

Critical Study of Demand and Supply: An Islamic Economics Perspective

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Abstract:

Demand and supply are two words that are often used by economists, which are the basic concepts in an extensive economic activity so that both are the forces that make the market economy work. The concept of Islamic economics regarding demand and supply is almost the same as conventional economics, but there are restrictions from individuals to behave economically following sharia rules. In Islamic economics, Islamic norms and morals are the principles that underlie economic activity. The contribution of this paper is that researchers and practitioners would profit from the insights and concerns brought forth in this article, as it proposes concrete forms of empirically exploring demand and supply from an Islamic economic viewpoint in order to adapt to environmental sustainability activities.

Keywords: critical study, demand, supply, Islamic perspective.

1. INTRODUCTION

In microeconomics, the main study is based on the behavior of individuals who are economic actors who always play a role in determining the price level in the market mechanism. In this market mechanism, an interaction occurs between the demand originating from the consumer and supply, namely from the producer side, so that the price created is the result of a combination of the strengths of each party. Therefore, the demand and supply behavior is used as a basic concept in broader economic activities(Ageeva & Foroudi, 2019; Baumol & Blinder, 2015; Çokgezen & Kuran, 2015; Kou, Yang, & Chen, 2020; Wan Alwi, Klemeš, & Varbanov, 2016).

Economists often use the terms demand and supply because these two words refer to the forces that make the market economy work. All kinds of policies or events that affect the economy cannot be separated

from the influence of demand and supply. IbnKhaldunacknowledged the influence of demand and supply in determining prices(Khaldun, 732-802 H/1332-1406 M).IbnKhaldun also further stated that an increase in demand or a decrease in supply would lead to an increase in prices. Conversely, a decrease in demand or an increase in supply would cause a decrease in prices(M. U Chapra, 2000; M Umer Chapra, 2016; Hassan & Choudhury, 2019).

Demand and supply practices are interrelated business procedures and are primarily part of the respective marketing functions(D'Antone, Canning, Franklin-Johnson, & Spencer, 2017). Such divergent approaches to and overlapping goals to value generation by demand and supply contribute to difficult and paradoxical management challenges(Hung, 2010)and community-optimal consumer alternatives(Tate, Mollenkopf, Stank, & Da

Silva, 2015). In a study of demand and supply, Islamic economics sees it almost the same as conventional economics, but on the other hand, there are fundamental differences which are the difference between the two, namely the emergence of individual desires to behave economically in accordance with sharia rules. This is as stated by Allah Ta'ala (Al-Hikmah, 2013):

"And follow the Best of (the courses) revealed to you from your Lord before the Penalty comes on you of a sudden while ye perceive not! (Q.S. Az-Zumar: 55).

Islamic economics, which is used as a substance in the demand and supply of prices of goods and quantities of goods, is the norm and moral 'Islamic' because this is a determining factor for individuals or communities in carrying out economic activities so as to differentiate from conventional economics. Therefore, it is important to explain comprehensively in this paper about supply and demand in Islam.

In accordance with the description previously stated, then in this paper, the problem can be formulated as follows:

1. How is the demand and supply from the perspective of Islamic economics?

In accordance with the formulation of the problem above, the purpose of this paper is to describe the demand and supply comprehensively in Islamic economics.

2. LITERATURE REVIEW AND DISCUSSION

2.1 Demand

Demand is defined as a number of goods or services which people are willing to buy at various price levels in a certain period of time. For example, in a market, the person acting as the demander is the buyer of the seller who provides the goods. When there is a transaction between the buyer and seller, the two will agree on an affordable price.

After the conclusion of the most recent global crisis, consumer demand, as well as aspirations, has been growing steadily. Organizations are also currently revising their organizational goals and operational objectives (Khan & Wisner, 2019; Z. Zhang & Sharifi, 2000). Organizations realize now that agility is an essential consideration for success in today's business climate.

Demand is important to expand the business by attracting customers involved in purchasing from the retail store. Usually, demand is satisfied by the usage of successful communication techniques. This also includes creating mathematical projections of the consumer groups who may be involved in any of a retailer's goods and reaching out to certain customers (Goswami, Mohapatra, & Zhai, 2019).

Demand practices are about recognizing, developing, promoting, and expressing consumer preferences for the goods and services of businesses. These include business demand evaluation, consumer satisfaction assessment, customer engagement, advertisement, promotion, and branding (Mentzer, Stank, & Esper, 2008). Demand practices also concentrate on competition, advantages of scale, growth of the business, and productivity. Business intelligence demand practices collection research played a constructive role in the exposure of the supply chain by leveraging the supply chain partners' information networks (Gölgeci, Karakas, & Tatoglu, 2019).

2.1.1 Law of Demand

If all assumptions are ignored as in *ceteris paribus*, if the price rises, the demand for an item will decrease, and vice versa, if the price falls, the demand for an item will increase. These events occur because all economic actors want to find satisfaction (profit) as much as possible from the existing price. If the price is too high, then the buyer may buy less because the money he has is limited, but for the seller with a high

price, he will try to multiply the goods sold so that the profit can be obtained even greater. High prices can also cause buyers to look for other products in lieu of expensive items.

2.1.2 Factors Affecting the Demand Level

There are several main factors that affect the level of demand, including:

1. Consumer behavior.

Lately, Samsung mobile phones are experiencing a trend so that many consumers buy these items. However, most likely, in the next few years, maybe Samsung's cellphone will be considered obsolete so that it no longer sells in the market.

2. Availability of prices of similar, substitute and complementary goods

If there is no bread or the price is very high, then this may also affect the demand for meises, jams, and margarine to decrease.

3. Consumer income

A person who has a large salary and benefits, he can buy as many items as he wants. Unlike the case with people who have low incomes, he will tend to be more economical in the purchase and use of an item he bought.

4. Estimated price in the future

An item that is expected to experience an increase in price raises the tendency of people to buy or hoard the item when the price is still low.

5. The intensity of consumer needs

When the coronavirus is engulfing an area, protective mask products will be in demand. Likewise, also in the month of fasting (Ramadan), the demand for grass jelly, syrup, dates, etc. will be very high when compared to other months.

2.1.3 Demand in Islamic Economic Perspective

According to IbnTaymiyyah(Taimiyah, 1263-1328 M), the demand for an item is a desire for something,

which is described by the term '*raghbahfil al-syai*'. This can also be interpreted as the number of items requested(Ahmed, 2018; Carboni, Perelli, & Sistu, 2014; Çokgezen & Kuran, 2015; Karim, 2003; Mensi, Hammoudeh, Al-Jarrah, Sensoy, & Kang, 2017; Wan Alwi et al., 2016). Islam requires a person to consume *halal* and *thayyib* goods. This is as said by Allah Ta'ala(Al-Hikmah, 2013):

O ye people! eat of what is on earth lawful and good; and do not follow the footsteps of the evil one for he is to you an avowed enemy (Q.S. al-Baqarah: 168).

In Islam, a person is forbidden to eat illicit goods, except in emergencies where if someone does not eat these items, it will be fatal to the situation. But it should be underlined that even in an emergency, a Muslim is only allowed to consume illicit goods in moderation. In this regard, Allah Ta'ala said(Al-Hikmah, 2013):

*Why should ye not eat of (meats) on which Allah's name hath been pronounced when **He hath explained to you in detail what is forbidden to you except under compulsion of necessity?** But many do mislead (men) by their appetites unchecked by knowledge. Thy Lord knoweth best those who transgress (QS. al-An'am: 119).*

In Islamic teachings also explained that people who have a lot of money, are not necessarily allowed to spend their money to buy anything and in whatever amount he wants. But another thing that must be considered that a Muslim should not overdo it (*israf*), and must prioritize kindness (*maslahah*). Allah Ta'alasaid(Al-Hikmah, 2013):

O children of Adam! wear your beautiful apparel at every time and place of prayer: eat and drink: but waste not by excess for Allah loveth not the wasters (QS. Al-A'raf: 31).

Whereas in another verse, Allah Ta'ala said (Al-Hikmah, 2013):

Those who when they spend are not extravagant and not niggardly but hold a just (balance) between those (extremes) (QS. Al-Furqan: 67).

Ibn Taymiyyah (Taimiyah, 1263-1328 M) explicitly explains that things that affect the demand for an item, among others:

1. The desires or tastes of the people (*Raghab*) for various types of goods that are different and always changing. Where when people already have a taste for an item, then this will affect the amount of demand for the item.
2. The number of enthusiasts (*Tullab*) of an item. If the number of people who want an item more, then the price of the item will increase. In this case, it can be likened to the population, where the more the population, the more the number of interested people in an item.
3. The quality of the buyer (*Al-Mu'awid*). The income level is one of the characteristics of a good quality buyer. The greater the level of community income, the quality of society to buy an item will increase.
4. Weak or strong needs for an item. If the demand for an item is high, then the demand for that item is high.
5. Method of payment, cash, or installment. If payment is made in cash, the demand is high.
6. The amount of the transaction fee. If the transaction costs of an item are low, the number of demand increases.

2.2 Supply

Supply is the number of goods or services available and can be supplied by producers to consumers at any price level for a certain period of time. The supply can also be defined as the number of items supplied by the

seller in a certain market, at a certain period, and at a certain price level.

For starters, organizations in global markets experience greater challenges in reaching particular production deadlines, thereby needing a more agile supply chain to reliably produce successful results. Flexibility, pace, and consistency are the hallmarks of agility (Christopher, 2000; Yusuf, Gunasekaran, Adeleye, & Sivayoganathan, 2004), and organizations plan to thrive in the global marketplace, they must adjust. Organizations and its supply chains will be flexible to ensure that multinational consumers provide an unrestricted influx of products (Khan & Wisner, 2019).

Supply practices are planned to meet the current market demand for the goods and services of businesses (Hung, 2010). This involves development, acquisition, inventory control, distribution, order management and fulfillment, and the organization of the supply chain (Mentzer et al., 2008). Supply practices also concentrate on standardization, economies of production, exploitation of the business, and effectiveness (Esper, Ellinger, Stank, Flint, & Moon, 2010; Hung, 2010).

Prater, Biehl, and Smith (2001) describe agility in the supply chain as the capacity of an organization and its supply chains to respond to evolving rapidly and volatile environmental conditions. In order to minimize these delays and maintain the seamless delivery of products and services to end-users, organizations are expected to be fast and versatile in their own and the activities of their supply chain partners (Braunscheidel & Suresh, 2009; Merschmann & Thonemann, 2011). The road to pace and agility was initially supposed to be achieved by automation. Later, the idea of agility in organizations arose as pace and agility were applied to a wider market context (Christopher, 2000; Flynn, Huo, & Zhao,

2010; Yusuf et al., 2004; M. Zhang & Huo, 2013; Zhao, Huo, Sun, & Zhao, 2013). The agility of the supply chain has been shown to have a strong and direct effect on supply chain flexibility (Swafford, Ghosh, & Murthy, 2006). Researchers previously evaluated supply chain agility as a second-order element and calculated it through consumer reaction, collaborative preparation, and market reaction (Tse, Zhang, Akhtar, & MacBryde, 2016). Organizations and its supply chain collaborators often strive to shorten distribution lead times to react rapidly to shifts in demand (Christopher & Towill, 2000; Martin & Towill, 2000).

2.2.2 Law of Supply

The law of supply explains that if the price of an item increases, the number of goods supplied will increase, and if the price of an item decreases, the number of goods bargained will decrease. This law shows a positive relationship between the price level and the number of goods being bargained. This is because high prices give producers more benefits, so producers will supply more goods. High prices also cause producers to assume that the goods are highly demanded by consumers, but the supply is less in the market. Therefore, producers will add supply to meet demand.

2.2.3 Factors Affecting the Supply

The supply of an item is influenced by several factors, namely:

1. The price of the item itself
2. Prices of other items
3. Production costs
4. The objectives of the company's operations
5. The level of technology used
6. Speculation
7. Government policy

8. Number of producers on the market

2.2.4 Effect of Non-Price Factors on Supply

Some other potential factors in influencing the number of goods supplied are:

1. Prices of other goods

In discussing the theory of demand, there are competing goods (substitute goods) with each other in meeting the needs of the community. Such items can have an important influence on the supply of an item. For example, the increase in production costs abroad will affect the increasing price of imported notebooks. Some consumers of imported notebooks, now prefer to buy notebooks made in the country and increase demand for them. This increase in demand will encourage domestic producers to increase production and supply of notebooks.

2. Costs to obtain factors of production

Payments to factors of production are very important expenses in the production processes of various companies. These expenditures have a very large role in determining production costs. Without an increase in productivity and efficiency, rising prices of factors of production will increase production costs. In some companies, an increase in expenditure to obtain factors of production will cause production costs to exceed the sales results, and they suffer losses. This can lead to the closure of the business, and the number of offers of goods is reduced.

3. Company goals

In economic theory, it is always assumed that companies try to maximize profits. With this example, each company does not try to use the maximum production capacity but will use it at the level of capacity that maximizes profits. But in practice, many companies have other objectives. These different objectives have different effects on determining the level of production. Thereby offering something will

be different if there is a change in the goals to be achieved by the company.

4. The level of technological development

The level of technology plays an important role in determining the number of goods that can be offered. Advances in technology have been able to reduce production costs, increase productivity, enhance the quality of goods, and create new goods. In relation to the supply of goods, technological advances have two effects, namely (1) production can be increased more quickly, and (2) production costs will be cheaper. Thus the profits become higher.

2.2.5 The Factors of Supply in Islam

In the realm of classical Islamic economic thought, the offer has been recognized as an important force in the market, IbnTaymiyyah(Taimiyah, 1263-1328 M), for example, terming this offer as the availability of goods in the market. In his view, offers can come from imports and are produced locally where these activities are carried out by producers and sellers. Because what is offered is the result of production, then in Islamic supply theory, there are other additional factors that contain religious and moral values that must be considered by producers, among others:

1. Mashlahah

The effect of *mashlahah* on supply will basically depend on the level of faith of the producer. If the number of mashlahahs contained in goods produced is increasing, then Muslim producers will increase the amount of production.

2. Profit

Profit is part of *mashlahah* because it can accumulate capital, which can ultimately be used for various other activities. In other words, profits will become additional capital in order to obtain even greater *mashlahah* to reach *falalah*.

3. The supply is influenced by zakat commerce

If a producer maximizes the profit he will get, then at the same time, he has maximized the amount of zakat he will pay.

Please note that in Islamic economics, it is known that there are 4 things that are prohibited in carrying out economic activities, namely: mafsadah, gharar, maisir, and usury transactions. Mafsadah, gharar and maisir as actions that cause damage (negative externalities) due to the inherent effects of a production activity that only considers profit alone. Regarding this, Allah Ta'ala said(Al-Hikmah, 2013):

O ye who believe! intoxicants and gambling (dedication of) stones and (divination by) arrows are an abomination of Satan's handiwork: eschew such (abomination) that ye may prosper (QS. Al-Ma'idah: 90).

In another verse, Allah Ta'ala signals as follows(Al-Hikmah, 2013):

278. O ye who believe! fear Allah and give up what remains of your demand for usury if ye are indeed believers. 279. If ye do it not take notice of war from Allah and his Apostle: but if ye turn back ye shall have your capital sums; deal not unjustly, and ye shall not be dealt with unjustly (QS. Al-Baqarah: 278-279).

Therefore, it can be concluded that similar to Islamic demand theory, Islamic supply theory is also influenced by religious and moral values that will benefit individuals and society, producers or consumers, even the state(Aydin, 2019; Hasan, 2019).

3. CONCLUSION

Demand and supply are two words that are often used by economists, which are the basic concepts in a very broad economic activity so that both are the forces that make the market economy work. The concept of Islamic economics regarding demand and supply is almost the same as conventional economics, but there

are restrictions from individuals to behave economically in accordance with sharia rules.

In Islamic economics, Islamic norms and morals are the principles that underlie economic activity. This is a factor that determines an individual or society in carrying out economic activities. The concept of demand in Islam assesses that not all goods and services can be consumed or used, but it must be considered the halal and prohibited elements of the goods, while in the concept of Islamic supply, it is known that there are 4 things that are prohibited in carrying out economic activities, namely: *mafsadah*, *gharar*, *maisir*, and usury transactions. *Mafsadah*, *gharar*, and *maisir* are perceived as actions that cause damage (negative externalities) as an inherent result of a production activity that only considers profit itself.

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Conflict of Interest

The authors of this study state that there is no conflict of interest.

REFERENCES

1. Ageeva, E., & Foroudi, P. (2019). Tourists' destination image through regional tourism: From supply and demand sides perspectives. *Journal of Business Research*, 101, 334-348. doi: <https://doi.org/10.1016/j.jbusres.2019.04.034>
2. Ahmed, W. M. A. (2018). How do Islamic versus conventional equity markets react to political risk? Dynamic panel evidence. *International Economics*, 156, 284-304. doi: <https://doi.org/10.1016/j.inteco.2018.05.001>
3. Al-Hikmah. (2013). *Al-Quran dan Terjemahan*. Bandung: CV. Penerbit Diponegoro.
4. Aydin, N. (2019). Islamic Economics: "New Paradigm" or "Old Capitalism"? In M. Zulkhibri & T. A. Abdul Manap (Eds.), *Islamic Finance, Risk-Sharing and Macroeconomic Stability* (pp. 11-40). Cham: Springer International Publishing.
5. Baumol, W. J., & Blinder, A. S. (2015). *Microeconomics: Principles and policy*: Nelson Education.
6. Braunscheidel, M. J., & Suresh, N. C. (2009). The organizational antecedents of a firm's supply chain agility for risk mitigation and response. *Journal of Operations Management*, 27(2), 119-140. doi: <https://doi.org/10.1016/j.jom.2008.09.006>
7. Carboni, M., Perelli, C., & Sistu, G. (2014). Is Islamic tourism a viable option for Tunisian tourism? Insights from Djerba. *Tourism Management Perspectives*, 11, 1-9. doi: <https://doi.org/10.1016/j.tmp.2014.02.002>
8. Chapra, M. U. (2000). *The Future Of Economic: an Islamic Perspective*. Jakarta: GemaInsani Press.
9. Chapra, M. U. (2016). *The future of economics: An Islamic perspective* (Vol. 21): Kube Publishing Ltd.
10. Christopher, M. (2000). The Agile Supply Chain: Competing in Volatile Markets. *Industrial Marketing Management*, 29(1), 37-44. doi: [https://doi.org/10.1016/S0019-8501\(99\)00110-8](https://doi.org/10.1016/S0019-8501(99)00110-8)
11. Christopher, M., & Towill, D. R. (2000). Supply chain migration from lean and functional to agile and customised. *Supply Chain Management: An International Journal*, 5(4), 206-213.
12. Çokgezen, M., & Kuran, T. (2015). Between consumer demand and Islamic law: The evolution of Islamic credit cards in Turkey. *Journal of Comparative Economics*, 43(4), 862-882. doi: <https://doi.org/10.1016/j.jce.2015.07.005>
13. D'Antone, S., Canning, L., Franklin-Johnson, E., & Spencer, R. (2017). Concerned innovation: The ebb and flow between market and society. *Industrial Marketing Management*, 64, 66-78. doi: <https://doi.org/10.1016/j.indmarman.2017.02.006>
14. Esper, T. L., Ellinger, A. E., Stank, T. P., Flint, D. J., & Moon, M. (2010). Demand and supply

- integration: a conceptual framework of value creation through knowledge management. *Journal of the Academy of Marketing Science*, 38(1), 5-18. doi: 10.1007/s11747-009-0135-3
15. Flynn, B. B., Huo, B., & Zhao, X. (2010). The impact of supply chain integration on performance: A contingency and configuration approach. *Journal of Operations Management*, 28(1), 58-71. doi: <https://doi.org/10.1016/j.jom.2009.06.001>
 16. Gölgeci, I., Karakas, F., & Tatoglu, E. (2019). Understanding demand and supply paradoxes and their role in business-to-business firms. *Industrial Marketing Management*, 76, 169-180. doi: <https://doi.org/10.1016/j.indmarman.2018.08.004>
 17. Goswami, A., Mohapatra, P., & Zhai, C. (2019). Quantifying and Visualizing the Demand and Supply Gap from E-commerce Search Data using Topic Models. Paper presented at the Companion Proceedings of The 2019 World Wide Web Conference.
 18. Hasan, M. (2019). Social marketing: an Islamic perspective. *Journal of Islamic Marketing*(ahead-of-print). doi: <https://doi.org/10.1108/JIMA-12-2016-0105>
 19. Hassan, A., & Choudhury, M. A. (2019). *Islamic economics: theory and practice*: Routledge.
 20. Hung, H.-M. (2010). Reconciling the paradox of supply-side and demand-side strategies in industrial innovation. *Industrial Marketing Management*, 39(2), 342-350. doi: <https://doi.org/10.1016/j.indmarman.2009.02.004>
 21. Karim, A. (2003). *Ekonomi Mikro Islami*. Paper presented at the The International Institute of Islamic Thought Indonesia, Jakarta.
 22. Khaldun, I. (732-802 H/1332-1406 M). *al-Muqaddimah*.
 23. Khan, H., & Wisner, J. D. (2019). Supply chain integration, learning, and agility: Effects on performance. *Journal of Operations and Supply Chain Management*, 12(1), 14.
 24. Kou, M., Yang, Y., & Chen, K. (2020). The impact of external R&D financing on innovation process from a supply-demand perspective. *Economic Modelling*. doi: <https://doi.org/10.1016/j.econmod.2020.01.016>
 25. Martin, C., & Towill, D. R. (2000). Supply chain migration from lean and functional to agile and customised. *Supply Chain Management: An International Journal*, 5(4), 206-213. doi: <https://doi.org/10.1108/13598540010347334>
 26. [26] Mensi, W., Hammoudeh, S., Al-Jarrah, I. M. W., Sensoy, A., & Kang, S. H. (2017). Dynamic risk spillovers between gold, oil prices and conventional, sustainability and Islamic equity aggregates and sectors with portfolio implications. *Energy Economics*, 67, 454-475. doi: <https://doi.org/10.1016/j.eneco.2017.08.031>
 27. Mentzer, J. T., Stank, T. P., & Esper, T. L. (2008). Supply chain management and its relationship to logistics, marketing, production, and operations management. *Journal of business logistics*, 29(1), 31-46. doi: <https://doi.org/10.1002/j.2158-1592.2008.tb00067.x>
 28. Merschmann, U., & Thonemann, U. W. (2011). Supply chain flexibility, uncertainty and firm performance: An empirical analysis of German manufacturing firms. *International Journal of Production Economics*, 130(1), 43-53. doi: <https://doi.org/10.1016/j.ijpe.2010.10.013>
 29. Prater, E., Biehl, M., & Smith, M. A. (2001). International supply chain agility-Tradeoffs between flexibility and uncertainty. *International Journal of Operations & Production Management*, 21(5/6), 823-839. doi: <https://doi.org/10.1108/01443570110390507>
 30. Swafford, P. M., Ghosh, S., & Murthy, N. (2006). The antecedents of supply chain agility of a firm: Scale development and model testing. *Journal of Operations Management*, 24(2), 170-188. doi: <https://doi.org/10.1016/j.jom.2005.05.002>
 31. Taimiyah, I. (1263-1328 M). *Majmu' Fatawa*.
 32. Tate, W. L., Mollenkopf, D., Stank, T., & Da Silva, A. L. (2015). Integrating supply and

- demand. MIT Sloan Management Review, 56(4), 1-5.
33. Tse, Y. K., Zhang, M., Akhtar, P., &MacBryde, J. (2016). Embracing supply chain agility: an investigation in the electronics industry. Supply Chain Management: An International Journal, 21(1), 140-156. doi: <https://doi.org/10.1108/SCM-06-2015-0237>
 34. Wan Alwi, S. R., Klemeš, J. J., &Varbanov, P. S. (2016). Cleaner energy planning, management and technologies: Perspectives of supply-demand side and end-of-pipe management. Journal of Cleaner Production, 136, 1-13. doi: <https://doi.org/10.1016/j.jclepro.2016.07.181>
 35. Yusuf, Y. Y., Gunasekaran, A., Adeleye, E. O., &Sivayoganathan, K. (2004). Agile supply chain capabilities: Determinants of competitive objectives. European Journal of Operational Research, 159(2), 379-392. doi: <https://doi.org/10.1016/j.ejor.2003.08.022>
 36. Zhang, M., &Huo, B. (2013). The impact of dependence and trust on supply chain integration. International Journal of Physical Distribution & Logistics Management, 43(7), 544-563. doi: <https://doi.org/10.1108/IJPDLM-10-2011-0171>
 37. Zhang, Z., &Sharifi, H. (2000). A methodology for achieving agility in manufacturing organisations. International Journal of Operations & Production Management, 20(4), 496-513. doi: <https://doi.org/10.1108/01443570010314818>
 38. Zhao, L., Huo, B., Sun, L., & Zhao, X. (2013). The impact of supply chain risk on supply chain integration and company performance: a global investigation. Supply Chain Management: An International Journal, 18(2), 115-131.