



INTISARI

Makanan halal merupakan industri halal terbesar di antara industri halal lainnya seperti keuangan syariah, wisata halal, *fashion*, farmasi halal dan kosmetik halal. Panjangnya *supply chain* (SC) makanan halal menyebabkan rantai pasokan menjadi lebih rentan terhadap risiko halal. Risiko halal merupakan gangguan yang dapat menyebabkan kegagalan produk halal sampai di tangan konsumen. Risiko halal yang tidak teratasi bisa berdampak pada kerugian ekonomi perusahaan dan SC. Oleh karena itu, diperlukan strategi yang mampu meminimalkan dampak negatif dari risiko, atau bahkan mencegah risiko terjadi. Keberhasilan HSC dapat dilihat dari bagaimana kemampuan HSC melindungi makanan dari kontaminasi risiko halal. *Halal Supply Chain Resilience* (HSCRES) sangat penting untuk menjamin SC memiliki kemampuan meredam risiko halal dalam rangka mematuhi hukum Islam dan memenuhi kebutuhan pasar. Mengukur tingkat HSCRES penting dilakukan untuk memahami posisi kemampuan HSC terhadap risiko halal. Tujuan dari penelitian ini adalah untuk: 1) mendefinisikan dan membangun *framework* HSCRES yang memuat variabel-variabel penyusun HSCRES meliputi kapabilitas dan kerentanan HSC, 2) membangun model pengukuran HSCRES, dan 3) memvalidasi model pengukuran HSCRES melalui implementasi studi kasus.

Penelitian ini menggunakan *Systematic Literature Review* (SLR) meliputi 44 artikel terpilih untuk membangun definisi dan variabel yang komprehensif yang kemudian dikembangkan untuk meningkatkan pemahaman tentang prinsip resiliensi halal dalam *framework* HSCRES. Model pengukuran dibangun dengan membandingkan total kapabilitas halal dengan total kerentanan halal untuk merepresentasikan tingkat HSCRES dalam sebuah indeks. Selanjutnya model pengukuran indeks HSCRES divalidasi melalui implementasi pengukuran tingkat resiliensi SC daging ayam di Yogyakarta dan Sleman. Implementasi diawali dengan studi perilaku *stakeholder* HSC daging ayam meliputi produsen (Rumah Potong Ayam), penjual, dan konsumen menggunakan metode *clustering*. Selanjutnya, identifikasi kapabilitas dan kerentanan dilakukan dan dengan menggunakan *Confirmatory Factor Analysis* (CFA) yang melibatkan 140 responden dihasilkan 5 faktor (visibilitas, fleksibilitas, kolaborasi, integritas halal, kelincahan) dan 19 indikator kapabilitas serta 6 faktor (produksi, pemasok, distribusi, konsumen, regulator, dan keberlangsungan) dan 28 indikator kerentanan. Dengan menggunakan *Hierarchy Analytical Process* (AHP), diperoleh bobot masing-masing indikator dengan melibatkan sepuluh pakar dari kalangan praktisi dan akademisi. Survei dilakukan terhadap 20 RPH, 35 penjual, dan 100 konsumen melalui formula tertentu untuk mendapatkan nilai dari masing-masing indikator. Terakhir, model matematika HSCRES digunakan untuk membandingkan HSCRES dua wilayah dengan dua skenario: pertama, pengukuran indeks HSCRES dengan melibatkan seluruh faktor dan kedua, dengan mengeluarkan faktor kapabilitas integritas halal.

Hasil penelitian menunjukkan bahwa ketahanan SC ayam halal di wilayah Sleman sebesar 2.640 dan Yogyakarta sebesar 2.288. Nilai di atas satu menandakan bahwa resiliensi kedua wilayah berada pada level yang baik. Pengukuran tanpa faktor integritas halal menghasilkan nilai indeks HSCRES yang lebih tinggi yaitu 3.679 untuk Sleman dan 3.146 untuk Yogyakarta. Terbukti bahwa model pengukuran yang dirancang dapat diterapkan secara efektif sebagai pendekatan untuk mengukur tingkat ketahanan HSC. Faktor integritas halal terbukti berperan penting untuk menunjukkan tingkat resiliensi HSC yang sesungguhnya dalam mengantisipasi dan mengatasi risiko halal.

Kata kunci: *halal supply chain*, resiliensi, kapabilitas halal, kerentanan halal, indeks



ABSTRACT

Halal food is the largest halal industry, followed by Islamic banking, halal tourism, fashion, halal pharmaceuticals, and halal cosmetics. The lengthening of the halal food supply chain contributes to an increased vulnerability of the supply chain to halal-related risks. Halal risk refers to a disruptive factor that has the potential to jeopardize the successful delivery of halal products to end consumers. The halal risks can potentially result in negative financial consequences for the company and the supply chain (SC). Hence, it is essential to develop a strategic approach that effectively mitigates the adverse consequences of the risk, or ideally, minimizes the risk altogether. The effectiveness of HSC may be reflected in its resilience to prevent products from becoming contaminated with halal risk. Halal Supply Chain Resilience-HSCRES is critical to ensuring that SC can reduce halal risks in order to comply with Islamic law and meet market demands. Measuring the HSCRES level is essential for understanding the situation of HSC capabilities concerning to halal risks. This research aims to: 1) Develop definition and framework of the HSCRES framework which contains the factors that construct HSCRES, including capabilities and vulnerabilities, 2) develop the HSCRES measurement model, and 3) validate the HSCRES measurement model through implementing case studies.

This study uses a Systematic Literature Review (SLR) covering 44 selected articles to construct comprehensive definitions and HSCRES's variables which are then used to enhance understanding of the principles of halal resilience through the HSCRES framework. The construction of the measurement model involves a comparative analysis of the overall halal capabilities and total halal vulnerabilities, which are used to quantify the level of Halal Supply Chain Resilience (HSCRES) in an index. Additionally, the HSCRES index measurement model was validated by assessing the level of halal resilience in chicken meat SC in the regions of Yogyakarta and Sleman. The initial implementation phase involves a comprehensive analysis of the various actor's behaviour involved in the chicken meat industry, specifically focusing on stakeholders such as chicken slaughterhouses, sellers, and consumers. This analysis is carried out through the application of the clustering method. Subsequently, a sample of capabilities and vulnerabilities was assessed by applying Confirmatory Factor Analysis (CFA) involving a sample of 140 participants. This analysis yielded the identification of five distinct capability factors, namely visibility, flexibility, collaboration, halal integrity, and agility, along with a total of 19 indicator. Additionally, six vulnerability factors, namely production, suppliers, distribution, consumers, regulators, and sustainability, were identified, with 28 indicators. Using the Hierarchy Analytical Process (AHP), the weight of each indicator was obtained by involving ten experts from practitioners and academics. A survey was undertaken, encompassing a sample of 20 slaughterhouses, 35 sellers, and 100 consumers, in order to gather data on the respective values of each indicator. Finally, the HSCRES mathematical model is used to compare the HSCRES of two regions using two scenarios: measuring the HSCRES index involving all factors and avoiding the halal integrity capability factor.

The results showed that the resistance to SC of halal chicken in the Sleman region was 2,640 and Yogyakarta was 2,288. A resilience index that is above one indicates that the two regions are resilient. Without the halal integrity factor, the HSCRES index value is increased. The findings of this study indicate that the measurement model developed can be utilized effectively to determine the HSC resistance level. The halal integrity factor has proved to be an essential indicator of the HSC's true level of resilience in anticipating and overcoming halal risks.

Keywords: *halal supply chain, resilience, halal capability, halal vulnerability, index*