**OPENING THE UMBRELLA:**

**THE EFFECTS OF REBRANDING MULTIPLE CATEGORY-SPECIFIC
PRIVATE-LABEL BRANDS TO ONE UMBRELLA BRAND**

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Web Appendix

Web Appendix A

Potential drivers of the order in which categories are rebranded

|  |  |  |
| --- | --- | --- |
|  |  **SPAR (N=53)** |  **Attent (N=47)** |
| **Variable** | **HR** | **z** | ***p*** | **HR** | **z** | ***p*** |
| **Category importance to the retailer** |  |  |  |  |  |  |
|  Category sales growth | .491 | -.757 | .449 | .684 | -.248 | .804 |
|  NB share | .670 | -.872 | .383 | .805 | -.358 | .720 |
| **Focal PL importance to the retailer** |  |  |  |  |  |  |
|  Focal PL share | 1.283 | .438 | .661 | 1.221 | .304 | .761 |
|  Focal PL sales growth | 1.562 | .898 | .369 | .708 | -.391 | .695 |
|  Focal PL profitability | 1.082 | .132 | .895 | .824 | -.046 | .963 |
| **Focal PL positioning vis-à-vis NBs** |  |  |  |  |  |  |
|  Focal PL-NB price differential | 1.010 | .023 | .981 | .789 | -.505 | .614 |
|  Focal PL-NB price-promotions differential | 1.069 | .576 | .565 | .958 | -.289 | .772 |
|  Focal PL-NB assortment-size differential | .616 | -.799 | .424 | .861 | -.157 | .875 |
| *Notes:* | HR = hazard ratio; PL = private label; NB = national brand. Variables are operationalized as follows: Category (focal PL) sales growth is measured as the average of the first difference of log-transformed category (focal PL) sales. NB (focal PL) share is the average market share of NBs (focal PLs) in a category. Focal PL profitability is the average gross margin of the focal PL in a category, as measured by the difference of retail and wholesale price, multiplied by its sales volume. The marketing-mix related variables are operationalized as the average of the ratio of focal PL price (price promotions or assortment size) to NB price (price promotions or assortment size). All averages are taken over the 52 weeks leading up to the rebranding of the first category and all variables without negative values are log-transformed. |

Web Appendix B

AVERAGE CORRELATIONS ACROSS PRODUCT CATEGORIES

**Panel A. SPAR**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Variable** | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
| (1) | Sales |  |  |  |  |  |  |  |
| (2) | Price | .127 |  |  |  |  |  |  |
| (3) | Price promotions | -.006 | -.032 |  |  |  |  |  |
| (4) | Assortment size | -.174 | -.081 | .009 |  |  |  |  |
| (5) | Banner advertising | -.022 | .024 | -.024 | .084 |  |  |  |
| (6) | Trend | -.030 | .013 | .011 | .062 | .060 |  |  |
| (7)  | Trend squared | -.010 | .051 | -.033 | -.059 | .226 | .000 |  |

**Panel B. Attent**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Variable** | (1) | (2) | (3) | (4) | (5) | (6) |
| (1) | Sales |  |  |  |  |  |  |
| (2) | Price | .051 |  |  |  |  |  |
| (3) | Price promotions | .027 | -.097 |  |  |  |  |
| (4) | Assortment size | -.236 | -.043 | .001 |  |  |  |
| (5) | Trend | .046 | .003 | -.012 | .346 |  |  |
| (6)  | Trend squared | .027 | .065 | -.017 | .008 | .000 |  |
| *Notes*: Values represent correlations for the rebranded PL tier across product categories. The trend squared variable has been orthogonalized, as discussed in Footnote 5 of the main text.  |

Web Appendix C

Parameter Estimates of the Difference-in-Differences Model for Colruyt

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| --- | --- | --- |
| **DV:** Sales ($lnS\_{i,t}$) | **ParametersInvolved** | **Parameter Estimates**a |
| **N = 22,838** |
| **Variable** |  | **Control Group** | **Colruyt’s Deviation from Control Group** |
| Intercept | $$β\_{1,i}$$ | 9.881 | \*\*\* |  |  |
| Trend | $$β\_{2,i}$$ | .001 | \* |  |  |
| Trend2 | $$β\_{3,i}$$ | .000 |  |  |  |
| Price | $$β\_{4,i}$$ | -.053 |  |  |  |
| Price promotions | $$β\_{5,i}$$ | .017 | \*\*\* |  |  |
| Assortment size | $$β\_{6,i}$$ | .343 | \*\*\* |  |  |
| Treat | $$β\_{1,i}^{treat}$$ |  |  | -8.545 | \*\*\* |
| Treat × Trend | $$β\_{2,i}^{treat}$$ |  |  | -.000 |  |
| Treat × Trend2 | $$β\_{3,i}^{treat}$$ |  |  | -.000 |  |
| Treat × Price | $$β\_{4,i}^{treat}$$ |  |  | -.185 | \* |
| Treat × Price promotions | $$β\_{5,i}^{treat}$$ |  |  | .003 | \* |
| Treat × Assortment size | $$β\_{6,i}^{treat}$$ |  |  | .118 |  |
| Post | $$β\_{1,i}^{post}$$ | -.189 | \*\*\* |  |  |
| Post × Trend | $$β\_{2,i}^{post}$$ | -.003 | \*\*\* |  |  |
| Post × Trend2 | $$β\_{3,i}^{post}$$ | -.000 | \* |  |  |
| Post × Price | $$β\_{4,i}^{post}$$ | -.013 |  |  |  |
| Post × Price promotions | $$β\_{5,i}^{post}$$ | .015 | \*\*\* |  |  |
| Post × Assortment size | $$β\_{6,i}^{post}$$ | -.021 |  |  |  |
| **Treat × Post** | $$β\_{1,i}^{rebr}$$ |  |  | .733 | \*\*\* |
| **Treat × Post × Trend** | $$β\_{2,i}^{rebr}$$ |  |  | .004 | \*\* |
| **Treat × Post × Trend2** | $$β\_{3,i}^{rebr}$$ |  |  | -.000 | \* |
| **Treat × Post × Price** | $$β\_{4,i}^{rebr}$$ |  |  | .272 | \*\*\* |
| **Treat × Post × Price promotions** | $$β\_{5,i}^{rebr}$$ |  |  | -.018 | \*\*\* |
| **Treat × Post × Assortment size** | $$β\_{6,i}^{rebr}$$ |  |  | -.154 | \*\* |
| Endogeneity correction termsb | 🗸 |  |  |  |  |
| Control variablesc | 🗸 |  |  |  |  |
| \* *p* < .10, \*\* *p* < .05, \*\*\* *p* < .01 (two-sided)a We only report parameter estimates for the focal PL tier. The reported values refer to the weighted average across product categories. The weight for $β$ is the inverse of its standard error.b For Colruyt, no wholesale price data are available. We use the average wholesale price within each PL tier and product category of SPAR and Attent as an instrumental variable. If no one-to-one match in product categories between Colruyt and the Dutch cases was available, we took the average value of the (higher-level) product class in the other country. In line with van Heerde et al. (2013), we distinguish between five product classes (dairy food, non-dairy food, beverages, household care, and personal care).c Rather than eight national-holiday dummy variables, as for SPAR and Attent, we include ten national-holiday dummy variables to capture all major Belgian public holidays.  |

Web Appendix D

RESULTS OF ROBUSTNESS CHECKS

|  |  |  |  |  |  |
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|  | **Focal Model** | **AlternativeOperationalization** | **Post-Promotion Dip** | **Cross-Tier Effects** | **Alternative Trading Zone** |
|  |  |  | **5th/95th perc.** | **10th/90th perc.** |  |  |  |
| **SPAR** | N = 26,145 | N = 25,953 |
| Intrinsic brand strength | .365 | \*\* | .260 | \*\*\* | .207 | \*\*\* | .478 | \*\* | .444 | \*\*\* | .233 | \*\*\* |
| Marketing effectiveness |  |  |  |  |  |  |  |  |  |  |  |  |
| Price | .537 | \*\*\* | .552 | \*\*\* | .549 | \*\*\* | .607 | \*\*\* | .561 | \*\*\* | .738 | \*\*\* |
| Price promotions | -.027 | \*\*\* | -.024 | \*\*\* | -.024 | \*\*\* | -.027 | \*\*\* | -.026 | \*\*\* | -.020 | \*\*\* |
| Assortment size | -.423 | \*\*\* | -.430 | \*\*\* | -.428 | \*\*\* | -.496 | \*\*\* | -.436 | \*\*\* | -.311 | \*\*\* |
| **Attent** | N = 23,490 | N = 23,489 |
| Intrinsic brand strength | .202 | \*\*\* | .144 | \*\*\* | .106 | \*\*\* | .229 | \*\*\* | .201 | \*\*\* | .141 | \*\*\* |
| Marketing effectiveness |  |  |  |  |  |  |  |  |  |  |  |  |
| Price | .644 | \*\*\* | .646 | \*\*\* | .655 | \*\*\* | .697 | \*\*\* | .667 | \*\*\* | .479 | \*\*\* |
| Price promotions | -.006 | \*\*\* | -.007 | \*\*\* | -.008 | \*\*\* | -.005 | \*\*\* | -.007 | \*\*\* | -.007 | \*\*\* |
| Assortment size | -.291 | \*\*\* | -.293 | \*\*\* | -.289 | \*\*\* | -.295 | \*\*\* | -.282 | \*\*\* | -.195 | \*\*\* |
| \* *p* < .10, \*\* *p* < .05, \*\*\* *p* < .01 (two-sided) |