Annual sales of store brands and retailer introductions of new store brands have grown quickly in recent years. We address retailers’ product assortment decisions (in terms of store and national brands) and related pricing decisions at two competing retailers, along with pricing decisions of a manufacturer of a national brand product. Each retailer can offer the national-brand product and a competing store-brand product in the same category. We model the competitive dynamics via a manufacturer-Stackelberg game. The national brand manufacturer first sets a wholesale price (the same for both retailers) and then the retailers engage in a Nash pricing game for the product(s) they choose to carry. Finally, customers, who are heterogeneous with respect to both their loyalty to the retailers and their willingness to pay per unit of quality, decide whether and what to purchase.

In our first model, we consider a scenario in which the quality levels of the store brands are fixed and derive conditions in which the retailers offer only one of the products or both. We also characterize the equilibrium prices. In particular, we show how the national brand manufacturer’s wholesale price depends upon the quality levels of the store-brand products. We explore the effects of customer loyalty and differential unit variable costs (as a function of quality) for the two store brands on equilibrium characteristics. In our second model, one of the retailers has an existing store brand whose quality level is fixed in the short run. The other retailer must choose the quality of the store brand that it plans to introduce, and the parties subsequently engage in a national-brand-Stackelberg pricing game. We characterize the optimal quality level for the newly introduced store brand and the equilibrium pricing strategies for the national brand and two retailers. Among other things, we show that, surprisingly, the optimal quality and retail price of the newly-introduced store brand are non-monotonic, discontinuous functions of the quality level of the existing store brand.

This is joint work with Bo Liao.

BIO:

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Professor Yano’s primary research interests are production, inventory and logistics management, particularly on how to deal with various sources of uncertainty in these contexts, as well as interdisciplinary problems involving manufacturing and marketing. She has authored or co-authored over 80 articles and book chapters on these subjects and is the recipient of a variety of National Science Foundation and industry grants. She has served as the Editor-in-Chief of IIE Transactions and Department Editor (Operations and Supply Chains) for Management Science, as well as in various editorial capacities for Operations Research, Interfaces, Manufacturing and Service Operations Management, Service Science and Naval Research Logistics, among others.