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Original article

Color and local heritage in gemstone branding: A comparative study of blue zoisite (Tanzanite) and color-change diaspore (Zultanite/Csarite)

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ABSTRACT

Gemstone value is often associated with origin, as the color, clarity, carat weight, cut, and other attributes of interest to consumers are often associated with the geological location of the stone. In this paper, we consider how the provenance of gemstones is harnessed through the '4P' framework of product, price, promotion, and place. Both tanzanite and Zultanite/Csarite are currently each mined commercially in only one location in the world. Tanzanite is mined in Mererani, near Arusha, Tanzania, and Zultanite/Csarite is mined in Milas, near Mugla, Turkey. While this rarity and other attributes were successfully leveraged so that tanzanite attained global recognition, Zultanite/Csarite has remained largely unknown. Our study examines the potential reasons why tanzanite and Zultanite/Csarite have experienced such different degrees of success on the global gemstone market. Our main findings suggest that rarity and single-origin are not adequate determinants of value, and that consumer preferences for color need to be carefully marketed with a powerful storyline and linked to unique aspects of their place of origin, such as tourism and local culture.

1. Introduction

The allure of gemstones to consumers has often been linked to provenance because the locality may be important for telling the story of a stone and may present a very personal connection for the consumer to the earth's resources. Such exotic appeal can also be leveraged for marketing and be incorporated into the value for consumers if we consider the full impact of the supply chain (Ali, 2010). There are a number of gem quality[1] minerals that are currently found only at a single source. This paper looks at two examples of such gems, tanzanite and Zultanite/Csarite. Tanzanite is a variety of zoisite[2] that is mined in Mererani[3], near Arusha in northern Tanzania. The mineral generally appears blue-to-violet or purple. Zultanite/Csarite is a type of color-change[4] diaspore[5] that is mined out of bauxite deposits in the Milas area of the Mugla Province in southwestern Turkey. The crystal generally appears pale green with flashes of yellow or light brown but will appear pinkish orange or pinkish red under incandescent or candlelight. The larger the crystal, the more noticeable the change in color. While both of these gemstones are each mined commercially in only one location in the world and their "single-source" origin has been used in marketing campaigns, tanzanite has attained a global reputation, while Zultanite/Csarite has remained less successful.

We aim to contribute to the gemstone literature by examining the complex dynamics surrounding single-origin gemstone success in the market. Our study examines the reasons why tanzanite and Zultanite/Csarite have experienced different degrees of success on the global gemstone market. To do this, we build on McCarthy's (1964) 4P framework, which outlines how *product*, *price*, *promotion*, and *place* are leveraged in branding and marketing to influence consumer behavior. While this framework provides a useful starting point, we make it more relevant to gemstones by discussing components significant to gemstone marketing that are encompassed by this framework, including Gemological Institute of America (GIA)/De Beers' 4C's framework, value addition, responsible mining, and origin and traceability. We then

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[1] A mineral must have sufficient beauty, rarity and durability attributes to be recognized as a 'gem' (USGS, 1997).
[2] Zoisite, $Ca_2Al_3(SiO_4)_3(OH)$, can occur in many colors.
[3] Mererani also appears as Merelani in the gem and mineral literature.
[4] 'Color-change' refers to the crystal's ability to change color under different lighting sources.
[5] Diaspore, AlO(OH), is one of the three component minerals of bauxite, a principal ore of aluminum (Al).

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examine how two particular aspects of the 4P framework, including the color of tanzanite (product) and the cultural and environmental heritage of Tanzania (place) have been successfully leveraged to market the gemstone, thereby contributing to its success. Whereas, in the case of Zultanite/Csarite, not only has the color of the gemstone hindered its success, but also marketing the gemstone in association with the regional heritage has been a missed opportunity. We conclude that marketing colored gemstones as "single origin" is not enough to appeal to consumer preference and determine value and that the elements of the 4P framework, in particular, color and environmental and cultural heritage, have played a central role in gemstone marketing and success.

2. Theoretical framework

Companies tend to create brands to distinguish their product from others, thus potentially capturing a price premium or specific market (Conroy, 2009). The American Marketing Association (AMA, n.d.) defines brand as a "name, term, design, symbol, or any other feature that identifies one seller's good or service as distinct from those of other sellers". Some authors suggest that consumers do not buy products for just their material utilities, but also for their symbolic meanings (Bhat and Reddy, 1998; Jamal and Goode, 2001). In many cases, brands are able to capture consumers' imaginations about certain products (Aaker, 1991).

Communicating the symbolic meaning of an object often requires marketing that both reflects and shapes consumer perceptions of the object (Zinkhan and Hong, 1991). Marketing theories that emerged between the 1930s and the 1960s inspired McCarthy's (1964) work, known as *4P framework* or the *marketing mix* (Table 1). The 4P framework proposes that *product, price, promotion,* and *place* should be used as the basis for influencing consumer behavior.

Since it originated, the 4P framework has been modified by a range of disciplines that have attempted to explain the drivers of consumer behavior (Tiangsoongnern, 2011). Between the 1960s and the 1980s, the focus was primarily on external factors, such as price and product (Goi, 2009). However, after the 1980s, internal factors, such as emotional and social, began to appear more in the literature (Goi, 2009). Since the 1980s, *people* have been added to the marketing mix as the fifth P and labeled as an internal factor (Goi, 2009). It is now well accepted that both external and internal factors influence consumer behavior and are vital to marketing strategies (Goi, 2009; Kotler and Keller, 2006; 2016; Schiffman and Kanuk, 2009). Therefore, many hybrid models have been created to incorporate both of these factors. For example, in 1981, Booms & Bitner added three internal factors, *process*, *physical evidence*, and *people* to the 4 P framework and offered the 7 P framework. Later, Kotler and Keller (2006) suggested a similar 7 P framework that included *people*, *processes*, and *performance,* and Stack (2009) developed a framework with two extra measures (people and personal) in addition to those proposed by McCarthy (1964). The 4P strategy has been modified and used in diverse ways (Tiangsoongnern, 2011), which implies that the relevance of a particular framework is contingent on the product and the marketing context.

Marketing is significant for all goods and services. However, perhaps one of the most important industries where marketing is vitally important and has been marked with controversy, is the gemstone industry (Schroeder, 2010). This is perhaps due to the fact that the functional value of gemstones is almost nonexistent, and that gemstone trade names often bear no resemblance to the mineralogical identity of the stone and may even be contradictory or deceptive. In this case, communicating the symbolic meaning of a particular gemstone may be one of the most important factors for marketing.

Table 1
The 4P framework elaborated by Kotler and Keller (2016).

Component	Sub-categories
Product	product variety, quality, design, features, brand name, packaging, sizes, services, warranties, returns
Price	list price, discounts, allowances, payment period, credit terms
Promotion	sales promotion, advertising, sales force, public relations, direct marketing
Place	channels, coverage, assortments, locations, inventory, transport

As it was used in many other fields, the 4P framework has also been used in gemstone marketing studies. For example, Tiangsoongnern (2011) utilized a modified version of the 4P framework and suggested that consumer behavior for gemstone purchasing can be explained in terms of the product, price, place, trust, satisfaction, and intent to purchase. There is also an extensive body of literature discussing gemstone marketing specifically. Gemstone marketing studies mainly focus on rarity, the 4C's framework, value addition, responsible mining, and origin and traceability. They emphasize the importance of both external and internal factors, as do the recent modified versions of the 4P framework. However, recently, in gemstone marketing, more attention is being given to internal factors. For example, in gemstone ad campaigns, the phrases 'ethically sourced' and 'responsibly sourced' come before the word 'rare' (Athinson, 2016).

From a basic economics standpoint, rarity should be the main factor for determining the price of a gemstone. However, it is not the only feature determining value on the gemstone market (Drucker, 2006), and commonly found gemstones do not necessarily have lower prices. For example, diamonds, which are on top of the pricing charts of jewelry, are found in relatively large quantities (26.6 tones/year rough production) (Pisani, 2012) whereas benitoite ($BaTiSi_3O_9$), a blue barium titanium silicate mineral, was very rare when it came into the market, but it was sold for a low price (Drucker, 2006).

For determining the value of gemstones, the 4C's framework is perhaps the most commonly used. The 4C's framework, introduced by the GIA and De Beers two decades ago for diamonds, determines the value of a gemstone by its carat weight, color, cut, and clarity (De Beers, n.d.). These "C's" correspond to *product* in the 4P framework. As the carat weight, clarity, attractiveness of the color, and quality of cut increase, a gemstone's value grows accordingly. De Beers has successfully used this for creating marketing strategies for its most exclusive diamonds (e.g. Forevermark diamonds) (Schroeder, 2010). While this framework has been predominantly applied to diamonds, it has been used for other gemstones as well. *Cut* the third "*C*" in the 4C's framework refers to value addition, or the process of transforming rough gemstones to finished products (Shortell and Irwin, 2017). Value addition, which may include cutting, polishing, and treating gemstones may increase their value up to 50% and is key to gemstone marketing (Shortell and Irwin, 2017). Value addition is so significant, that in many cases, gemstones are exported to other countries to be cut, polished, and treated (Shortell and Irwin, 2017). Color, the second "*C*" in the 4C's framework is considered a prominent value factor for colored gemstones as well. According to Drucker (2006), the president of Gemworld International, Inc., beauty and acceptance are the keys to the success of any gemstone.

In recent decades, there has been a focus on "responsible mining" or sustainability. This focus corresponds to *promotion* and *place* in the 4P framework and has been perhaps the most significant shift in gemstone marketing (Shortell and Irwin, 2017). Attention to responsible mining or sustainability is assumed to have begun with "conflict diamonds," used to fund political agendas, violence, and even international terrorism, in the late 1990's (Makki and Ali, 2019). Schroeder (2010) argues that "conflict" should constitute the fifth C in a modified 4C's framework. Academic and popular media articles on such cases (e.g. Block and Pearl, 2001) gathered vast publicity and led to consumer awareness that greatly impacted ethical practices in the diamond and gemstone industries. Since then, the number of consumers paying attention to ethical practices in the gemstone market has increased (Makki and Ali, 2019). These consumers are often labeled as 'responsible consumers', 'ethical consumers', 'green consumers', 'cultural

creatives', 'environmentally responsible consumers' or 'socially conscious consumers' (Nash et al., 2016). These actors "take into account the public consequences of his or her private consumption or use his or her purchasing power to bring about social change" (Webster, 1975, p. 188). Many studies have highlighted the significance of socially responsible gemstone supply chains (Makki and Ali, 2019; Nash et al., 2016; Schroeder, 2010). In addition, several NGOs and international organizations have attempted to regulate gemstones and promote responsible supply chains (e.g. Extractive Industries Transparency Initiative, Kimberley Process, Responsible Jewellery Council, United Nations sanctions on conflict diamonds and OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas). Even though there is no formal implementation or enforcement mechanism that oversees these efforts (Makki and Ali, 2019), they have been somewhat effective at generating more industry and consumer awareness of where gemstones come from and how they are mined. In addition to the environmental and societal benefits, responsible gemstone mining increases the market value of gemstones (Makki and Ali, 2019) and positively impacts sales (Nash et al., 2016). From 2009 to 2015, Zambian gemstones' value (the average price of rough emeralds per carat auctioned by the company) increased tenfold due to responsible mining initiatives and marketing (Shortell and Irwin, 2017). In another recent study, Nash et al. (2016) revealed that only 13% of the respondents would still buy jewelry if it was mined, manufactured, or sold in a socially *irresponsible* way.

Other substantial components of gemstone marketing that are linked to socially responsible gemstone mining, include origin and traceability (Makki and Ali, 2019), which map onto *promotion* and *place* in the 4P framework. Some companies market their gemstones by providing documentation of their origin and the path they followed from the mine to the consumer. This marketing not only informs the consumers of the geographic origin of the gemstone, the value addition process, and responsible mining practices, but it also ties the product to a particular place. Even the same kind of gemstones that have different geographic origins are valued differently. For example, emeralds are mined in many countries, and three of the biggest producers are Brazil, Colombia, and Zambia (Long, 2018). However, emeralds from Colombia are historically considered the most valuable (Long, 2018), perhaps due to a variety of reasons such as their geological properties. Offering origin traceability also informs consumers of the location of the value addition processes. According to Shortell and Irwin (2017), the most defining component of value addition is where it occurs rather than who does it. Perhaps one of the most significant strategies for offering origin traceability is to leverage responsible industry practices, such as local development efforts, health and safety improvements, and paying workers fair wages. Mine to consumer traceability initiatives, such as the Kimberley Process and the United Nations Sanctions on Conflict Diamonds, are in fact a great contributor to responsible industry practices (Shortell and Irwin, 2017), which have been adopted by many large mining companies (Makki and Ali, 2019). As our study highlights, origin traceability is also marketed by creating a connection to a particular place. In the case of tanzanite, examined here, this has been done by leveraging regional tourism and local environmental and cultural heritage. According to Gertner and Kotler (2004), creation of strong ties to a particular place is a significant part of marketing.

After careful consideration, discussed in detail so far, we find the 4P framework to be an appropriate starting point for our study, as it contains the necessary overarching elements to explain consumer behavior related to tanzanite and Zultanite/Csarite. Also, the 4P framework is perhaps the most widely applied marketing framework to understand consumer behavior, and various forms of it have been applied to understand gemstone marketing (e.g. Tiangsoongnern, 2011). Moreover, the branches of the 4 P framework, *product, price, promotion, and place*, accommodate and overlap with vital gemstone marketing components including *rarity, the 4C's framework, value addition, color, responsible mining, and origin and traceability*.

3. Methods

We collected data for this study using various methods. We performed initial research through a detailed review of the academic literature and journalistic coverage of the cases. During the review of secondary sources, we identified a number of initial contacts who were key actors in both gemstone mining industries. Some of these actors were already acquaintances of the research team. We conducted semi-structured interviews with individuals selected among the initial contacts and asked them questions related to marketing of rarity and single-origin, value addition and responsible mining efforts, and pricing acceptance. We also asked them about the past and current management of the mines and their perceptions of the reasons why each gemstone did or did not gain popularity on the world market. We contacted other individuals for interviews through snowball sampling, where the person being interviewed recommended others to interview (Bernard, 2017). All of the interviewees were kept anonymous to obtain reliable and credible information from them while not causing any potential harm to their relationship, if any, with the mining companies. Since all of the interviews (10 in total) were anonymized and de-identified in terms of origin and date, we do not provide individual interview citation information for each statement made but rather provide a general content analysis. In addition to the literature review and interviews, in each country (Tanzania and Turkey), the authors conducted site visits, carried out participant observation, which included spending unstructured time participating in and observing the daily lives of stakeholder communities in the mining areas, and led focus groups with community members around the mining locales.

4. The tanzanite and Zultanite/Csarite cases

4.1. The tanzanite mine

The exact history of the discovery of tanzanite is unclear; however, TanzaniteOne, the company that controls and mines the most expansive and productive area of Mererani, credits a Maasai herdsman with the discovery of the gemstone in 1967. According to the story, a man who was grazing his livestock in the area picked up an interesting-looking rock and brought it to Manuel D'Souza, a ruby prospector who was working in the area. D'Souza thought it was sapphire, but a subsequent gemological analysis verified that it was violet blue *zoisite*, a completely different material and much rarer than sapphire. After this, the area experienced a rush, and by 1969, over 30 mining claims had been made (Wilson et al., 2009). The tanzanite mine, major tourist areas near the mine, and some major cities in Tanzania are depicted in the figure below (Fig. 1).

By 1970, after Tiffany & Co. named the gemstone *tanzanite*, the blue-to-violet or purple variety of zoisite, it had a name for itself on the world gemstone market and was being mined by both Tanzanian and foreign newcomers (Wilson et al., 2009). In 1971, the mines were nationalized and the parastatal Tanzania Gemstone Industries took over the management for the next twenty years. During this time, there was relatively little production due to theft, poor management, and disorganized mining, and by 1986, the company had altogether abandoned the area, and approximately 30,000 informal artisanal and small-scale miners had moved in (Wilson et al., 2009). In 1990, in an attempt to privatize the mining sector, the Tanzanian government evicted all of the artisanal and small-scale miners, and the state mining company (STAMICO) took over (Schroeder, 2010, p. 58). The South African corporation, African Gemstone Mining Ltd., or Afgem, also began mining tanzanite in 1996 in the largest concession at Mererani, or what is known as Block C (Schroeder, 2010).

In 2003, Afgem was restructured and renamed TanzaniteOne and transferred its stock listing from South Africa to London's Alternate Investment Market (Schroeder, 2010). As of August 2011, TanzaniteOne began operating under Richland Resources, allegedly to reflect

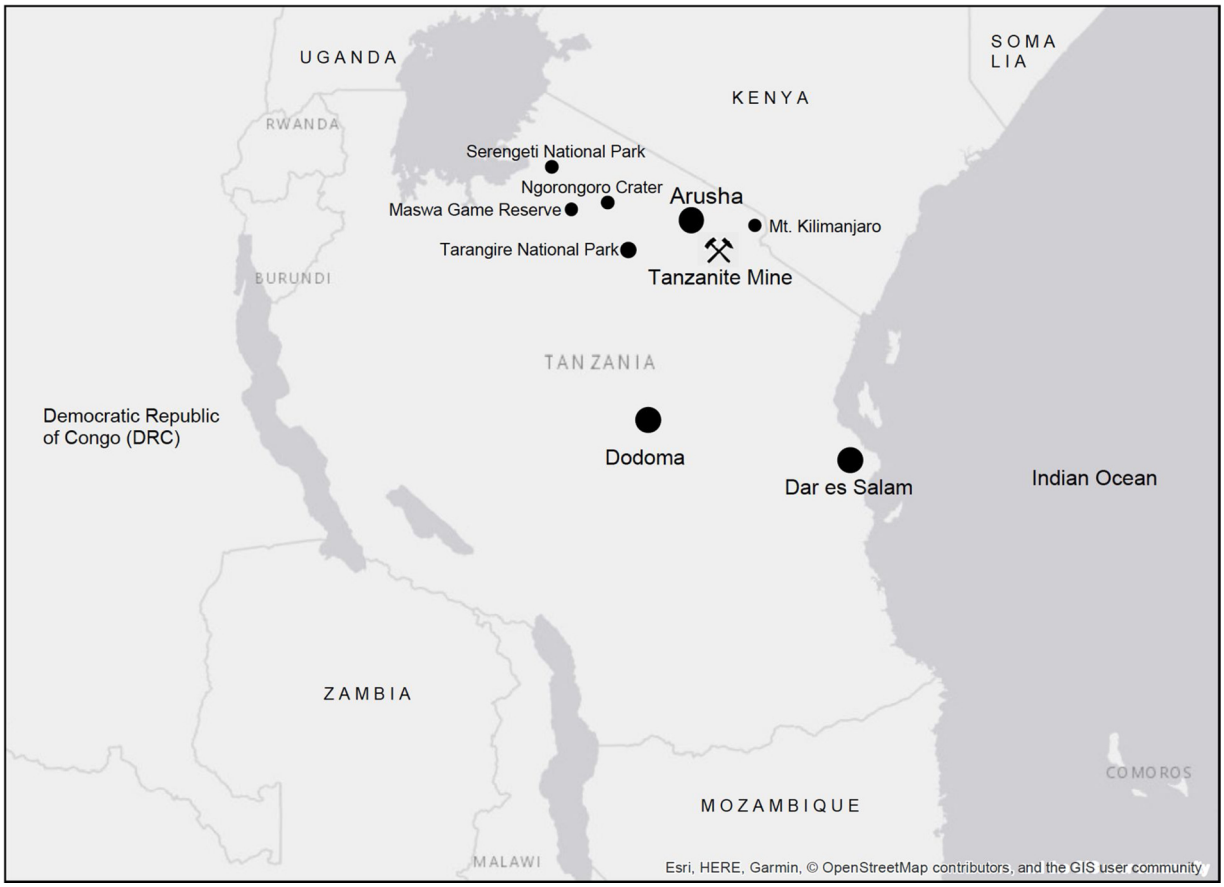

Fig. 1. Location of the Tanzanite Mine in Tanzania, nearby touristic areas, and major cities.

their diversification into tsavorite and sapphire mining in the Manyara Region of Tanzania and Australia respectively (Elinaza, 2011). In 2015, Richland Resources Ltd. shareholders sold 50% of the company's share to Sky Associates Group Ltd. (Richland Resources Ltd., 2015). Before the sale, Richland Resources Ltd. owned 50% while STAMICO owned 50% of the mine (USGS, 2017).

4.2. The Zultanite/Csarite mine

Zultanite/Csarite is a color-change diaspore found in bauxite deposits around the Milas area of Mugla Province, located in the southwestern Turkey. The crystal generally appears pale green with flashes of yellow or light brown but will appear pinkish orange or pinkish red under incandescent or candlelight. The larger the crystal, the more noticeable the change in color. In 1949, Dr. Togan Onay discovered the occurrence of bauxite in the region (Hatipoglu and Chamberlain, 2011). Throughout the 1950s, the General Directorate of Mineral Research and Exploration, currently under the Ministry of Energy and Natural Resources of the Republic of Turkey, conducted feasibility studies in the region to assess the potential of the bauxite deposit (Lule, 2011). It subsequently published a report stating that there was an occurrence of giant diaspore crystals in the area, which caught the attention of international mineral collectors (Lule, 2011). In 1966, the diaspore crystals found at Milas were reported to be gem quality (Lule, 2011). The bauxite reserves cover a massive area (about 6,500 ha) (Schorr, 2013); however, gem quality material is believed to be found only in a small area.

In 1972, the state-owned mining company, ETIBANK, began mining bauxite (Hatipoglu and Chamberlain, 2011). During ETIBANK's ownership, diaspore crystals were not given importance and did not appear in ETIBANK's production reports (Hatipoglu and Chamberlain, 2011). However, illegal export by various illicit actors took place during this time, and those gemstones were sent outside of Turkey for processing and sale (Lule, 2011), especially between 1978 and 1982 (Hatipoglu and Chamberlain, 2011). Thereafter, diaspore crystals became identified as gemstones and began appearing in the geology and gemology literature. In 1995, a Gemological Institute of America (GIA) article mentioned gem quality diaspore coming from Turkey for the first time (Gem News of GIA, 1995). Since then, no other deposits containing gem quality diaspore have been reported in the literature (Hatipoglu et al., 2010).

ETIBANK continued mining the site for bauxite until 1982 (Hatipoglu and Chamberlain, 2011). It is believed that after ETIBANK abandoned the site in 1982, a great amount of gem quality material was taken out of the mine by unauthorized individuals (Hatipoglu and Chamberlain, 2011; Susut, 2016). Reportedly, those stones were poorly cut and distributed to the international market, lowering the reputation and value of the gemstone (Susut, 2016). The Zultanite/Csarite mine, major tourist areas near the mine, and some of the major cities in Turkey are depicted in the figure below (Fig. 2).

In the mid-2000s, the Turkish government began privatizing government assets. In this context, in 2005, Murat Akgun partnered with Yoshi Kirsch and under the Milenyum Mining Company (MML) bought the mine from the government and created a company in the United States, Zultanite Gems LLC, to oversee the global marketing and distribution of the material (Susut, 2016). They named the gemstone Zultanite and began a major marketing initiative; however, their business was negatively impacted by the 2008 financial crisis, and their partnership ended in 2009 (Susut, 2016). The Zultanite trademark remained in the hands of Zultanite Gems LLC, while the mine ownership remained in the hands of MML (Susut, 2016). After this parting, MML made an agreement with Zultgems LLC from Thailand (Schorr, 2013).

Fig. 2. Location of the Zultanite/Csarite Mine in Turkey, nearby touristic areas, and major cities.

However, this partnership ended in 2012 (Schorr, 2013), and MML marketed the gemstone under the name of Turkish diaspore until it renamed it as Csarite in 2014.

Although MML did not provide Zultanite Gems and Zultgems with any additional gemstones after the partnership ceased, Zultanite Gems and Zultgems have continued marketing their remaining inventory as Zultanite. Zultgems is the largest cutter and has a significant inventory of rough gemstones that will last for years, while Zultanite Gems LLC has a smaller inventory (Schorr, 2013). Currently, Zultanite Gems and Zultgems are marketing the material under the name of Zultanite, while MML is marketing it under the name of Csarite. Since the summer of 2016, MML has temporarily stopped mining due to economic reasons.

5. Comparison of tanzanite and Zultanite/Csarite using the 4P framework

5.1. Product

5.1.1. Tanzanite

Tanzanite is a variety of zoisite, its hardness is 6–6.5 Mohs, and most requires processing (heating) for color enhancement. Zoisite crystals have perfect cleavage, which makes them somewhat difficult to cut, and it is the only material that is extracted from the mine; there are no known byproducts. While zoisite is predominantly marketed as tanzanite, for its deep blue-to-violet color, it also appears on the market as pink, green, yellow, or white (Wilson et al., 2009). The overall yield of a rough zoisite crystal to a faceted gemstone is approximately 25% (Tanzanite Experience, n.d.). The mine has a 1.2 tones annual rough mineral production capacity (USGS, 2017). Between 2010 and 2014, on average, the mine produced 1.1 tones of zoisite, calculated via the USGS (2017) table below, although these are not all gemstone grade quality (Table 2).

Table 2
Tanzanite production between 2010 and 2014 (USGS, 2017).

Year	2010	2011	2012	2013	2014
Production in kilograms	2,001	823	759	900	900

In 2014, tanzanite accounted for 59% of the value of Tanzanian gemstone production (USGS, 2017). In the same year, large-scale mines accounted for 64% of the value of tanzanite produced, while artisanal and small-scale mines accounted for 36% (USGS, 2017). Artisanal and small-scale miners operated in Blocks B and D, while medium-scale miners operated in Block A and in the Block D Extension (USGS, 2017). Richland Resources Ltd. mined (on a large-scale) in Block C; the company also cut high-quality tanzanite at its lapidaries in Tanzania (USGS, 2017). The majority of faceted gemstones are under 5 carats in weight, and tanzanite crystals over 50 carats are very rare (King, 2017). At the 2013 rate of mining, TanzaniteOne's 2013 geological tests estimated that the life of the mine is 30 years (TanzaniteOne, n.d.).

5.1.2. Zultanite/Csarite

Zultanite/Csarite is a variety of the mineral diaspore, its hardness is 6.5–7 Mohs, and it does not require any processing for color enhancement. The MML mine's bauxite stock is deemed to be between 15 and 30 million tons. A very small percentage of this stock has diaspore crystals. Between 2012 and 2016, on average, 47,500 tons of bauxite and 0.95 tons of diaspore crystals (0.002% of all production) were mined (MTD, 2016). During the mining process, when diaspore crystals are found in the mine, bauxite extraction stops until all the crystals are removed. According to the interviewees, if there were no diaspore crystals, bauxite mining itself would not be economically viable when

aluminum prices are low prices are low. Perhaps this might be due to global competition in the production and refining of bauxite.

Only 40–50% of the diaspore crystals extracted are gem quality (MML, n.d.). In addition, diaspore crystals have perfect cleavage, which make them very difficult to cut. The cutting yield is only 2–3% for smaller gemstones and 10–20% for larger stones, while the yield for other kinds of gemstones, including tanzanite is generally between 20 and 35% (Schorr, 2013). In order to increase the yield and highlight the color-change component of the gemstone, which can be improved with proper cutting, MML works with the top lapidaries in the world. Yet, overall, only one out of a hundred diaspore crystals end up being used in jewelry. Most Zultanite/Csarite faceted gemstones weigh between 1–3 carats, and MML considers pieces over 5 carats large stones (MML, n.d.). At the 2013 rate of mining, the expected life of the mine was calculated as 20 years, pending the discovery of new veins (Schorr, 2013). MML believes there might be more diaspore crystals in this locality, as not all of the claim has been explored (Schorr, 2013). There has been no annual production since the summer of 2016, when the mine closed.

5.2. Price

The pricing of gemstones fluctuates according to many factors, such as the quality of the stone and the market demand.

5.2.1. Tanzanite

Tanzanite prices have seen wide fluctuations due to a variety of reasons (e.g. it being single sourced, Tanzanian government's regulations, illegal mining and smuggling, and even natural disasters such as the 1998 flood) (King, 2017). Current prices range from $250 to $1000 for one carat of cut and polished tanzanite. Tanzanite is one of the best-selling gemstones in the world (King, 2017), which indicates that its pricing appears to be accepted in the market.

5.2.2. Zultanite/Csarite

Prices for cut and polished Zultanite/Csarite range from $100 to $1000 per carat, reaching up to $5000 per carat for stones over 10 carats. One of the appealing aspects of Zultanite/Csarite is its "color-change" specification. However, according to the interviewees, this color-change is not very apparent for stones below 7 carats, which are found to be too expensive in the current market.

5.3. Promotion

5.3.1. Tanzanite

The naming of tanzanite is generally attributed to Henry Platt, the president of Tiffany & Co. at the time tanzanite was discovered. Platt seized the opportunity to capitalize on its rarity, but felt that the name *zoisite* would not appeal to consumers, as it sounded too much like the word "suicide" (Smith, 2012). He proposed the name *tanzanite* in honor of the only place in the world where the gemstone was found and to further distinguish the exclusivity of the gem (Smith, 2012).[6] Tiffany & Co. launched an ambitious advertising campaign in October 1968, declaring tanzanite the "most beautiful blue stone discovered in over 2000 years" and stating that, "Tanzanite can be only found in two places in the world, Tanzania and Tiffany's" (Tanzanite One Museum, 2008).

The global popularity of tanzanite may in part be attributed to Platt; however, it is also due to the initial marketing finesse of TanzaniteOne and the later efforts of the Tanzanite Foundation. The Tanzanite Foundation was formed by TanzaniteOne in 2003, as a nongovernmental organization focused on promoting and protecting Tanzanite. Although Tanzanite One and the Tanzanite Foundation ceased their operations in 2014 (Donahue, 2018), the museum they established in downtown Arusha in 2008, the "Tanzanite Experience", continues to attract tourists from all over the world. The museum includes images of members of the Maasai ethnic group and supposed narratives from their folklore. The Maasai are attributed with the origin story of tanzanite and the discovery of tanzanite, and tanzanite is further authenticated through these and other narratives. For example, in 2006, the Tanzanite Foundation launched a campaign marketing tanzanite to the Western world as a "push present" for men to give their wives after the birth of a baby. This was said to follow the practice of Maasai men who purportedly gave tanzanite to their wives when they had their first baby (Donahue, 2018). Building on Henry Platt's foundations, these marketing schemes converged two iconic images from Tanzania (tanzanite and Maasai) and helped to establish tanzanite as a coveted gemstone in social and political imaginations. For example, tanzanite was reportedly worn by "a number of stars and starlets"[7] at the 2009 Oscar Awards, and during a 2011 visit to Tanzania, Hillary Clinton "fell in love with tanzanite"[8] and purchased a pair of tanzanite earrings, which she wore to a meeting with President Kikwete. The ambitious marketing campaign of TanzaniteOne through the Tanzanite Foundation has earned them the reputation as "the DeBeers" of tanzanite. In 2002, tanzanite became an official birthstone for the month of December (Tanzanite Foundation, n.d.).

TanzaniteOne's and the Tanzanite Foundation's marketing campaigns used the taglines, the 'Mark of Rarity' and "Be Born to Tanzanite", which referred to its single source origin, quality, recognition as a push present and birthstone, and its connection to the Maasai (Schroeder, 2010). This connection to Maasai was further established through efforts to advertise tanzanite in magazines and via partnerships with designers. For example, a 2016 coffee table book, *Tanzanite—Born from Lightning*, written by a journalist and the former executive director of the Tanzanite Foundation, claims that its title comes from the Maasai legend that tells of lightning striking a tree in northern Tanzania, sparking a fire through the Savannah, and heating rocks that turned into tanzanite (Brodbeck and Henning, 2016). Although Maasai are active at Mererani, buying and selling gemstones and selling milk and beadwork (McCabe et al., 2014; Smith, 2015, 2016), there is little to no evidence that Maasai in this region tell this origin legend or adhere to the practice of gifting tanzanite to new mothers.[9]

TanzaniteOne also markets its development efforts in Maasai communities in the area and advertises the large amount of taxes they have paid to the government. In 2005, the past CEO of TanzaniteOne appeared in the Tanzanian media handing over an enlarged copy of a bank check for taxes to the Tanzanian government (Schroeder, 2003). Although coverage like this may suggest otherwise, according to one gemstone dealer in Arusha, "tanzanite succeeded in spite of the Tanzanian government, not because of the Tanzanian government," meaning that gemstone companies and retailers generally find the Tanzanian government very difficult to work with. The recent ban by

[6] Another less publicized account attributes the naming of tanzanite to Julius Nyerere, the president of Tanzania after independence in 1962. The *Monitor* newspaper of Kampala, Uganda (October 17, 1999) reported: "Shortly after this, a type of precious stone was unearthed in Tanzania. The country's parliament unanimously resolved to name this gem the "Nyeretrite" in recognition of his stature as a statesman locally as well as internationally. The president thanked his countrymen for their kind consideration but politely declined the honor. In keeping with his Socialist agenda, he proposed that the stone be named "tanzanite". Tanzania, he argued, was "more important than individuals".

[7] *The Arusha Times* "Tanzanite for Hollywood World Famous Celebrities," August 16–22, 2008.

[8] An article on Hillary Clinton's "love for Tanzanite" appeared as a press release from the International Colored Gem Association July 18, 2011. http://www.gemstone.org

[9] None of the Maasai interviewed for this and other studies (Smith, 2012) confirmed that these claims were true.

the Tanzanian government on exporting rough gemstones illustrates this dealer's point.

In addition, TanzaniteOne claims that their gemstones are "conflict free". After the 9/11 terrorist attacks, an article appeared in the Wall Street Journal that stated that Al Qaeda was in part funded by their involvement with tanzanite (Block and Pearl, 2001). Although this claim was later retracted (Schroeder, 2010), TanzaniteOne successfully leveraged it by marketing their gems as "conflict free" thereby creating an environment where unbranded tanzanite was to be avoided in the international market because of its supposed links with Al-Qaeda (Schroeder, 2003, 2010). Some interviewees also claimed that this negative media coverage resulted in tanzanite gaining more popularity by simply drawing people's attention to the gemstone.

One of the issues that the government and the mining company are concerned about at Mererani is the illegal exporting of tanzanite. Illegal exportation can negatively impact the promotion of gemstones by increasing costs (security, crystal production per unit, etc.) and harming market value and reputation since these gemstones are often unprofessionally cut and sold. In 2017, the government acted on their concerns about illegal exports of tanzanite, by directing the army to build a wall around the perimeter of Mererani. In April 2018, the 24 km wall was completed and accompanied by a mandate that the wholesale of tanzanite be carried out inside the wall under the control of the Tanzanian Central Bank. The government also established tighter security controls at airports and border points. These efforts, in concert with a 2017 law to promote local beneficiation, which banned the exportation of rough tanzanite over one gram ultimately allow the government to capture more tax revenue on legally exported tanzanite, as well as the beneficiation process (the Citizen, 2018).

5.3.2. Zultanite/Csarite

During the 1982–2005 mine closure, a great amount of gem quality diaspore crystals was collected by various actors. Those crystals were unprofessionally cut, then sold well under their market value. After acquiring the mine in 2005, MML needed to address the poor reputation of the gemstone. For this purpose, it initiated a major marketing initiative and requested an alliance with Tiffany & Co. However, no known collaboration with Tiffany & Co. has taken place so far.

After MML's partnerships failed, the material continued to be marketed and sold as Zultanite. Although Zultanite Gems LLC and Zultgems LLC do not have access to the Zultanite/Csarite mine, they have enough inventory to continue to supply the market under the name Zultanite. Hence, the gemstone is sold as both Zultanite and Csarite at the moment. It was also sold as Turkish diaspore for a period of time. According to the interviewees, these different names for the material cause confusion and reduce the impact of MML marketing the gem as coming from a single source, harming its reputation and slowing its promotion.

After naming the gemstone as Csarite, MML has mainly focused on its rarity and color-change characteristics to promote the gem. MML claims Zultanite/Csarite to be 1000 times rarer than tanzanite and 10,000 times rarer than diamond, and markets the fact that it changes colors under different lights (MML, n.d.). MML's marketing methods also involve celebrity placements with Hollywood movie stars wearing designer jewelry set with Zultanite/Csarite, gemstone and mineral specimen donations to museums (e.g. the Smithsonian Institution) and other non-profit organizations (e.g. the GIA), attending international gem shows and offering wholesale purchasing opportunities (e.g. Tucson, AZ, USA and Hong Kong, China), jewelry sales and branding via Gems TV, a UK-based gem and jewelry television sales company, and hiring famous lapidaries and designers.

MML also markets its community development, environmental sustainability, and social responsibility efforts (MML, n.d.). According to the interviewees, MML has improved the local town's infrastructure, purchased available services and goods from locals, and made donations. MML (n.d.) also states that it is adhering to both environmental and health and safety government regulations. In addition, MML works with Turkish government bodies at some level for marketing purposes; however, these efforts have not been very apparent. Overall, it seems like environmental sustainability and social responsibility efforts exist at some level. However, one should bear in mind that the area is in a region that has historically been more developed than other regions of Turkey. Moreover, its GDP is much higher than the rest of the country (in the top 10 out of 81 cities) (Sabah, 2012).

Another problem MML faces is that there are other regional companies claiming to find Zultanite/Csarite in their mines. However, MML accuses them of burying crystals that were stolen from their sites and claiming to find them in their own sites. Another issue that MML faces is theft. Before 2018, people who were found to have stolen crystals were only fined. As the crystal generated more profit than the costs of fines, the thieves, although caught by the company, continued operating. In 2018, the law changed to charging theft with a 3-5-year prison sentence. According to the interviewees, this reduced the thefts and the blackmailing of the workers of the mine, who were forced to steal crystals for outside actors. There have been more than 30 court cases related to Zultanite/Csarite theft. Like the case of tanzanite, thefts increase costs and harm the gemstone's reputation and market value, with stolen crystals being unprofessionally cut and sold under various names (e.g. Csarite, Ottomanite, Turkish diaspore, Zultanite).

5.4. Place

Provenance has been underlined for both tanzanite and Zultanite/Csarite, as they each are only commercially mined from one specific region. Both gemstones were given names associated with the locations where they were first found. In addition, both attempted to connect to the cultural heritage and tourism industry of these two regions.

5.4.1. Tanzanite

The connection to place in the marketing of Tanzanite has been significant. As mentioned above, tanzanite was named after Tanzania and has been marketed in association with the Maasai ethnic group. In addition, Mererani is located 15 km (~10 miles) from the Kilimanjaro airport, a hub for tourists who come to Tanzania to climb Mt. Kilimanjaro[10] and tour the northern safari circuit, which includes Serengeti National Park, the Ngorongoro Conservation Area, and several other protected areas known for their spectacular wildlife. Although it is no longer there, for several years, a TanzaniteOne billboard outside of the Kilimanjaro airport advertised tanzanite and was one of the first images tourists would see upon exiting the airport. Furthermore, Arusha, the city where tourists often connect with safari companies, is not only home to the Tanzanite Experience museum, but also countless gemstone dealers and several curio shops that advertise tanzanite. One of the most popular outlets for souvenirs is the expansive Cultural Heritage center located on the outskirts of Arusha. It is also the largest retail outlet for TanzaniteOne tanzanite. Most tour operators stop there with their clients where they are encouraged to buy tanzanite and are assured that they are not purchasing imitation gemstones that are rumored to be sold elsewhere. TanzaniteOne and the Tanzanite Foundation have successfully leveraged the tourism industry and the heritage of northern Tanzania by promoting the gemstone's origin at the base of Mt. Kilimanjaro and its association with Maasai cultural traditions. In addition, tanzanite marketing to tourists also occurs on cruise ships, particularly in the Caribbean region (Donahue, 2018).

5.4.2. Zultanite/Csarite

Zultanite/Csarite was initially named Zultanite, inspired by the Ottoman Empire sultans. However, tourism and cultural heritage

[10] Mt. Kilimanjaro recently won a World Travel Award in Africa's Leading Tourist Attraction category (WTA, n.d.).

connections remain weak despite the numerous popular holiday destinations nearby the mine (such as Bodrum, Cesme, Datca, Kusadasi, Marmaris, etc.), as well as the long history of the region, including the Ottoman Empire, the Roman Empire, ancient Greek settlements, and so on. In the last 10 years, 33.5 million tourists visited Turkey annually, while approximately 1 million tourists visited Tanzania annually (World Bank, 2016). Despite the overwhelming number of visitors, the tourism linkages with Zultanite/Csarite were not utilized unlike in tanzanite's case. According to the interviewees, one of the reasons why the link between tourism and marketing success has remained relatively weak for Zultanite/Csarite may be that MML did not sufficiently invest in supplying local shops with their branded gemstones because of their interests in creating a global market for Zultanite/Csarite. According to one interviewee, local success is the first step to building a successful global brand. However, there is interest by MML to promote this nexus. For instance, one of the long-term plans of MML is to establish a Zultanite/Csarite gem museum in Turkey. However, to date this project has not been completed.

6. Discussion

The color of tanzanite and TanzaniteOne's and the Tanzanite Foundation's marketing efforts that promoted the environmental and cultural heritage of tanzanite's origin seem to be the most significant contributors to its success. In the case of Zultanite/Csarite, color seemed to almost detract from its popularity. Furthermore, leveraging the local environment and cultural heritage seems to be a missed opportunity. In addition to those characteristics encompassed by the the 4P (*product, price, promotion, and place*) framework and the corresponding 4C's framework, value addition, color, responsible mining, and origin and traceability, there are also case specific factors that have contributed to the relative success of tanzanite and Zultanite/Csarite in the gemstone market. These factors include cost and profit ratio, third party involvement, and legal issues.

6.1. Revisiting the 4P Framework

Under the 4P framework, both in the tanzanite and Zultanite/Csarite cases, rarity was highlighted in marketing. While rarity is important for gemstone marketing, this case shows that it is not the only factor in determining value. As discussed, the 4C's framework, *cut, color, clarity, and carat* help to explain these gemstones' success. Lapidary (*cut*), is given importance and done professionally in both cases. However, MML gives this extra importance by working with high profile lapidaries, perhaps to increase the yield of the gemstone. In terms of color, tanzanite shows its color best in stones of 5 carats or larger (GIA, n.d.); however, the color is apparent even in smaller sizes. For Zultanite/Csarite, according to the interviewees, one of the main reasons behind the poor market acceptance of Zultanite/Csarite is that it is not found attractive by consumers, as its color has a very low saturation, especially in the smaller stones. According to Drucker (2006), the president of Gemworld International, Inc., beauty and acceptance are the keys to the success of any gemstone. Color is also considered a prominent value factor for colored gemstones. According to the interviewees, in lower saturations, Zultanite/Csarite appears less 'green' and more pale brown or tan. They stated that it could be more popular if the color were more saturated. In addition, the color-change dimension of the gemstone is not very apparent for most gemstones, as it requires clarity and larger sizes above 7 carats, which are found to be too expensive in the current market. In addition, tanzanite crystals are generally larger than Zultanite/Csarite crystals.

In terms of the value addition process, tanzanite requires heating while Zultanite/Csarite does not, which has been highlighted by MML. The value addition process seems to be done professionally for both gemstones. However, MML gives this extra importance by working with high profile lapidaries. Pricing for tanzanite seems to be accepted in the market, as it has been sold in large amounts (King, 2017). However, according to the interviewees, pricing for Zultanite/Csarite is perceived as too high in the market. Both in the tanzanite and Zultanite/Csarite cases, responsible mining practices have been underscored. While this has played a significant role in the tanzanite case, specifically pro-9/11 conflict gemstones discussion, the responsible mining efforts of MML have not been very influential in terms of marketing success of the gemstone. In both cases, provenance has been underlined. However, in the tanzanite case, a strong connection to place has been created via highlighting its single origin, and its links to environmental (Mt. Kilimanjaro and the northern Tanzania safari circuit), and cultural (Maasai) heritage. For the Zultanite/Csarite case, single origin is greatly emphasized as well; however, the environmental and cultural heritage of the region have not been leveraged, despite the prevalence of tourism in the region.

In conclusion, they both used similar promotion methods, which are widely used in the industry. However, it is clear that MML's promotion of Zultanite/Csarite as a single source gemstone has not been effective compared to tanzanite. According to the interviewees, Zultanite/Csarite is not well-known by consumers or people in the industry (e.g. there is not much recognition in mainstream publications), and until mainstream publications highlight Zultanite/Csarite, its marketing will be a challenge (Drucker, 2006).

6.2. Case-specific factors impacting Tanzanite and Zultanite/Csarite

In addition to the points we discussed under the 4 P framework, cost and profit relationship, third party involvement, and legal issues are case specific factors for tanzanite and Zultanite/Csarite.

The cost and profit relationship, meaning the mining expenses and the amount of gemstone produced, has been unfavorable for MML. MML extracts bauxite, a byproduct of the mine that is required to be extracted in order to unearth Zultanite/Csarite crystals. Only 0.002% of all production is gemstone crystals and the rest is bauxite (MTD, 2016). According to the interviewees, if there were no diaspore crystals, bauxite mining itself would not be economically viable when aluminum prices are low. Hence, having to mine bauxite is placing an economic burden on MML during the down cycle of commodity price of aluminum. Generally, less than a ton of Zultanite/Csarite crystals are unearthed per year (MTD, 2016), and only one out of a hundred diaspore crystals end up being used in jewelry. Most Zultanite/Csarite faceted gemstones are small in size (1–3 carats), and pieces over 5 carats are considered large stones (MML, n.d.). Hence, MML has high production costs but it produces a small amount of gemstones. Although tanzanite and Zultanite/Csarite crystals are extracted at around the same amount, approximately one ton per year, there is no byproduct of tanzanite that increases mining costs. In addition, cutting yields (25%) and carat sizes for tanzanite are much higher than they are for Zultanite/Csarite. Therefore, tanzanite mining has much lower production costs but produces more and better-quality gemstones.

In terms of third-party involvement, Tiffany & Co. was significant in the promotion of tanzanite and its global recognition. However, no known collaboration has occurred between Tiffany & Co. and MML even though, according to the interviewees, MML requested their support. Legal issues have also figured into the stories of tanzanite and Zultanite/Csarite. Theft is a problem for both, perhaps just like every other gemstone mine in the world. However, a single gemstone with multiple names on the gemstone market, previous partners selling gemstones, other companies claiming to find gemstones in their sites, ongoing litigations, and market existence of gemstones collected during the 1982–2005 mine closure have been harmful for Zultanite/Csarite. Although Tanzanite did not have some of these problems, it had similar legal issues (e.g. mine changing ownership, small scale vs. large scale miner conflicts, government takeover). However, its name has been the same since the beginning and most legal issues have been addressed.

7. Conclusion

Our research considered two gemstones with single origin mining locations. However, the value determination and popularity had very different outcomes for the two stones. In the case of tanzanite, the attractive color of the stone, the marketing finesse of TanzaniteOne, the Tanzanite Foundation, and jewelers such as Tiffany & Co., and the links that were created with iconic east African images, contributed to its success in the global gemstone market. On the other hand, the marketing of Zultanite/Csarite from Turkey did not leverage the country's high level of tourism infrastructure or the natural or cultural heritage of the area. Another important differentiator was the size of stones. Even smaller tanzanite stones have color and appeal, whereas smaller Zultanite/Csarite stones do not possess the coveted color-change and saturation that larger stones do. Thus, the large stones could command great value, but the economies of scale do not allow for the mining costs to be recuperated. Companion minerals can also play an important role in the cost of mining a particular gemstone. Overall our research suggests that colored gemstones from single or rare locations need to be harnessed with a careful marketing strategy with specific attention to color and a strong connection to notable aspects of their place of origin.

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Declaration of Competing Interest

The authors believe to have no financial and personal relationships with other people or organizations that could inappropriately influence this work.

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