querimetrix identifies higher considerations leading to more sales. Controlling all other factors (only possible theoretically), Hyundai can be expect to sell 1,000 more cars for a 12-15% jump in i10 queries.

- **Hyundai i10 maybe feeling the upsell effect from the Hyundai i20**. Nissan Micra, Ford Figo, Chevrolet Sail and surprisingly Hyundai's i20 are some of the models which are usually considered together. This evidence suggests that Hyundai has been successful in upselling potential i10 customers.

- **More searches mean more sales for the Hyundai i20 as well**. A linear relationship between inquiries and higher sales holds for the i20 as well. Vertical classifieds like CarWale are facilitating sales, although OLX continues to affect new car sales.

- **The upsell strategy from hatchback to sedan not as effective.** Although last-mile searches for Maruti Suzuki, Nissan and Honda may act as deterrents for the i20, the models assessed possibly highlight the weakness in the upsell strategy during the transition from a premium hatchback to a premium sedan. Digital inquiries for models like the Honda City and Suzuki Ciaz may be luring away potential customers indicating a preference over the Hyundai's offerings. A similar exercise for Hyundai Verna, the potential upgrade, indicates that last-mile inquiries for Maruti Suzuki, Honda and even Chevrolet affect Verna's sales.

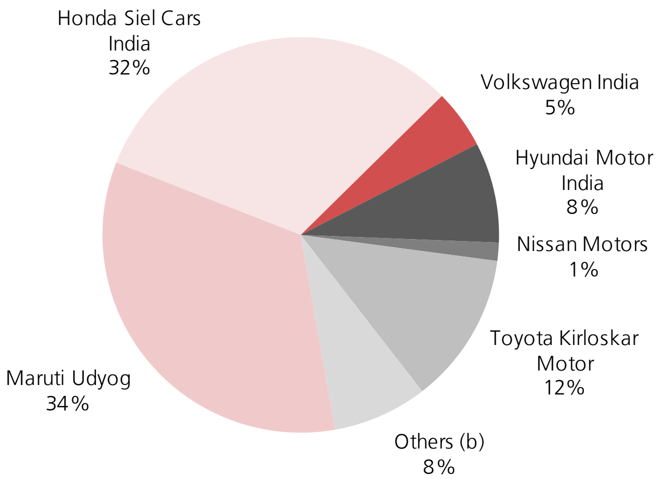
- **Hyundai Eon: hitting the right spot.** Hyundai's entry-level hatchback was targeted at semi-urban and rural India with ~45% of its sales coming from these regions. The algorithm finds that Hyundai Eon's search inquiries are effectively competing 'digitally' with Maruti's models in the entry-level segment, Alto and Wagon R.

The mid-size segment (A3)—SUVs eat into the mid-size segment

Mid-size segment sales and search query trends highlight (1) highest search-share of Honda, (2) risk from SUVs and (3) effect of OLX and Ola taxi services on sales.

- **Maruti Suzuki faces tougher competition in the segment.** The mid-sized comprises of sedans like Honda City, Suzuki Dzire (Tour) and Hyundai Verna among others. Exhibit 25 shows Maruti's market share to be lower in this category as other OEMs like Honda, Volkswagen and Hyundai fragment the market. Maruti Suzuki's 34% market share in the segment is down from 44% a year ago.

Exhibit 25: Maruti's control diminishes in the mid-size segment; Honda overtakes Hyundai
Mid-size segment market share (% of A3 segment sales), 2015 (a)

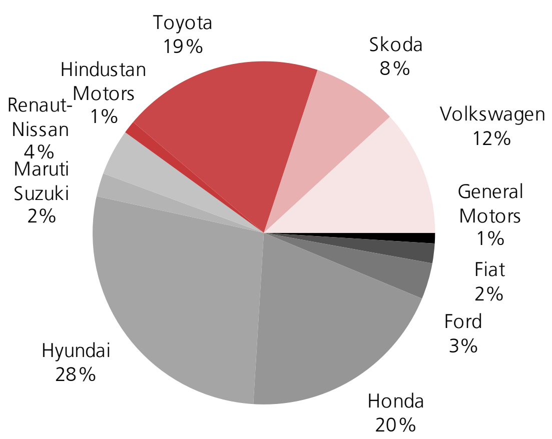


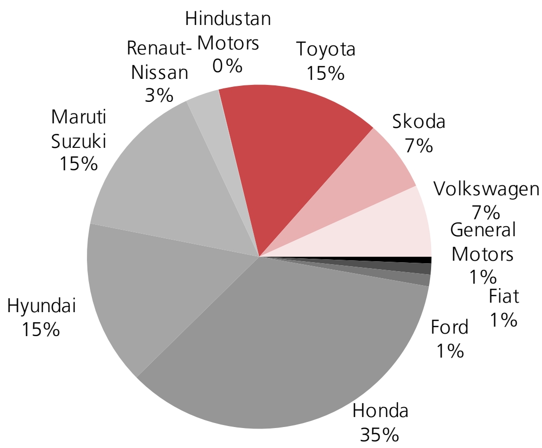
Notes:
(a) Marketshare in the A3 segment based on CY2015 volumes.
(b) Others include Skoda, Ford, GM, Tata Motors, M&M, Fiat and Hindustan Motors.

Source: SIAM, Kotak Institutional Equities

- **Honda took the fight to Hyundai in 2015.** Honda is the leader in the passenger car segment above ₹0.7 mn owning 32% of the market. Hyundai and Toyota come in a distant second and third (see Exhibit 26). Honda's gain has been Hyundai's loss as Hyundai controlled the segment a year before.

Exhibit 26: Honda clearly leads the premium segment above Rs0.7 mn; has eaten into Hyundai's pie in FY2015
Marketshare of cars above Rs0.7 mn (% of total sales), 2014-15E, fiscal year-end





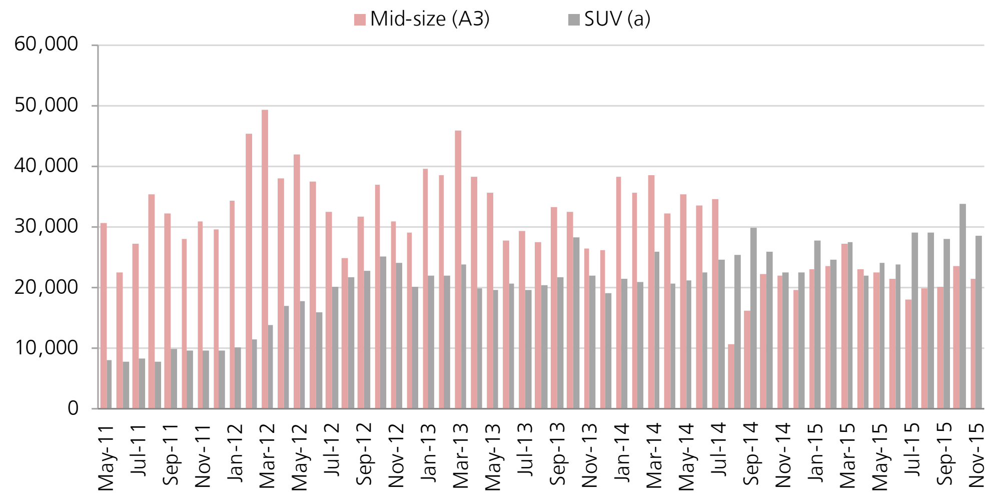
Source: SIAM, Kotak Institutional Equities

- **Honda's segment leadership evident in searches as well.** A jump in evaluation and last-mile inquiries bodes well with sales in the mid-size segment. Increased inquiries for Honda Amaze and Brio also lead to higher car sales. Even though Maruti Suzuki sells the highest number of cars in the segment, the segment closely follows digital inquiries for Honda. This indicates Honda's perpetual presence in the consideration set.

- **Honda City: getting stronger the mid-size sedan segment.** Honda Motors is almost abreast with Maruti Suzuki in the mid-size segment (CY2015) with successful sales of sedans like Honda City and Honda Amaze. Hyundai Xcent and the Maruti Suzuki Ciaz are possibly part of the same evaluation set. Active evaluation generally leads to purchases for Honda City and the model has been preferred over Hyundai Xcent in the recent past.

- **SUV segment can spoil Honda's party in the segment.** This segment is competing with the SUV segment with sales dropping off since the launch of Honda Mobilio (July 2014). With the recent launches of the Maruti S-cross and Hyundai Creta, it will be interesting to observe Honda's strategy to maintain its position. (see Exhibit 27).

Exhibit 27: The SUV models have grown considerably since May 2011
Comparison of A3 and SUV segment monthly sales figures (units), 2011-15

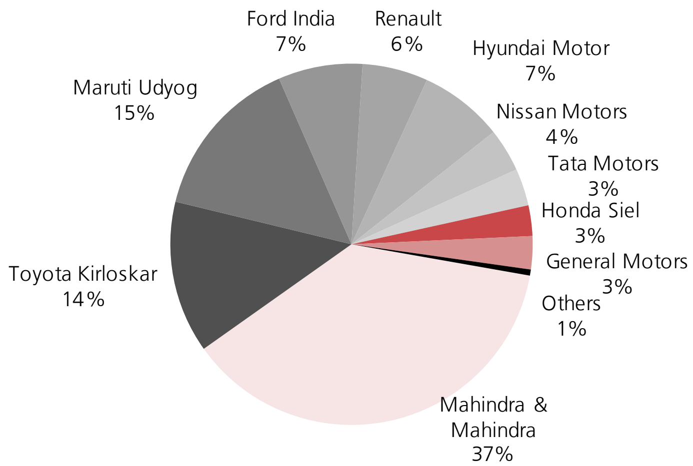


Notes:
(a) SUVs comprise models like Ecosport, Ertiga, S-cross, Creta, Duster, Scorpio, Xylo, etc;

Source: SIAM

- **Search trends suggest Mahindra SUVs and Hyundai competing in the segment.** Search query trends suggest that Mahindra, specifically the Scorpio, hinders car sales in the A3 segment. Mahindra is a strong player in the SUV space capturing ~30% of the total sales in the segment (number of seats not exceeding 7). Exhibit 28 shows the market segments in the urban UV segment. M&M brands targeting urban dwellers (like Scorpio, XUV500 and Xylo) now make up ~50% of its total UV sales. July-August 2015 sales figures also show the effect of the recent Hyundai Creta and Maruti S-cross launches on the segment. The mid-size category's sales dropped by 22% in CY2015 as compared to CY2014.

Exhibit 28: Mahindra stays the market-leader in the SUV space with a number of successful models
Utility vehicle (not more than seven passengers) segment market share (% of segment sales), 2015 (a)



Notes:
(a) Marketshare is based on CY2015 volumes.
(b) No. of seats including driver not exceeding 9 (M1 (B1) and M1 (B2)).
(c) B1: Max Mass up to 3.5 tonnes.

Source: SIAM, Kotak Institutional Equities

- **Ford Fiesta, VW Vento and Suzuki Ciaz generally part of the consideration set.** Inquiries related to these brands show linkages with monthly segment sales. This indicates the presence of these three brands in most consumers' online research. The presence of the Ciaz in the evaluation set is a testament to the consumer acceptance of Maruti Suzuki's premium offering.

- **Ola and OLX cast their shadows on the segment.** Although it may still be early in the game for these aggregators, mathematical linkages begin to emerge between these two aggregators and car sales in the segment. The A3 segment is predominantly an urban segment and usually attracts mostly car owners. This can imply—(1) delaying a new car purchase or replacing an existing car due to the ease of commuting via taxi services, and (2) considering the purchase of a higher-segment used car. The correlations may not justify causation, but OEMs should consider giving the relationship a second thought.

Chapter 3

ASSESSING CAR LAUNCHES

Search trends distinguish interest from viewership

Google search volumes can differentiate buying interest from viewership and can be good measure of assessing a new car launch. Recent car launches generate tepid consumer sentiments as higher traditional ad spends capture lower search share. Maruti Suzuki Baleno's digital buzz overshadows competitors as its search-share scales levels seen during the Ecosport launch in 2013. Maruti Suzuki commands a substantial market share as well as search-share, despite the latter being eroded steadily by entrants in the past few years. The company defended its turf from the onslaught of competition with an aggressive strategy of high ad spends and big discounts.

STIMULUS

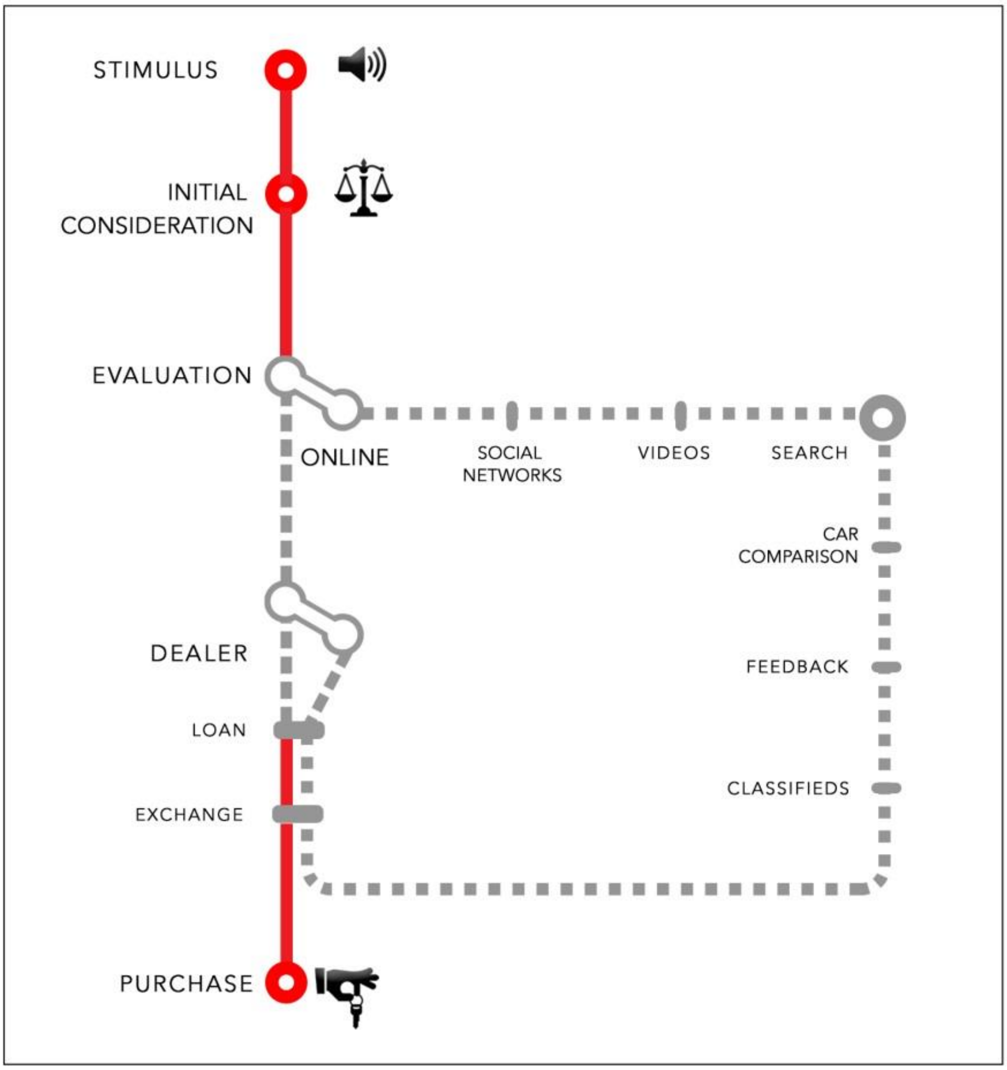
- Advertising spends for the car segment up 63% since CY2012; Maruti leads
- Search queries give an indication of advance bookings during car launches
- Higher advertising spends do not guarantee digital inquiry
- Maruti Suzuki Baleno's search-share matches the Ecosport launch in 2013
- Renault Kwid attracted more attention than Hyundai Creta and S-cross

INITIAL CONSIDERATION

- Maruti makes up 25-30% of search-share; has dropped 40% over the years
- Maruti Swift and its variant is the highest searched car model
- At least 50% change their initial consideration after online evaluation

PURCHASE

- Sales-per-query conversion effectiveness 20% lower in the festive season than fiscal year-end

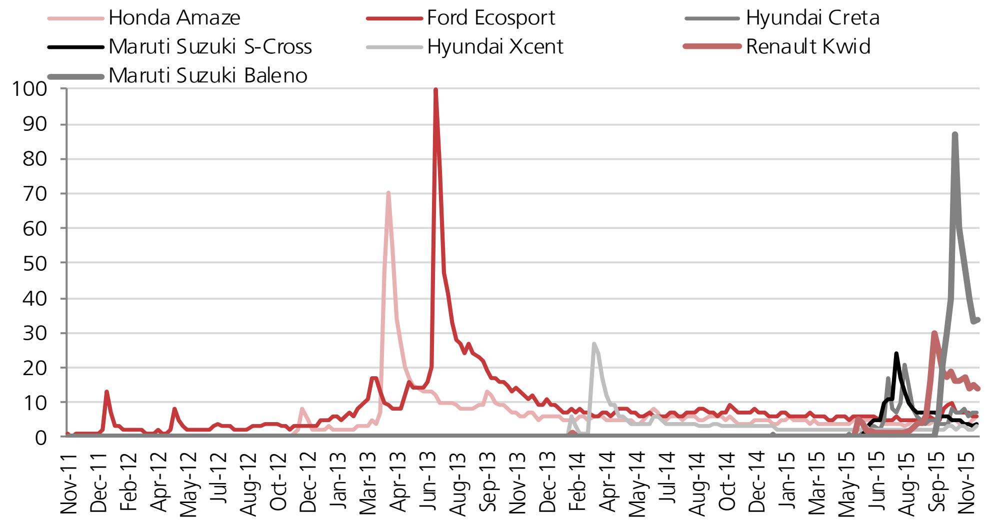


ASSESSING CAR LAUNCHES: SEARCH TRENDS DISTINGUISH INTEREST FROM VIEWERSHIP

Google Trends can be used to indicate buying interest after a car launch

The initial spike in Google search volumes at the time of a car launch tells us a lot about the curiosity generated by the traditional media campaigns. Exhibit 29 shows the digital buzz captured by the Maruti Suzuki Baleno overshadowing other car launches in comparison.

Exhibit 29: Car model launches result in large online inquiry of launched model
Google Trends search volumes of recently launched cars in India, 2011-15

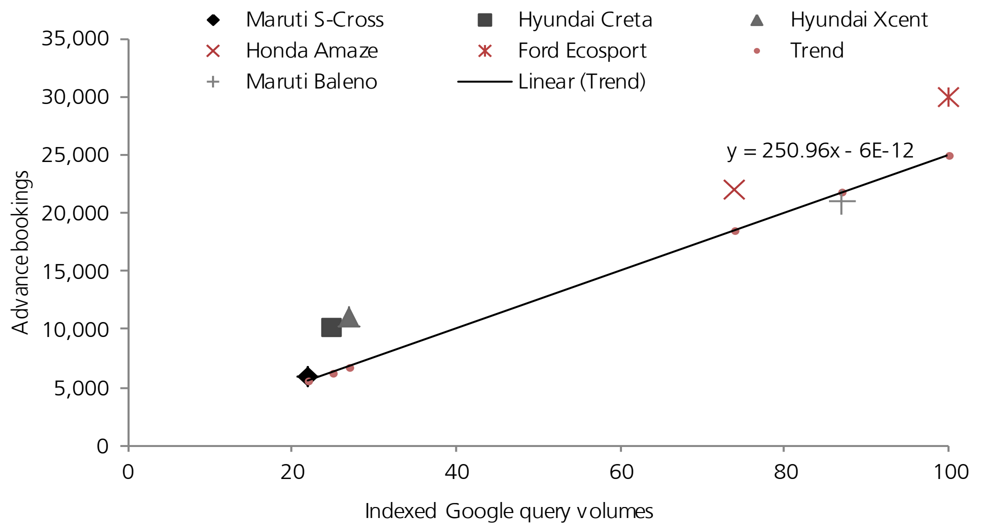


Notes:
(a) Normalized search-share indexed to highest value (Suzuki Baleno) captured by the queries compared.

Source: Google Trends

- **Advance bookings and Google inquiries linked.** We plot search-share in the launch week alongside advance bookings and find the two moving in tandem (Exhibit 30).This linear association can be used along with advertising budgets to assess the effectiveness of a campaign or the interest generated by a car launch.

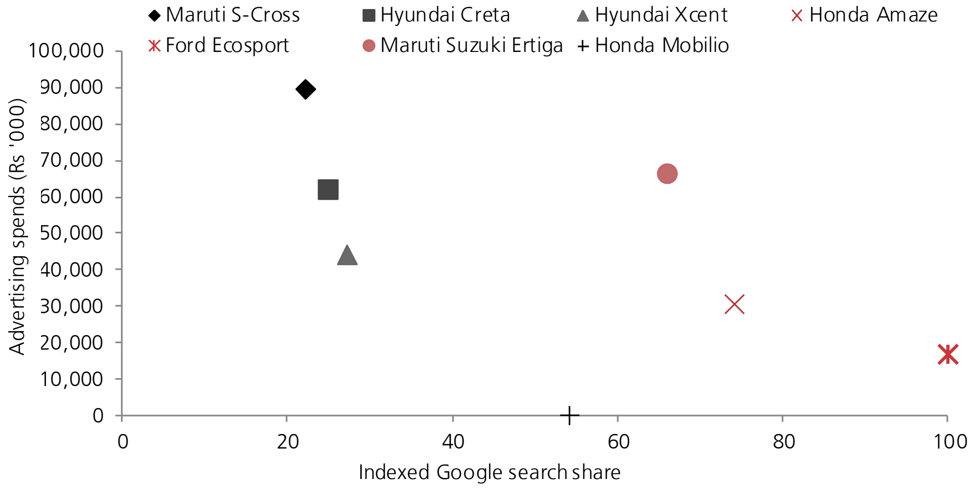
Exhibit 30: There is a strong relationship between Google footprints and advance bookings
Effects of car model launches on advance bookings captured by Google search trends



Source: Kotak Institutional Equities, Google Trends

- **Higher (traditional) ad spends do not guarantee higher search queries.** Higher traditional ad spends can guarantee more eyeballs (or rating points), but this may not always translate into interest. See Exhibit 31 and 32 for our exercises measuring advertising activity (TV and Print) against query share captured during the launch. It appears that search trend activity can differentiate between viewership and interest.

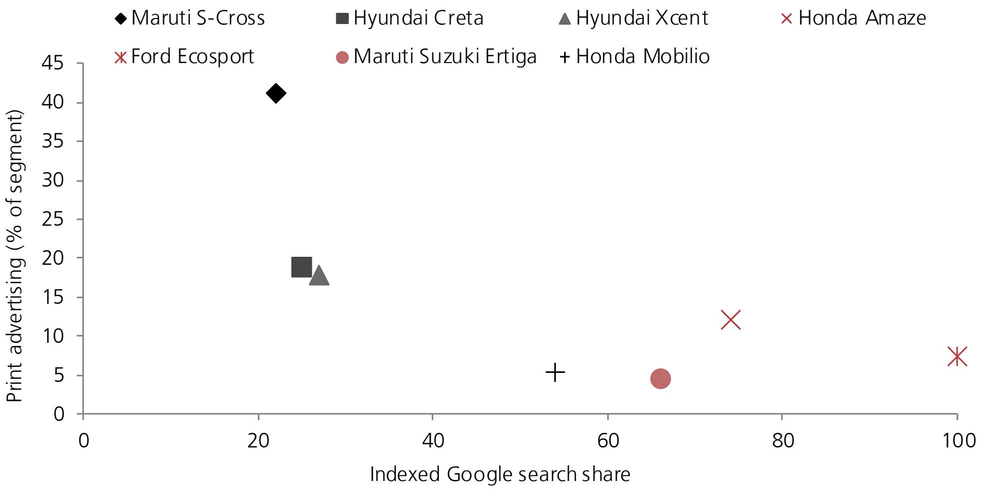
Exhibit 31: No linear relationships with online inquiries and advertising spends
Comparison of advertising spends and indexed Google query volumes



Notes:
(a) Total advertising spends in print and TV during the launch week.
(b) Indexed Google search query volumes indicate the search-share of total search queries.

Source: TAM, Google Trends, Kotak Institutional Equities

Exhibit 32: Relationship with print advertising share is not linear either
Comparison of print advertising volumes (% of total car segment) and Google search volumes



Source: TAM, Google Trends, Kotak Institutional Equities

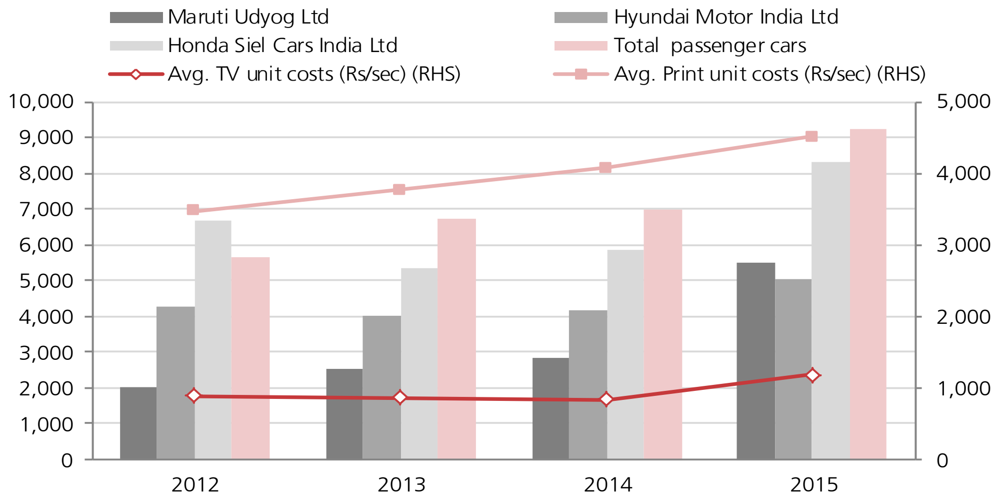
Baleno creates digital waves

- **Hyundai outshines Maruti Suzuki even as consumer sentiment wanes.** Advertising costs per vehicle sold have shot up 63% since CY2012 (see Exhibit 33). With intense competition, the above-the-line costs for Maruti Suzuki have risen more than for the industry during the period. Maruti Suzuki's financial statements also show a similar uptrend in advertisements and promotions (see Exhibit 34). Hyundai's advertising cost per vehicle sold went also up ~25% during the same period. Rising costs may be attributed to e-commerce's demand for traditional media (TV and print), though the average unit cost of advertising has moved up only 30-34% during the period. This higher acquisition costs possibly indicate weaker consumer sentiments towards car purchases. Maruti Suzuki has taken its advertising share in the segment to 27% from 14% indicating its aggressive stance (see Exhibit 35).

- **Maruti Suzuki Baleno scales search-share earned by the Ford Ecosport launch.** The new premium hatchback offered by Maruti Suzuki has made a grand entrance if search-share is anything to go by. The new offering has amassed search-share ~2X higher than the closest contender (Ford Ecosport) and has humbled recent launches. With more than 20,000 bookings in the first month of the launch, the Baleno can be a serious contender in its segment competing with models such as the Hyundai i20, Volkswagen Polo and the Honda Jazz.

Exhibit 33: Advertising spend per vehicle sold rises by 63% since CY2012

Advertising spends per car sale for top OEMs in India, calendar year-end, 2012-2015 (Rs/vehicle)



Notes:

(a) Advertising spends are divided over total car and utility vehicle sales over the year.

(b) TAM offers advertising spends based on rate cards. We discount the rates by 75-85%.

(c) Media spend data collected up till August 31, 2015.

(d) CY2015 spike in advertising budgets for Maruti can be attributed to the Maruti S-Cross launch.

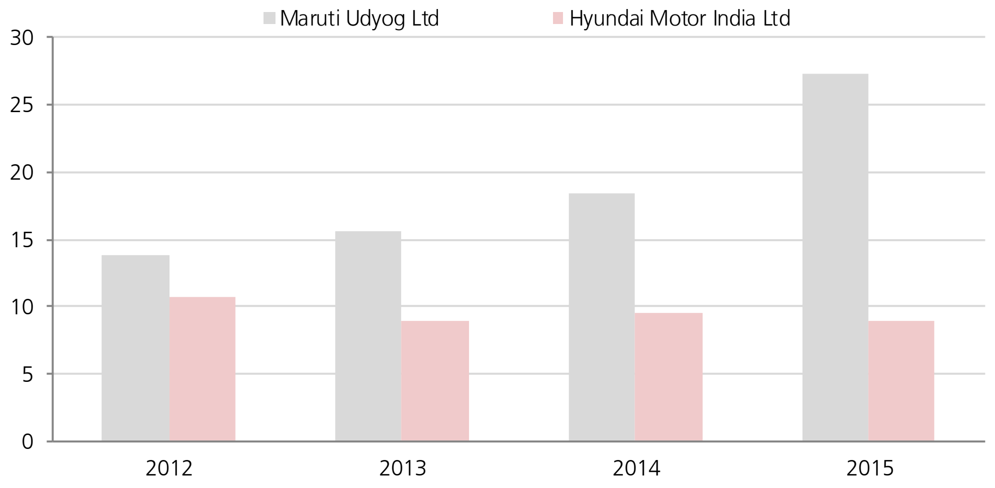
Source: TAM, Kotak Institutional Equities

Exhibit 34: Above-the-line activities take advertisement & promotion expenses to an all-time high
Maruti Suzuki other expenses, 2012-2015 (Rs mn)

	2012	2013	2014	2015
Domestic sales	1,006,316	1,051,046	1,053,689	1,170,702
Net sales (Rs mn)	347,059	426,126	426,448	486,055
Other expenses (Rs mn)	42,177	57,735	59,221	66,431
Advertisement (Rs mn)	2,781	3,536	3,452	4,638
Sales promotion (Rs mn)	1,966	2,179	2,558	2,996
Advertisement (% of sales)	0.8	0.8	0.8	1.0
Promotion (% of sales)	0.6	0.5	0.6	0.6
Advertisement & promotions (% of sales)	1.4	1.3	1.4	1.6

Source: Company

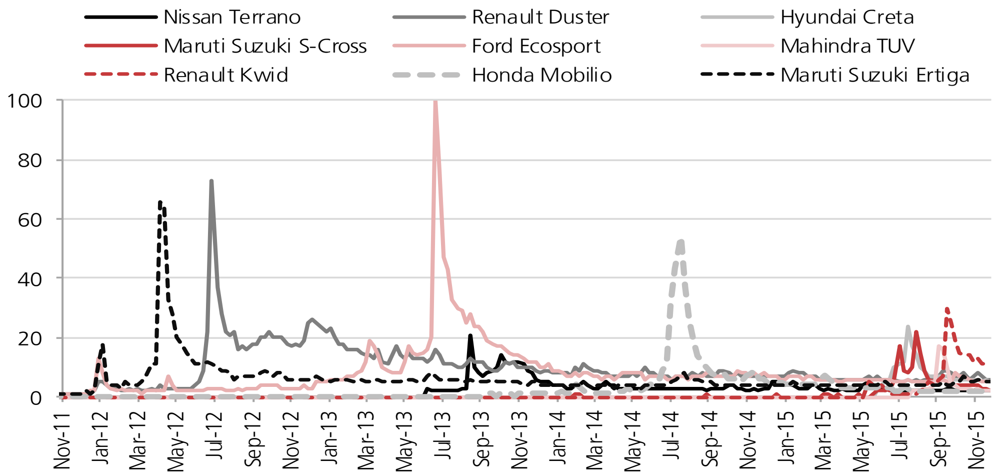
Exhibit 35: Advertising share of Maruti has doubled in the past four years
Ad-share as a proportion of total car advertising (in value terms) (%), calendar year-ends, 2012-2015



Source: TAM, Kotak Institutional Equities

- **Renault Kwid comes a distant second: positioned as a first buyer's utility vehicle.** Exhibit 36 shows Google search volume spikes in some SUV models launched since November 2011. All search volumes are indexed to search volumes of the Ford Ecosport launch. Renault Kwid looks like the second-most successful launch in recent times based on digital buzz captured on Google Trends. The entry-level utility vehicle aggressively priced at ₹0.26 mn will be competing with Maruti Suzuki's offerings like the Alto and Wagon R. The launch is reminiscent of the launch of the XUV500, which made digital curiosity for the entire utility vehicle segment soar in November 2011. A large proportion of the demand has emerged from tier-II and tier-III cities (35% of the first 25,000 bookings).

Exhibit 36: Launch comparison of various utility vehicles; Creta has not scaled the Ecosport level yet
Google Trends search volumes of recently launched passenger utility vehicles in India, 2011-15



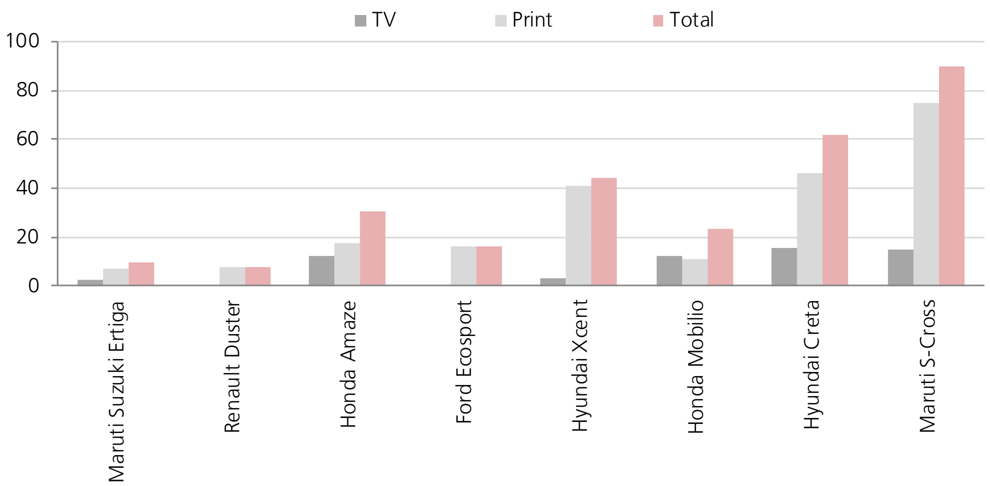
Notes:
(a) Normalized search-share indexed to highest value (Ford Ecosport) captured by the queries compared.

Source: Google Trends

- **Digital curiosity for first-in-class product offerings usually higher.** Ford Ecosport, like the Mahindra XUV500 and the Hyundai Eon, was a market disruptor, creating a new sub-segment altogether. Consumer uptake was evident in search query trends. When the Hyundai Eon was launched, the compact segment saw a 30% spike in search queries. The SUV segment saw a similar phenomenon with searches jumping 25% on the launch of XUV500, a price differentiator in its segment.. The Renault Kwid is carving a niche for itself in the first-time car buyer's segment and could continue to drive digital interest.

- **Hyundai Creta and Maruti S-Cross drew less attention than earlier models.** As can be seen, neither Hyundai Creta nor Maruti S-cross scaled Ford Ecosport's high, which had amassed almost 2X the search-share during its launch. Sifting through advertising spends and volumes for these launches, the lower magnitude of inquiries were not a case of lower advertising budgets. The launch week's advertising spends for both these models exceed that of most launches (see Exhibit 37). Although the Hyundai Creta and Maruti S-cross have registered the same level of search inquiries on Google, the Hyundai Creta is sold out till December based on bookings.

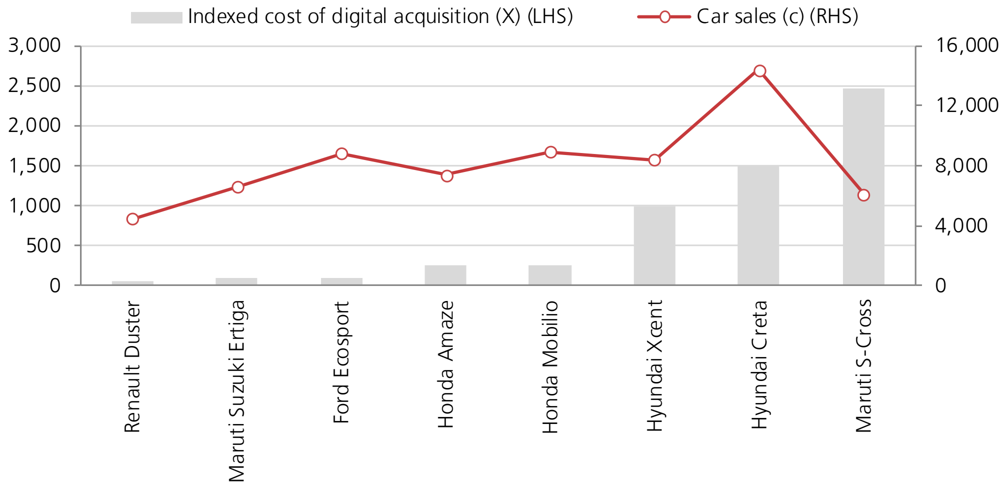
Exhibit 37: Advertisement spends on new car launches consistently heading north
Launch week advertising spends of recent car launches in chronological order (Rs mn)



Source: TAM, Google Trends, Kotak Institutional Equities

- **Digital scorecard: Ertiga, Ecosport and Duster gave the best bang for the buck.** Acquiring search-share is getting more expensive as we saw with recent car launches (see Exhibit 38). Advertising costs for digital inquiries are up 15-25X in the past two years - since the Ford Ecosport launch in June 2013 (as per advertising spends data from TAM) . With the exception of the Hyundai Creta, similar sales volumes were reported for most models in the first two months after the launch. Previous launches were substantially more cost effective at drawing initial inquiries, indicating a fairly subdued car buyer's market currently.

Exhibit 38: Renault Duster, Ertiga and Ecosport have given the best digital bang for the buck
Indexed advertising cost of digital inquiries for recent car launches



Notes:
(a) Digital inquiries are based on search share in the auto segment.
(b) Indexed to Ford Ecosport advertising cost to acquire digital inquiries.
(c) Model sales for the first two months post launch.

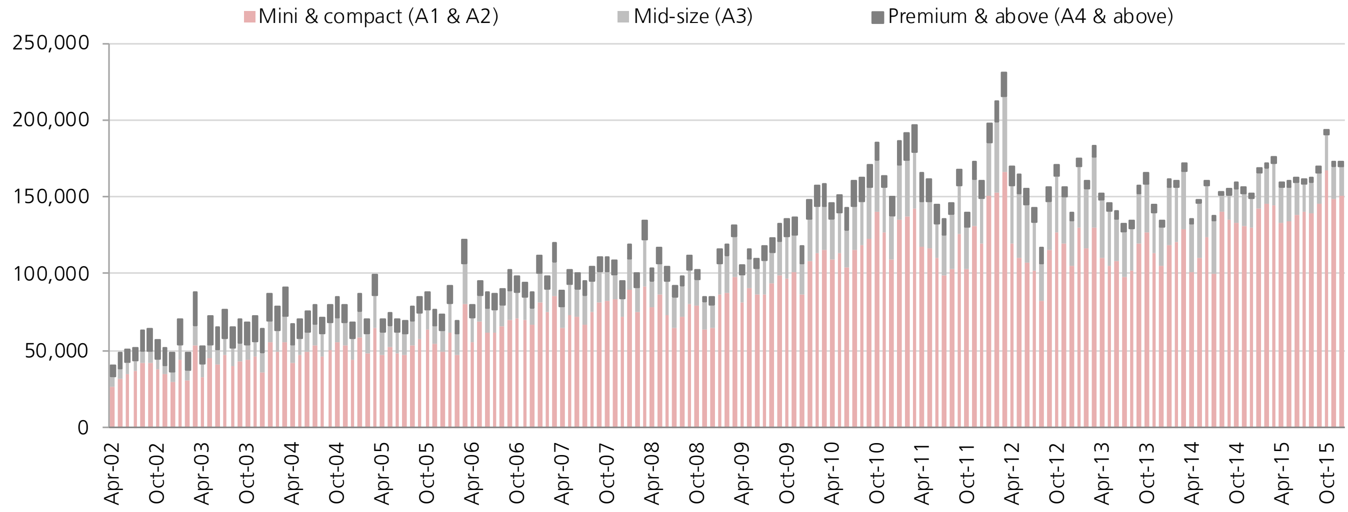
Source: TAM, Google Trends, Kotak Institutional Equities

Maruti rules the market share and mind-share in India

Google Trends mirrors real-world activity for the passenger car industry and gives great insights into Maruti Suzuki, the market leader across most segments.

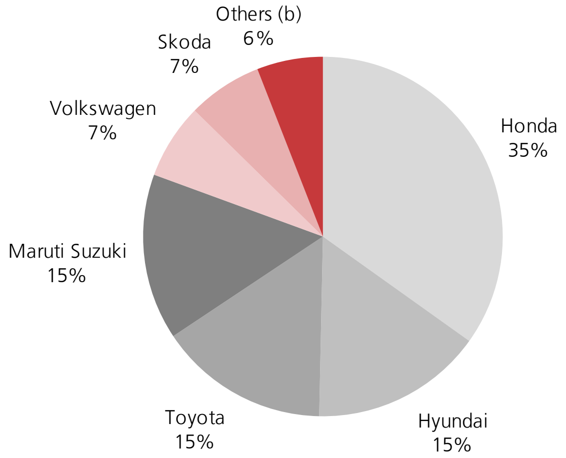
- **Maruti Suzuki rules across the ₹0.4-0.7 mn price range**. More than 97% of the domestic car sales fall in the mini, compact and mid-size segment (see Exhibit 39). In fact, six out of 10 cars bought in India fall in the price range of ₹0.4-0.7 mn. Only 10% of the cars sold are priced above ₹0.7 mn (see Exhibit 40). Maruti is a clear leader in the price band below ₹0.7 mn. Hyundai matches Maruti Suzuki in just two price segments (the ₹0.4-0.5 mn price range and above ₹0.7 mn). Honda controls the price segment above ₹0.7 mn, having ousted Hyundai's from the leaderboard a year ago.

Exhibit 39: Most cars sold fall in the mini and compact segments
Passenger car sales classified into various segments, 2001-15 (in units)



Source: SIAM, Kotak Institutional Equities

Exhibit 40: Honda is a market leader in the passenger car category above Rs0.7 mn
Market share of passenger car sales greater than Rs0.7 mn (% of segment sale), fiscal year-end, 2015

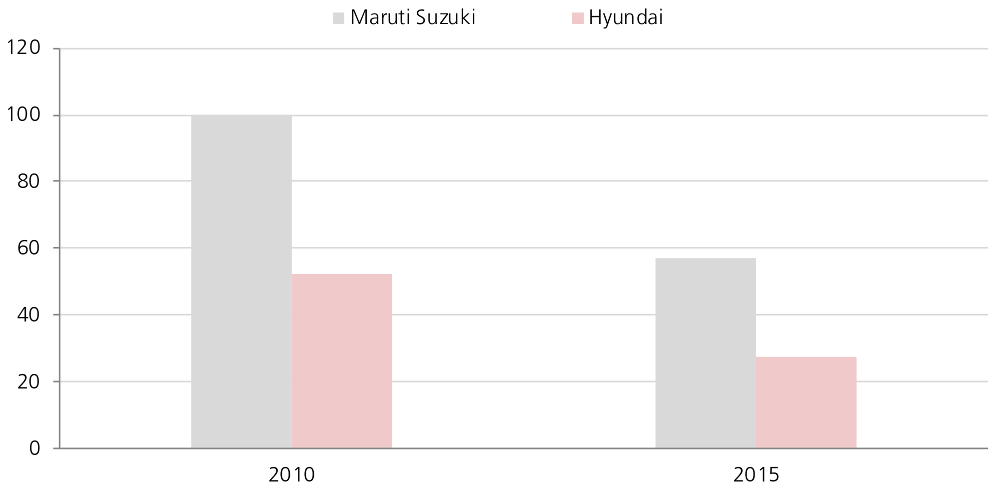


Source: SIAM, Kotak Institutional Equities

- **Maruti Suzuki capitalized on a decade of double digit growth**. Indian passenger car sales have grown at 10% CAGR in the last decade (September 2005-September 2015). With an annual run-rate of almost 2 mn cars a year, India is among the largest passenger car markets globally (in number of units). Two OEMs control more than 75% of the total market share (passenger cars)—Maruti Suzuki and Hyundai Motor Corporation. In fact, more than half the cars sold every month are from Maruti Suzuki.

- **Maruti Suzuki's search-share is substantial but ebbing**. Search data from Google Trends suggests that the search engine mind-share follows the same pattern as market share with the inquiries for Maruti exceeding Hyundai's. Our OEM-wise search trend analysis shows the down-trending of mind-share for most incumbents--especially Maruti. Total automotive search queries have grown by 30% between CY2010 and CY2015 while Maruti Suzuki's mind-share (search-share of car-related queries) has fallen over 25% during the same period. With more than 50 models in the passenger car segment, the Indian car buyer is spoilt for choice. Having said that, Maruti continues to grab mindshare with 25-30% of the total inquiries (see Exhibit 41 and 42). With internet penetrating in rural India increasing, Maruti's share in Google search inquiries is likely to rise again in the coming years.

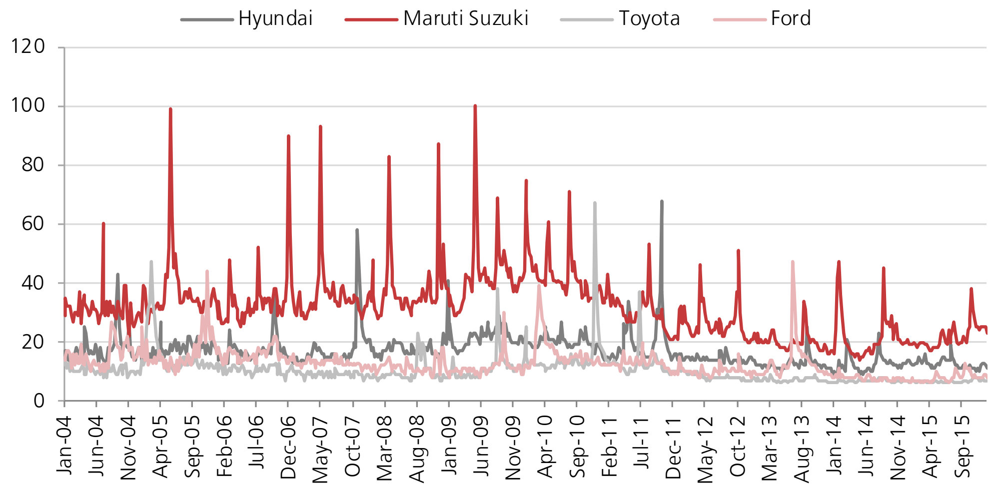
Exhibit 41: Maruti Suzuki has lost more search-share than Hyundai since CY2010
Comparison of Maruti Suzuki and Hyundai Motors search-share trends over the past five years



Notes:
(a) Data normalized to Maruti Suzuki's search-share in January 2010.
(b) Google Trends data used for analysis.

Source: Google, Kotak Institutional Equities

Exhibit 42: The search-share has declined substantially over the past five years
Normalized Google Trends data on leading carmakers in the 'Auto & Vehicles' segment, 2005-15



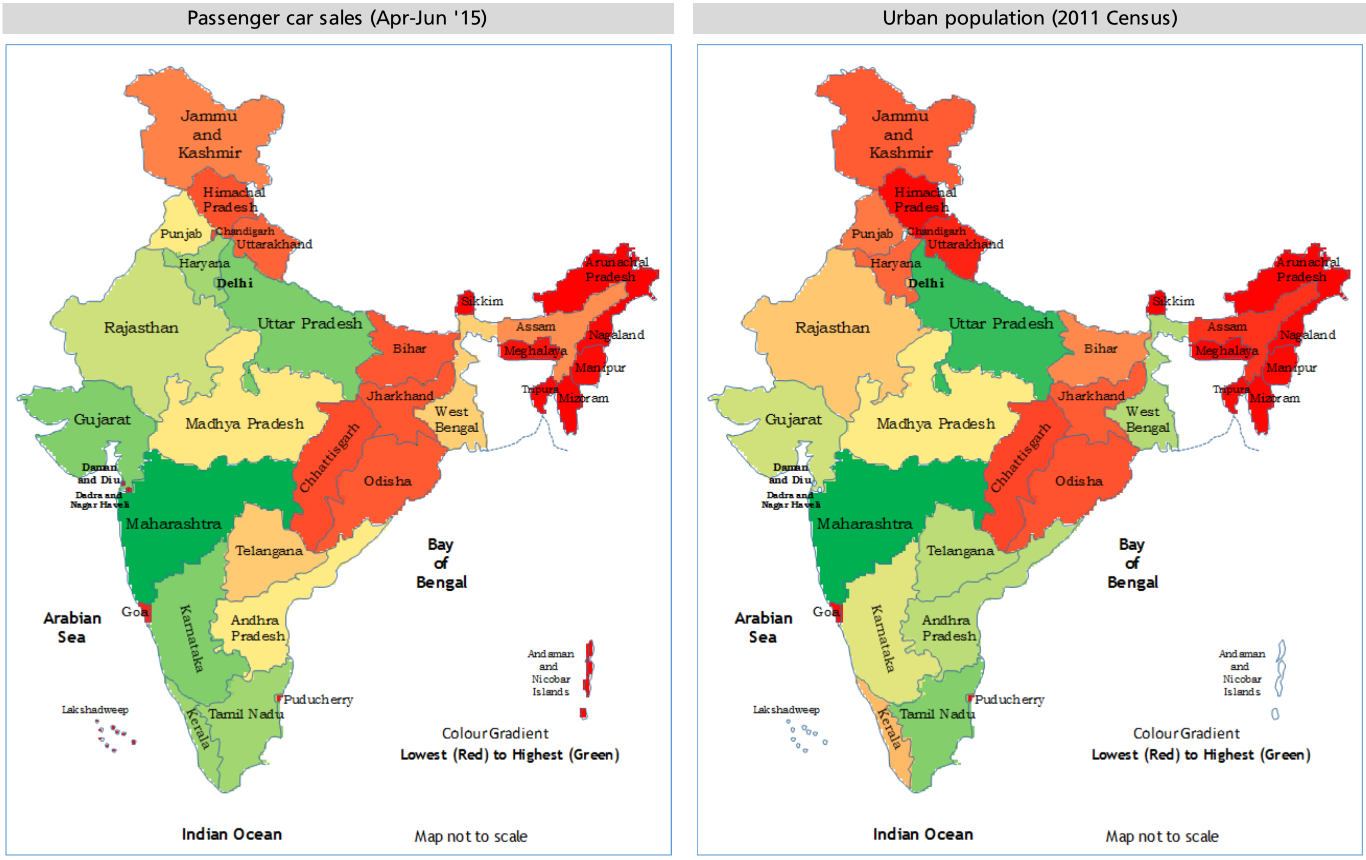
Source: Google Trends, Kotak Institutional Equities

Maruti's rural demand may remain offline due to limited penetration

Passenger car sales remain a predominantly urban luxury. Exhibit 43 shows a spatial break-up of car sales across different Indian states in 2QCY15 (Apr-Jun '15) along with the urban population heat map. Google search inquiries show that Maharashtra, Karnataka and Delhi generating a substantial portion of the car-related search queries and car sales (see Exhibit 44 and 45).

Exhibit 43: The heat map for car sales in 2QCY16 overlap with the urban population of India

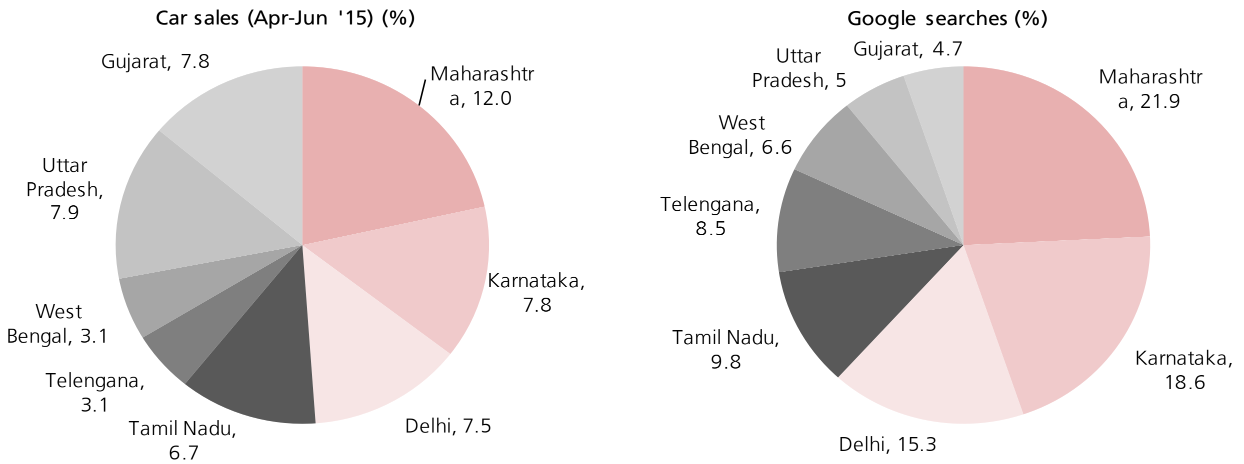
Heat map comparing of car sales (Apr-Jun 2015) and urban population (2011)



Source: Census, SIAM, Kotak Institutional Equities

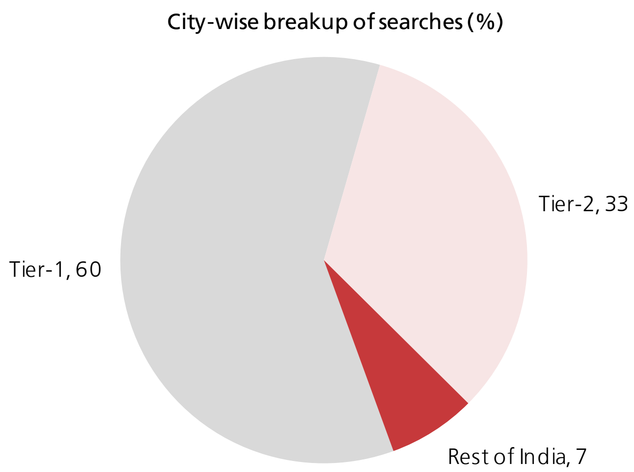
Exhibit 44: Google search inquiries have a proportionally similar spatial distribution as sales; Gujarat remains an anomoly

Comparison of car sales and car searches across various regions in India



Source: SIAM, Google Adwords estimates, Kotak Institutional Equities

Exhibit 45: Tier-1 and Tier-2 cities make up more than 90% of car-related searches
Break-up of car-related search queries across India (% of total searches)



Source: Google, Kotak Institutional Equities

- **Urban-rural divide: Maruti beats urban bias.** Almost seven out of 10 Indians live in rural India. Yet, at least two out of three passenger cars sold by Hyundai and Maruti are in urban India (see Exhibit 46). Only 20% of Hyundai car sales are recorded outside the cities. In comparison, Maruti's sales mix has ~35-40% of the sales coming from semi-urban and rural outlets. With a reach of ~125,000 villages (up from 93,000 villages in FY2014), Maruti is well entrenched and growing its distribution network.

Exhibit 46: Rural sales exceeded 30% of total vehicle sales
Rural sales of Maruti, March fiscal year-ends, 2010-15 (in units)

	Rural sales by Maruti		Outlets
	(units)	(% of domestic sales)	(#)
2010	151,000	17	802
2011	228,000	21	933
2012	245,000	25	1,100
2013	291,000	28	1,204
2014	337,180	32	1,310
2015E	*414,732*	*35*	1,619

Source: Company, Kotak Institutional Equities estimates

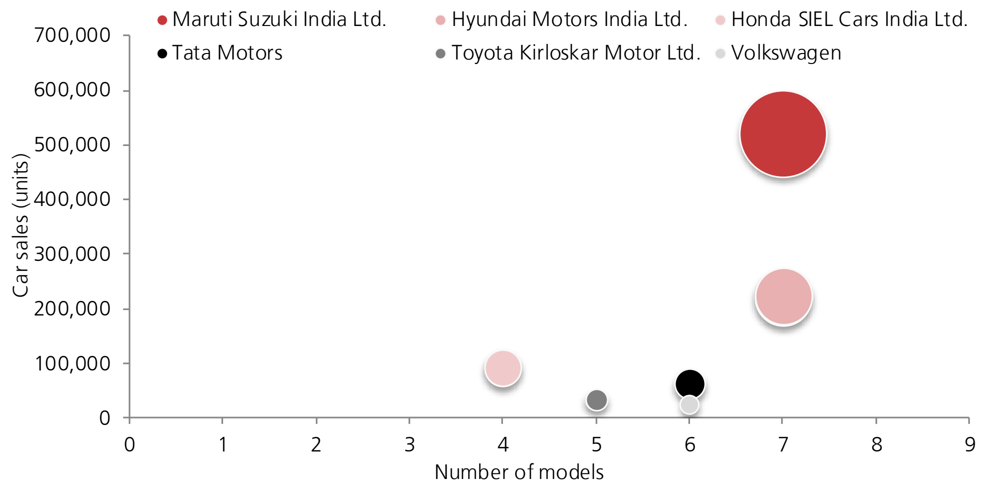
- **Google searches mostly emanate from Tier-1 and Tier-2 cities.** Prominent cities in India generate ~93% of the total search queries indicating the urban connection. Therefore, the mindset of rural India is not yet to be captured properly.

Maruti's average discount up 2X amidst competition

Push-marketing forms an integral part of the OEM's marketing strategy in India. Promotions and offers on cars materially influence consumer decisions in all forms of consumption. As the product's gross value increases, so does the hunt for deals.

- **Spoilt for choice.** The passenger car segment is competitive with 13 OEMs offering over 50 different models. The prominent players have a portfolio of 6-7 models each with an average of 3-4 models (see Exhibit 47). The need for below-the-line activity is imminent.

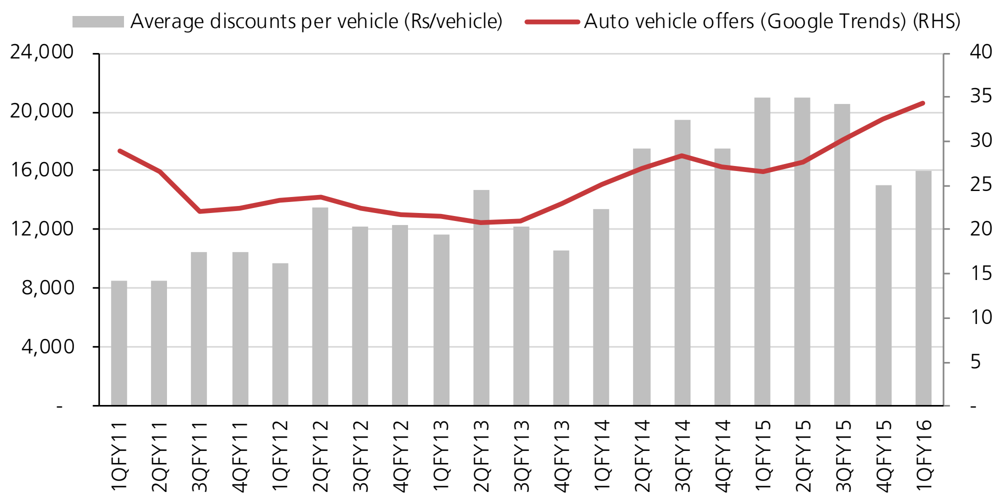
Exhibit 47: Only Hyundai and Maruti offer more than 6 models in the passenger segment
Comparison of car sales, market share and number of models offered, 1HCY15



Source: SIAM, Kotak Institutional Equities

- **Maruti's discounts get bigger and bigger.** Hyundai and Maruti offer a number of promotional schemes like trade-in incentives, cash discounts and add-on benefits. The average discount per vehicle offered by Maruti over the past five years has gone up 2.5X in recent times from ₹8000 to ₹20,000 (see Exhibit 48)

Exhibit 48: Relationship between Maruti discounts and searches for offers quite evident
Comparison of MSIL average discounts and normalized searches for auto vehicle offers, 2010-15



Source: Company, Google Trends, Kotak Institutional Equities

- **Hyundai claims a lower-than-industry discounting strategy in India**. On the other hand, Hyundai claims to offer lower-than-industry average incentives (US$148 versus US$517) implying the growing brand value. Exhibit 49 shows the discounts offered by the two incumbents of various models in 2014. Incentives offered by Hyundai are lower than those offered by Maruti.

Exhibit 49: The average discounts for Maruti were higher than Hyundai
Discount offers for various models of Hyundai and Maruti, 2014

Hyundai Motors		Maruti Suzuki	
Model	Discounts (Rs)	Model	Discounts (Rs)
Eon	NA	WagonR	25,000
Santro	7,000	Alto 800	25,000
		Alto K10	20,000
i10	20,000	Ritz	15,000
i20	15,000	Swift	10,000
Verna	20,000	Swift Dzire	10,000
		Eritga	10,000
Elantra	10,000		

Source: Kotak Institutional Equities

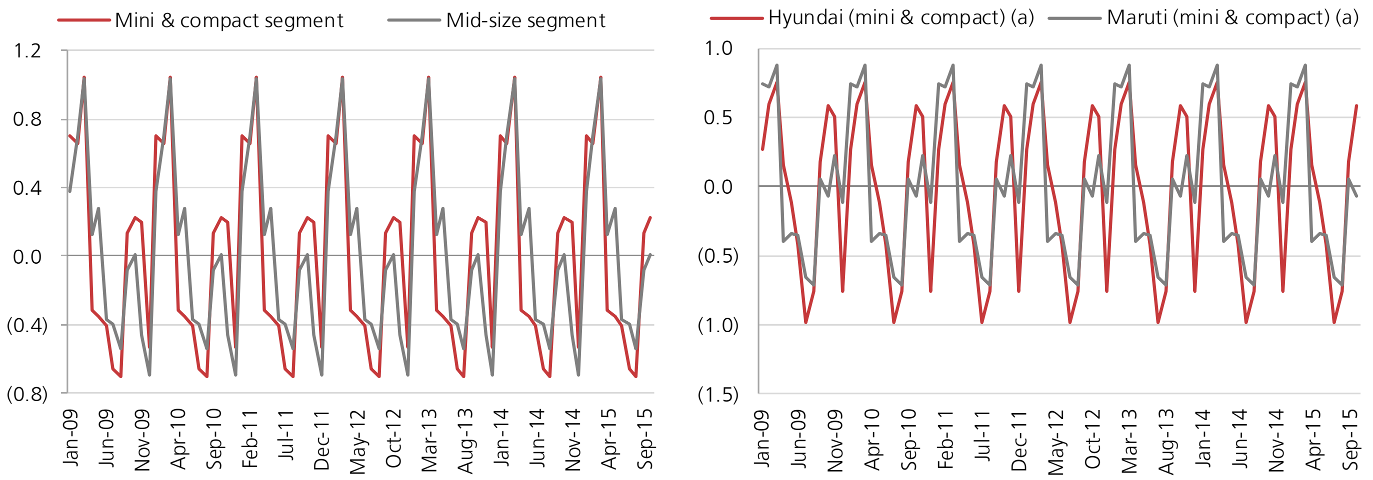
Festival sales: big discounts and aggressive advertising

The pre-festive season lull can be a great time to offer promotions for mid-size passenger cars, a segment showing lower seasonality than mini and compact models. Interestingly, the conversion of inquiries to sale during the festive period is lower than any other period during the year as potential car buyers dither between the many choices. While Maruti's sales-per-query conversion effectiveness drops, Hyundai sees a contrasting uptick in performance.

Also, various car segments exhibit different degrees of seasonality and these vagaries can help understand consumer behavior and marketing effectiveness.

- **Peak buying at fiscal year-end and Diwali.** Festive demand for Hyundai is better than the industry average. Car buying in India sees two seasonal spikes—February-March (F-M) prior to the close of fiscal year and the October-November (O-N) period close to Diwali (see Exhibit 50). Contrary to popular belief, the F-M surge is usually 2X the size of the O-N demand. The mid-size segment shows a much lower seasonal jump near Diwali as compared to smaller segments (mini and compact). Classifying car sales in the mini and compact segment of the two major OEMs shows that the festive season jump of Hyundai is similar to its fiscal year-end spike.

Exhibit 50: Fiscal-close sales spurt exceeds Diwali sales; mid-size segment festive spike lower than smaller segments
Comparison of seasonality between OEMs and segments, 2009-15 (normalized seasonal component)

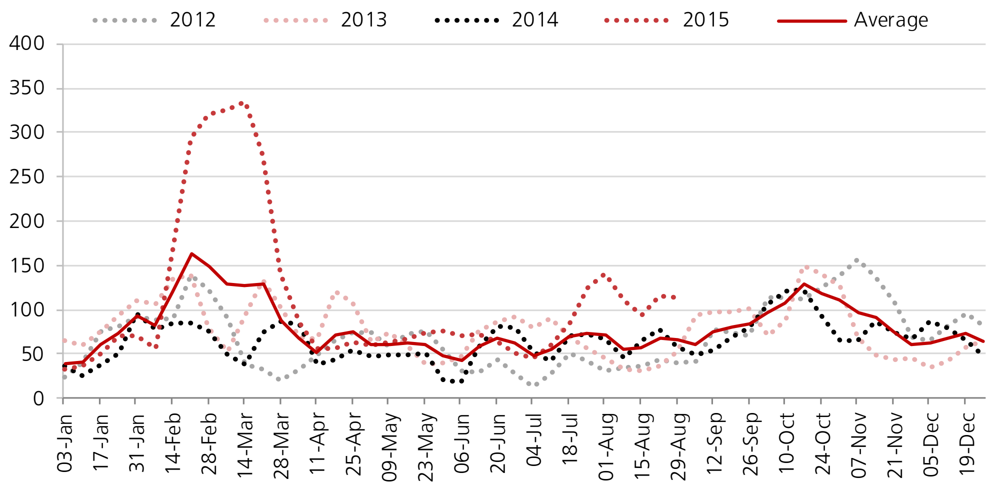


Source: Kotak Institutional Equities

- **Converting search into sale: 20% lower near Diwali.** Auto advertising volumes in print and TV in Diwali pick up to levels seen in the fiscal year-end period (see Exhibit 51 and 52). Notably:

  - Rising advertising spends result in higher TV advertising share in volumes as well (see Exhibit 53).
  - Google search queries regarding OEMs and models also show volume spikes in both.
  - Yet the number of online inquiries required to sell one car is 20% higher in the Diwali season as compared to the fiscal year-end (see Exhibit 54).
  - Maruti Suzuki follows the industry average, but Hyundai is more effective in converting Diwali queries into sales (20% higher than in the fiscal year-end period). Exhibit 55 shows the estimated search inquiries for Hyundai and Maruti Suzuki in the year-end and Diwali periods. Advertising trends in 1QCY15 indicate rising media costs associated with maintaining TV mind-share during events like the Cricket World Cup.

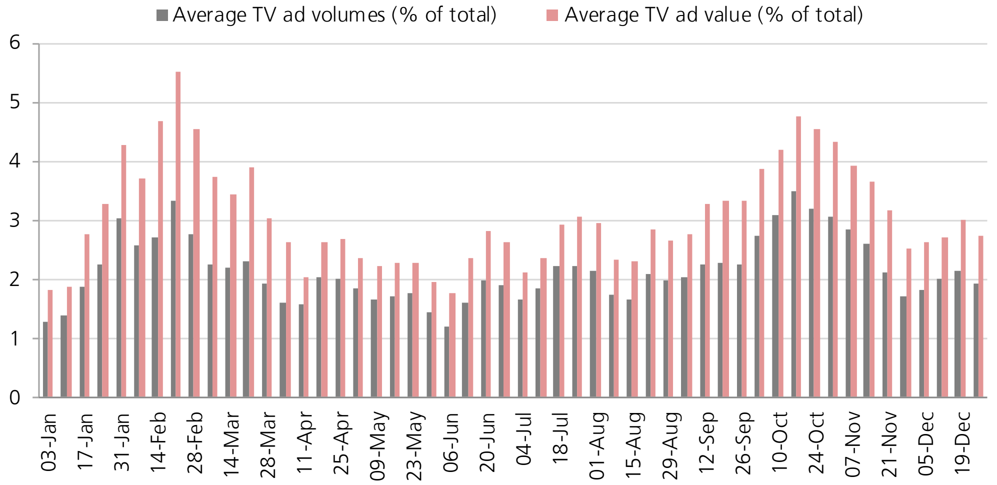
Exhibit 51: The ICC Cricket World Cup in 1QCY15 took advertising spends to recent highs
Weekly TV advertisement spends in value terms, 2012-2015 (Rs mn)



Notes:
(a) TAM data is based on rate card value of advertising.
(b) We assume 80% discount to rate card.

Source: TAM, Kotak Institutional Equities estimates

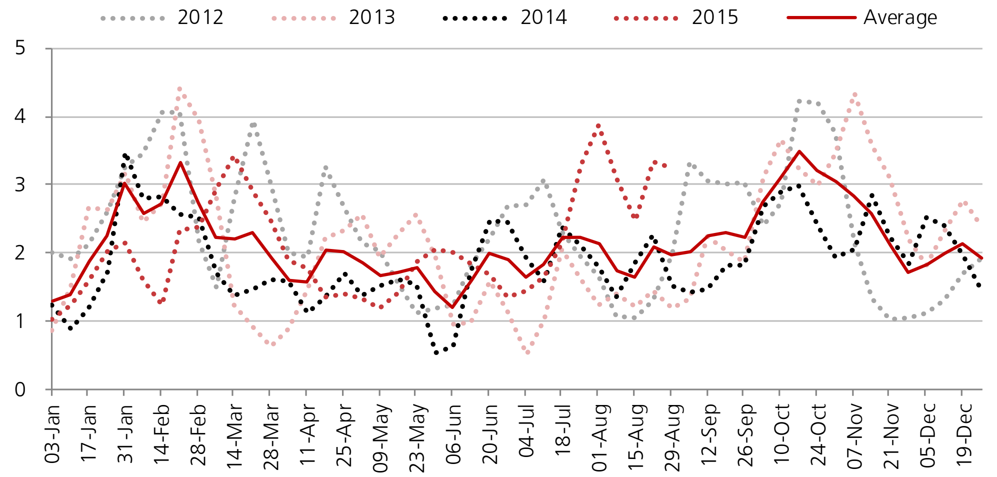
Exhibit 52: Seasonal activity is more than ~60% higher than average advertising
Average advertising as a proportion of total TV advertising volumes and value (2012-2015)



Notes:
(a) Advertising volumes are in seconds and ad spends in Rupees.

Source: TAM, Kotak Institutional Equities

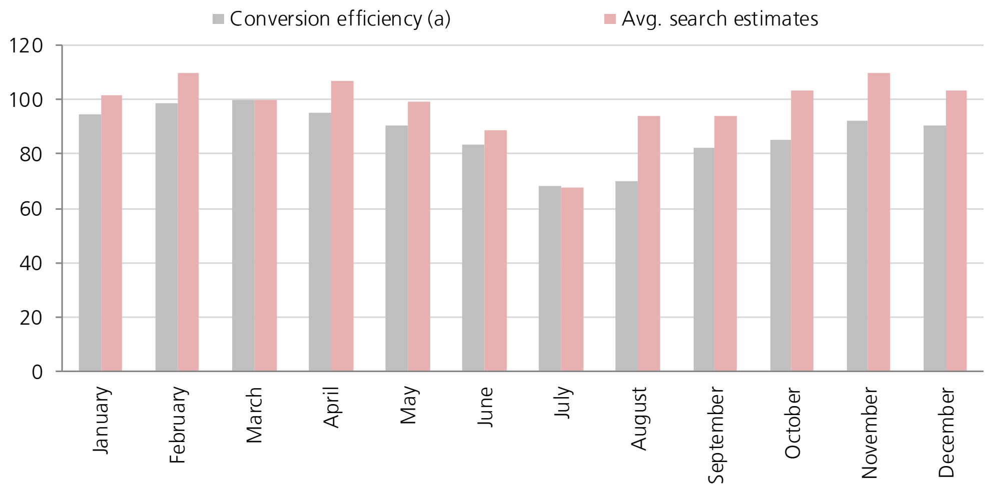
Exhibit 53: Advertising share captured by car makers up to 3% during the car buying seasons
Weekly TV advertisement volume-wise share, 2012-2015 (%)



Notes:
(a) TAM data for TV volumes is based on seconds.
(b) Data available till August 31, 2015.

Source: TAM, Kotak Institutional Equities estimates

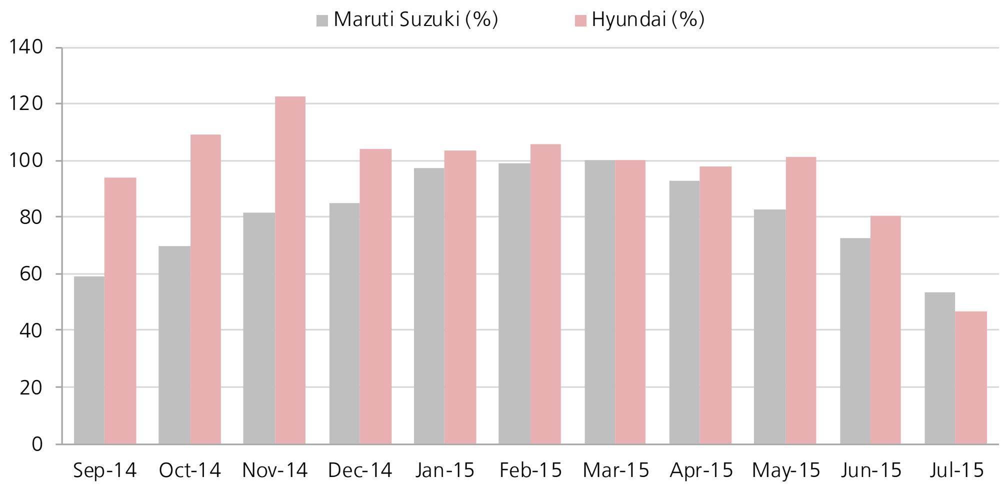
Exhibit 54: The number of conversions per search lower in October than March
Conversion of Google searches to sales for car-related searches (a), September 2014-August 2015



Notes:
(a) Conversion efficiency is calculated as the car sales per estimated search queries.
(b) The data is indexed to the conversion efficiency of March 2015.

Source: Google Adwords estimates, SIAM, Kotak Institutional Equities estimates

Exhibit 55: Conversion efficiency in the festive season is 20% lower for Maruti Suzuki
Conversion of Google searches to sales for Hyundai and Maruti (a), September 2014-August 2015



Notes:
(a) Conversion efficiency is calculated as the car sales per estimated search query.
(b) The data is indexed to the conversion efficiency of March 2015.

Source: Kotak Institutional Equities estimates

CONSUMER QUERIMETRIX: BIG DATA MEETS MACHINE LEARNING

Consumer Querimetrix predicts near-term consumer activity using Google search queries. With an internet population set to cross 300 mn, India has among the world's largest search audiences. The sheer volume of data offers a tremendous opportunity for machine learning techniques to throw up actionable insights.

Staying ahead of the herd with Querimetrix

Consumer Querimetrix derives insights from the digital footprints left by millions of Indian Google search queries daily. Information alone has never been a differentiating factor—how quickly you act upon it is key. For a Formula 1 driver or a high frequency trader on Wall Street, information is the base but timing is everything, faster is better!

Predicting the present—nowcasting real-world activity using Google Trends

Consumer Querimetrix builds on the framework proposed by Hal Varian and Steven Scott for nowcasting economic time series using Bayesian structural time series. The Google Team headed by Hal Varian published the first whitepaper on predicting economic time series using Google search trends in CY2009. The intention of the study was to extend the previously successful 'Flu Trend' study (click here) to real-world economic data. The initial stages of the study showed conclusive evidence that the use of high frequency data like search patterns reduced prediction errors. Since then, the framework has been presented and appreciated by the world's largest central banks (Federal Reserve and ECB).

India is big—in size and potential

The current opportunity and the untapped potential in India is tremendous.

- **The India story: big online and growing.** Home to a population of more than 1.2 bn, India constitutes ~14% of world population. India's internet population of 375 mn exceeds that of the US even though penetration is substantially lower (30% versus 86% in the US).

- **Rural and urban India: poles apart**. Although most Indians reside in rural India, a substantial chunk of the internet population is urban. Therefore, growing online penetration in rural India broadens the opportunity. While it is evident that rural India is using internet, it is possible that there is still not much inquisitiveness to be able to understand and find answers on Google search.

- **Smart India: mobile-first nation** with many accessing the internet for the first time using their smartphones. With more than 250 mn mobile internet users, the digital Indian is always connected. With local handset providers offering feature-filled smartphones at reasonable prices, smartphone penetration will surely see a jump from current levels of 150 mn.

- **Indians sociable online: 5% more than the rest.** Indians are social animals, love entertainment, need to pass their time and so are spending 25% of their internet time on social media. This is 5% higher than world average and indicates the need for Indian corporates to engage with potential customers.

Google searches record human inquiry of our generation real-time

Google is the search engine of choice globally and is the preferred option by most Indians as well. Comscore surveys indicate that Indians are making a monthly average of 94.5 searches compared to a global average of 119.7.

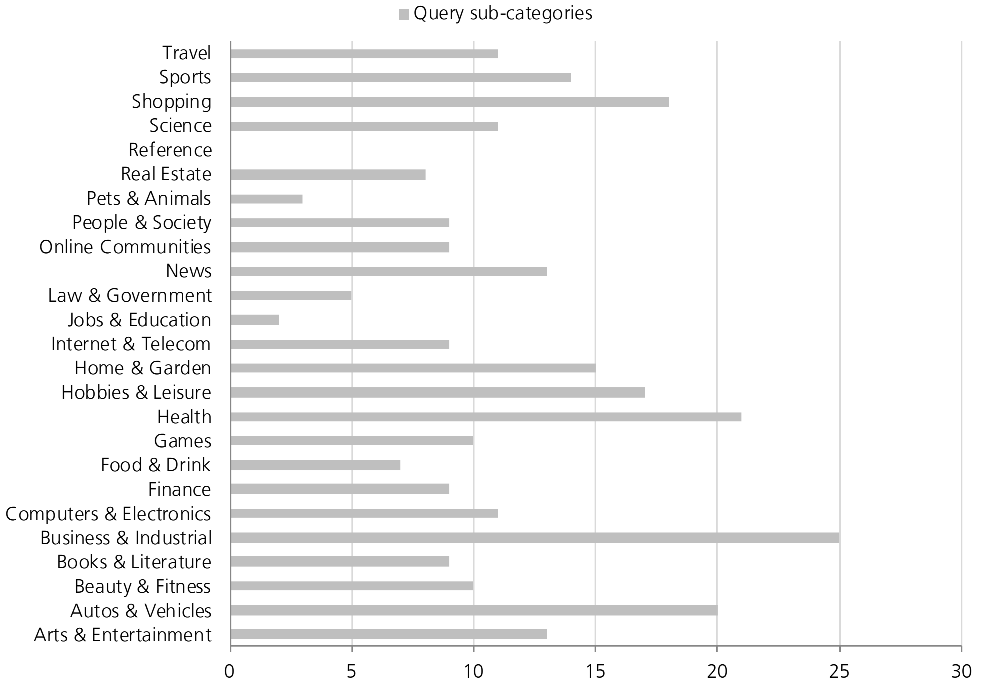
- **Human inquiry = search queries**. With billions of search queries happening on search engines every month, these search engines are capable of digitizing and collecting every human inquiry it processes.
- **Google: preferred search engine**. Google captures 64% of the US search engine market share. In India, nine out of 10 web search queries are made on Google as per comScore (qSearch).
- **India online: one of the largest search audiences in the world.** In March 2013, comScore found India to be the fourth largest search audience after China, US and Japan (source: India Digital Future in Focus, 2013). Since then, India's search audience may have grown further with internet usage showing a compounded annual growth rate of over 30% in the last decade. Although the average per searcher was marginally lower than global figures, the individual lack of curiosity is made up by the sheer number of searchers. Literacy and the English language may possibly be responsible for lower-than-average searches.
- **More than 30 minutes a day spent on web portals**. As per comScore, India made 6.4 bn searches in March 2013. US saw nearly 20 bn queries during the same period.

Analyzing search queries: machine learning makes it possible

Traditional statistical analysis involves rejecting or accepting hypotheses to answer specific questions on well-structured observations. Big data leaves statisticians with highly unstructured data and a particularly 'fat' regression model—where the potential parameters exceed observations! While human judgment can be considered as a filter, future compatibility and the scalability of the derived framework is doubtful.

In the case of Google search queries, machine learning takes the sweat out of analyzing 25 categories with more than 250 sub-categories (see Exhibit 56).

Exhibit 56: The complexity of search classification is visible in the sub-categorization
The number of sub-categories under each broad search category



Source: Google Trends, Kotak Institutional Equities

Nowcasting: time series decomposition and Bayesian inference

Nowcasting comprises the following activities—(1) time series decomposition and (2) Bayesian inference. While time series decomposition assists in focusing on surprises, Bayesian variable selection helps in removing biases caused by human intervention and over-fitting.

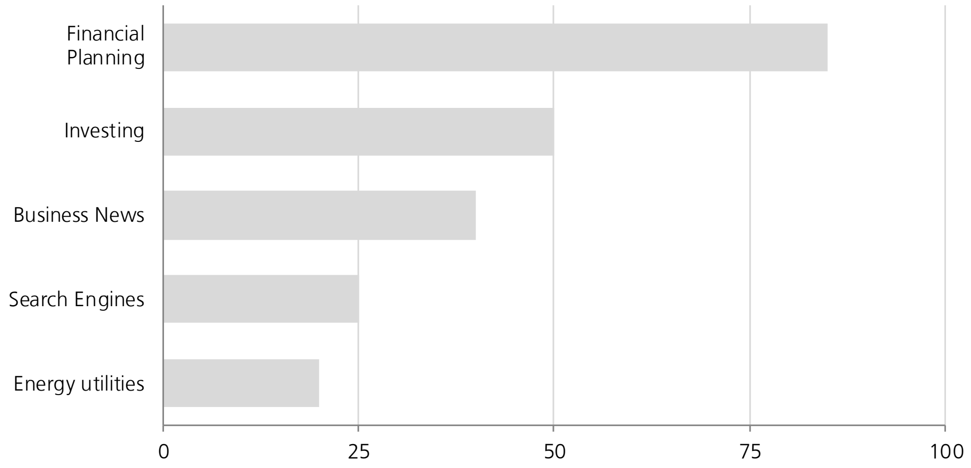
- **Human discretion: compromising objectivity in analyzing big data**—the limitation of the earliest study on variable selection was that choosing predictive factors was left to human judgment. This limited the scope of the study.

- **Automatic selection: more scalable than human intervention.** Variable selection took a leap in credibility and sophistication after two researchers proposed the adoption of a Bayesian approach. This automatically allows for the selection a subset of relevant factors to (1) simplify the prediction model and (2) reduce over-fitting through generalization (Bayesian Variable Selection for Nowcasting Economic Times Series, Scott & Varian, 2012).

- **Model averaging: no more spurious correlations**. The biggest problem with over-fitting a predictive model is spurious correlations. Rather than using the best-fit model to predict future expectations, the Bayesian model averaging takes results from all the models in the sample to predict future expectations. This gives us, on a platter, the model inclusion probability of each potential predictor and its effect on the prediction (based on its coefficient).

- **Financial planning searches give an indication of US consumer sentiments.** The key results derived in the rather radical paper on Bayesian selection was that US consumer sentiment could be nowcasted using the following search category trends—(1) financial planning, (2) investing, (3) business news, (4) search engines and (5) energy utilities. Exhibit 57 shows the probability of including the categories as predictors.

Exhibit 57: Financial planning, investing and business news assist in predicting consumer sentiments
Top five predictors for US consumer sentiment along with the probability of model inclusion (%)



Source: Predicting the Present (2012), Google

Causality and correlation: Fragile—handle with care

Digital companies are learning to work with correlations rather than fretting over causation. This makes sense simply because in contemporary big data, sample sets encompass a larger portion of the universe they represent. In the current study, we take care of over-fitting and identify Google search categories which exhibit a strong relationship with real-world activities. The idea behind 'nowcasting' over 'forecasting' is that correlations can be as useful as causation when the time horizon of prediction is smaller.

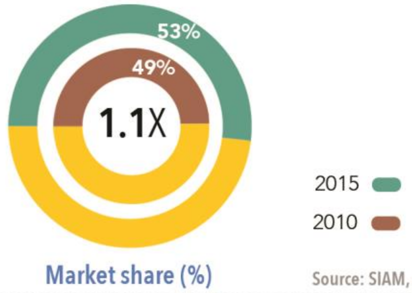
One should also be careful in deriving insights as well. X is related to Y does not necessarily mean that X is dependent on Y. For example:

- A strong relationship between sales numbers of a car model X and search queries for a competing model Y should not be construed as the dependence of X sales on inquiries for Y.
- Rather, one may assume that model Y is generally a part of the consideration set for a car buyer who buys X.

QUICK TAKES: MARUTI SUZUKI

Maruti Suzuki market-share in passenger car (%), 2010-15

MARUTI HAS MAINTAINED ITS STRONG-HOLD DESPITE NEW ENTRANTS



Source: SIAM, Kotak Institutional Equities

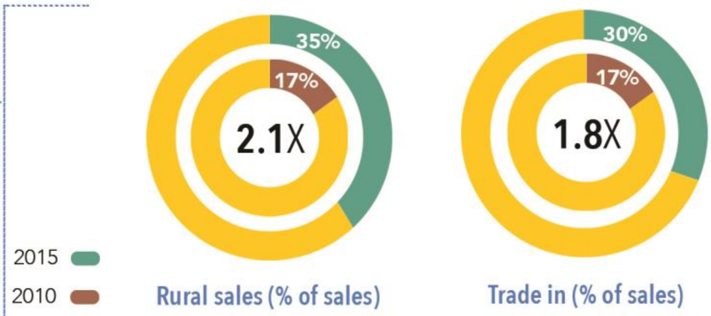
Comparison of domestic sales and outlets for Maruti, 2010-15

SALES OUTLETS GREW FASTER THAN VEHICLE SALES TO INCREASE REACH

Source: Company

Sales mix classified into rural sales and trade-ins (%), 2010-15

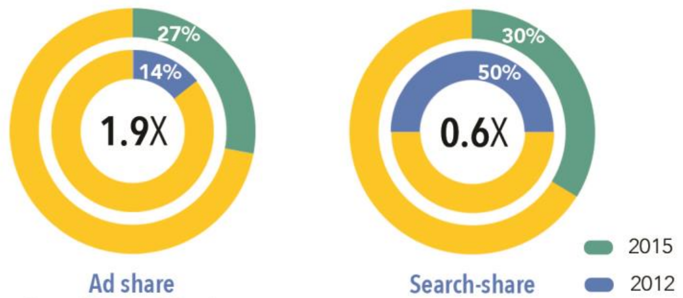
THE FOCUS WAS ON RETAINING LOYAL CUSTOMERS & CATERING TO RURAL DEMAND



Source: Company, Kotak Institutional Equities

Comparison of Maruti Suzuki's search-share and tradition media ad-share (%), 2012-15

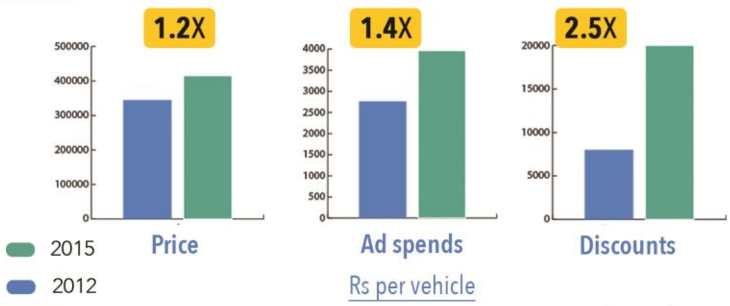
YET, SEARCH-SHARE HAS DROPPED DESPITE TRADITIONAL MEDIA SPENDS DOUBLING



Source: TAM, Google Trends

Average marketing costs and sales realization for Maruti (Rs. per vehicle), 2012-15

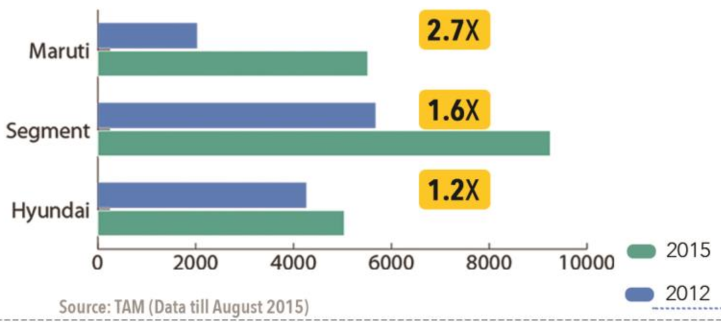
MARKETING SPENDS HAVE RISEN FASTER THAN UNIT PRICES



Source: Company

Print and TV advertising spends in the passenger car segment (Rs. per car), 2012-15

COMPETITION EVIDENT AS MARUTI AD-SPENDS GREW MUCH FASTER THAN SEGMENT



Source: TAM (Data till August 2015)

NOTES

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Consumer Querimetrix Vol 1.1 January 2016

Special Acknowledgement:
Vikas Agnihotri,. Director, India Sales, Google India
Sudarshan Sarma, Head of Industry (Automotive), Google India

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