Zachary MARIANI

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**Coffee Market TAM Assignment**

**Methodology:** I attempt to size the market for coffee and appliances as is directly relevant to Keurig. Throughout this analysis, I broadly excluded from consideration the impact of coffee away from home (i.e., at office, at a coffeeshop, or in hotels). Keurig claimed in a 2018 Investor Presentation that it had 800k machines in hotels which was immaterial compared to 40M+ machines at home. Given the difficulty estimating the size of the away from home consumption market, and the lack of attention it gets from management and investors, it is abstracted away. This may be a large blind spot in this analysis particularly as return-to-office trends may accelerate. The excel has many sources linked for reference.

**Keurig Machines:**

**Top-Down:** Analysis begins by breaking US HHs, (the sole assumed purchaser of machines) into HHs with or without machines. We then assume that no existing HHs that currently do not have a machine would add a machine, given that the market is very mature, supported by -5.2% unit volume decline YoY in the last quarter. We then estimate a replacement rate for coffee machines and sensitize. From there, we have the demand from existing HHs. We estimate using new US HHs with an uptake rate of roughly equivalent (~80%). This gives us the annual number of machines purchased by HHs as ~27.2M. We then assume that Keurig holds a constant market share of at home machines (as presented in their 2021 Investor Day Presentation, ’21 IDP), apply an average cost of the machine, a retailer margin, and arrive at a market of ~1,165M. In the most recent FY, KDP was at 79% of this estimated TAM – implying limited upside and room to grow. [Figure 1](#fig1) implies that the appliance market is mature as revenue is roughly constant YoY in dollars and as a percentage of total coffee revenue.

**Bottoms-Up:** Analysis begins with the total number of US HH drinking coffee weekly at home split into Keurig Owners and non-Keurig owners, - as presented in ’21 IDP. We then assume a replacement rate for current owners and a conversion rate for non-Keurig owners. NB: this assumes the same replacement rate for Keurig machines and non-Keurig machines (an assumption which may be further explored). We let the conversion rate from non-Keurig machine owners be zero given that brewer volume was down 5.2% annually in their Feb 2023 10k. I interpret this to mean that they have fallen below replacement (i.e. when people’s Keurigs become dysfunctional they do not replace them 100% of them time). This analysis excludes consideration of the 2 MM or so new HHs added to the US every year (given immateriality and risk of becoming too similar to Top-Down approach). Finally, we apply an average cost of a machine and a retailer margin to arrive at a TAM of 945M. KDP was at 98% of this TAM last quarter, implying that (1) the TAM may be too low, and/or (2) the market is very mature.

**Keurig Pods:**

**Top-Down:** Analysis begins with the total US population, assumes that no children drink coffee, and that 70% of the adult population are coffee drinkers (see Excel for citation). We do not attempt to differentiate coffee consumption profiles by age and demographics although the NIH study does. This implies ~178M US coffee drinkers. Then, we assume that 88% of them drink coffee at home (from the Keurig ‘21 IDP, this number feels too high to me, and is likely worth further exploration). We then assume that 33% of these people have a Keurig at home, from the Keurig ‘21 IDP, and *that ~45% of these people are using that Keurig in lieu of a different coffee maker. This is a very important assumption which has little justification and needs more research.* The NIH has a rather robust study which says that of coffee drinking adults, they on average, drink 1.9 cups / day (roughly in the ballpark of other reports as well), and in all, this implies a total market of ~44M cups drank total, a day, at home, with Keurig. We then let revenue per pod be $0.60 (from the Bernstein report, and AMZN, WMT, and Costco websites), apply a retailer margin of 50%, and get a total TAM of 4,769M. KDP is currently at 79% of this TAM. This analysis is highly sensitive to the number of cups drank per day assumption and the percentage of population who use their Keurig to make coffee rather than another machine. It is likely that KDP themselves has a quality estimate (given that their machines are Wi-Fi enabled, and the number of cups per day in the NIH study is measured with a high degree of accuracy) of the percentage of people using their machines versus other machines. However, I have not been able to find this information.

**Bottoms-Up:** Analysis begins with the current number of machines that KDP says are in US HHs, 45M as of ’21 IDP (NB: we ignore hotels and offices, as discussed above). From there, we assume that neither 0% of inactive users become active again nor that any current active users become inactive. This is a large assumption which is quite unjustified – all I could find here was anecdotal evidence (i.e. customer reviews, Reddit, blog posts, etc.) and thought that extrapolating would be not useful. Next, we then assume that 80% of these HH are ordering weekly (data which KDP would likely have and does not seem to share publicly). We assume the number of pods they are ordering roughly based on the number of coffees the average person drinks, the average HH size, and the percentage consumed at home with Keurig. We then get to 15,520M pods ordered per year. From here, we apply a cost per pod and a retailer margin to get to 4,656 as our TAM. KDP’s pod revenue is currently at 81% of this TAM. This analysis fails to explicitly include the share of at home pod market going to Keurig instead of its competitors, such as Nestle’s Nespresso. It also implicitly assumes that nearly all US HHs are aware of Keurig – KDP ‘21 IDP claims that ~10% of US HHs are not aware of Keurig.

**Resource Constraint:** Analysis begins with the USDA’s estimate of global coffee produced between both Arabica and Robusta (we make no distinction between the two – this may be very ill-informed). We then use a roast weight reduction of 0.77 (i.e. 23% of the weight of the grown coffee beans is water that evaporates during roasting (implies all coffee beans must be roasted)). We then use 18 grams of roasted coffee / cup of coffee, (check Excel for citation) to arrive at 447B cups / year globally. The USDA estimates that 16% of consumption happens in the US, we use 88% at home, as per KDP ‘21 IDP, and assume that KDP has 50% of that market (again estimated from KDP’s ’21 IDP) to arrive at 31B Keurig coffees per year. We assume that each pod only makes one cup of coffee, $0.60 per pod, and 50% retailer margin to get that the TAM is 9,463M. KDP is currently at 40% of this TAM. It aligns with intuition that the % of TAM that KDP is at should be lower for pods than it is for machines. Given that the machine penetration is already quite high, 45M HHs, and revenue presented in [Figure 1](#fig1) as discussed above, it seems that appliances are a very mature business. *Where KDP seems to be losing is from people owning a Keurig but opting to not use it to make their coffee.* This makes sense when there are many different options, switching costs are extremely low (drip coffee makers can be as low as $5), and the per cup cost of ground coffee is about $0.11 according to Bernstein while closer $0.60 for a K-Cup.

**Considered Alternatives:** I attempted to explore production capacity at KDP itself which proved too challenging. Given management’s discussion of the Spartanburg, SC facility, I tried to back out the increase in production capacities which may be attributable to this facility. It is a ~350M investment which will create [~500 jobs](https://www.goupstate.com/story/news/2020/08/18/keurig-plant-spartanburg-sc-construction-delayed-because-covid-19/3391122001/). I looked on public SC government websites to try to find information about why the completion of the project has been so delayed (it has been going on for 5+yrs, delay publicly attributed to Covid). I was also unable to find helpful reference points. In an investor presentation on 2018/03/20, Keurig informs investors that they have seven distribution centers, but I was fearful to use this given the inherent possibility of supply chain reconfiguration, post-merger changes, synergies, etc. I think that more research into the Spartanburg facility and its associated delays, costs, and potential benefits might provide further insight.

**Figure 1: Appliance Revenue vs. Coffee Revenue**

**Figure 2: Keurig Revenues as a Percentage of Estimated TAM**

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| **Keurig Revenue as a Percentage of Estimated TAM** | | |
|  | **Pods** | **Machines** |
| **Top-Down** | 79% | 79% |
| **Bottoms-Up** | 81% | 98% |
| **Capacity** | 40% |  |
|  |  |  |
| **Avg** | 67% | 88% |