Impact of Economic Recession on Gems and Jewellery Export

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ARTICLE INFO	ABSTRACT
	In this paper, the researcher analyses the impact of recession on the exports of gems & jewellery industry. For this purpose, the export data was collected based on pre- and post-recession period and analyzed the effect by the event study method. The optimum least square estimation shows how much the industry is being affected by the recession. The gems & jewellery export majorly depends upon the world economy. This is the only industry where there is no impact of world recession and growth. In contrast to this the exports volume and growth rate registered an increasing trend as a measure of good investment item.

1   Introduction

The word 'recession' refers to the slowdown in the economic activity resulting into contraction of business cycle. The important economic indicators of macro-economic are gross domestic product, capacity utilization, investments spending, house-hold income, business profits, and inflation. Due to recession, there is a significant change rise in these macro indicators along with unemployment. This phase usually ends up in financial crises, extreme decline in the trade, resulting in reduction of supplies. The government responses in this situation are by adopting expansionary tactics by increasing the government spending and decreasing taxation. Recession has many attributes that can occur simultaneously and includes declines in component measures of economic activity that is government spending, net export activity, investments, etc.

The recent recession crises and globalization are drastically challenging Indian exports, leading to deep transformation in their internationalization, innovation and organization strategy (Anand, 2015). Empirical focus is on the single industry and the evidence in this sheds light on different phases of gems & jewellery sector minutely. The complete global arena and comparative analysis reveals prominent differences among the upstream and downstream of internationalization strategies.

The cycles of recessions typically change the competitive landscapes. For example, in 2007-08 recession led to India making stronger foot holds in the international gems & jewellery markets, whereas the recession 2014-15 has helped China in making deep inroads into the international gems & jewellery markets.

Extreme greed of capitalism is the major cause of recessions. The major recession of 2007-08 was the extreme greed of banks and bubble-burst of internet (De Bondt, 2010). The recent recession in 2013-14 has been caused by non-sustainable public policies of doles to people in Greece, and failure in China. These views create an empirical literature highlighting the transformation of gems and jewellery industry including the on-going shifts in their structural characteristics and innovation and internationalization strategies. These changes are mainly a reaction to dynamics that are external to the industry itself, including the rise of the new global competitors and shifting exports market along with a role of global retailers and branded material manufacturers in creating international production networks that impose more stringent price, quality, and delivery standards for established suppliers. However, the evidence in the recent year is inconclusive in terms of whether such transformations are affecting the industry in similar of divergent ways, and to the extent to which factors external to the industry may contribute to, or explain, their economic performance.

Observational studies in the gems and jewellery sector have mainly analyzed wide range of fluctuations even though the internationalization and upgrading trajectories have heavily affected by industry specifications. Moreover, little is known how industry is responding to the recent economic recessions. This situation is responsible for a sharp decline in world trade and production compared to the earlier phases of globalization (Wallerstein, 2000). Export performance may diverge in the face of globalization crises, spurred by the entrance by the exporters from large emerging economies in the early 2000 and the recession crisis that began in 2008.

This paper focuses about recession and the patterns of insertion in the global economy affect with their competitiveness in the industry. The global value chain framework adopting the various variables helps to explain the transformation of the industry. The traditional artisan which mainly focus on the approach of unique insights by highlighting the role of external linkages to global industry in shaping the upgrading opportunities and trajectories of local clusters thereby making the role of global lead in the challenging scenario. The information provided using the trade data by Gems & Jewellery Export Promotion Council, Director General in Foreign Trade and India Statistics, and the secondary information from various articles, and the primary information obtained from the exporters, reveal that the gold jewellery is suited for several reasons, e.g., asset building, decorative purpose, and for prestige and show off. The focus on the gold jewellery allows deeper understanding of the industry due to the high risk of competition in the global scenario. A major pillar for success in this industry's export is the policy framing. According to the conventional view a successful alternative to increase export is the embedded cut & polished diamonds, the major part of CPD is in Surat and Mumbai. The production work is divided among many proximate firms that coordinate production activities through trust and face to face interactions. The highly skilled local workforce concentrated in a close proximity is the most desired advantage.

## 2   The Recent Trends in Gems and jewellery & Recession

The gems & jewellery industry whose competitive advantage originates in the local dimension is facing challenges posed by globalization, specifically offshore production, the integration of trade at global level and the formation of global production networks (De Marchi et al., 2013). This industry is heavily affected by the current changes in the economy and consequently the structural characteristics and globalized strategies. In the past most exporters were relaxed due to the lack in the formalities to be done in case of exports. But now a growing number are outsourcing their manufacturing, distribution, and branding activities to uplift their business. Lower value activities are often relocated abroad by means of foreign direct investments. The outward and the inward forms of international policies have generated the immediate outcomes among the different sectors in jewellery exports. This has led to the economic up gradation of firms and the enhancements of local workforce skills. The differences occur when the competitiveness offers a valuable framework that links global systems of production and consumption to the economic performance of India in total. This framework of stabilizing the policies developed since 2009 in which a positive change was seen in the consecutive two years to account for the emergence of global supply chain and a rich background boosted the industry. The policies of Make in India program are lacking in encouraging the sector of gems & jewellery exports. Although the government realizes that this sector is a substantial foreign exchange earner. To integrate the policy prospective of the industry to the exporters have been documented by raising the various norms in this program. These efforts to bridge the global and local divide has yet to fulfill and incorporate the perspective program policies to understand the industrial transformations. Here the researcher is attempting to give an analytical framework introducing the various dimensions keys to understanding the economic performance in the gems and jewellery industry.

Different types of global lead firms, multiple paths to global integration, and changing structure of production and export markets primarily focuses on the pros and cons of recessions. Primarily, the global enterprise in which the industrial firms are linked can be critical as per the competition on the overall performance (Gunasekaran et al., 2011). While augmenting exports, the manufacturers, retailers, and marketing personnel need to work with the context of the conditions of their nations. The rise of non-traditional jewellery retailers such as discount-chains like Walmart, and non-store retailers like TV Home Shoppe, is one such example. Multiple paths to global integration collaborate multiple ways to participate in various trade fairs and adopt the ways to internationalization (Ramírez-Pasillas, 2010). The upstream path involves importing of raw material and further domestic processing. The downstream refers to exporting final goods and establishing marketing channels overseas. Finally, the latest wave of globalization has incorporated large emerging economy in the industry initially as producer and exporters (Fatima, 2017). The global recession has accelerated pre-existing trends and driven important shifts. The supplier side considerations, geographically and organizationally, are taking place both at country and firm's level.

The global gems and jewellery industry has undergone significant changes over the last one and half decades. Distributors and retailers are typically the actors that capture the highest value produced. The role has increased in the recent years as the consolidation of jewellery industry and the vertical integration of suppliers

and retailers occurred in the industry. However, the retail channels have become more diversified due to the occurrence of various new contributors in this industry. Traditionally the most important segment in export is cut and polished diamonds, followed by the gold jewellery, but in the last few years the proportion of rough diamond and colored gemstones, pearls, and costume fashion jewellery has increased due to the rising prices of gold and general reduction in consumption and the change in the consumer habits and tastes. The growing popularity of solver jewellery also combines elements of different quality levels. The global trade of this industry has increased dramatically in the year 2008-09 according to the Gems and Jewellery Export Promotion Council. This drastic hike was due to the liberalized policy adopted by the government in the preceding year. The dominance of cut & polished diamonds is due to efficient craftsmanship in India.

Having been the world's leading exports of jewellery for many years, India is deeply affected by the impacts of global competition in the recent economic recessions. The jewellery production is fluctuating due to the competitiveness in the foreign markets, and also how the liquid cash flows around depending upon various economic situations.

Graph 1: Total exports in pre-, and post-recession scenario
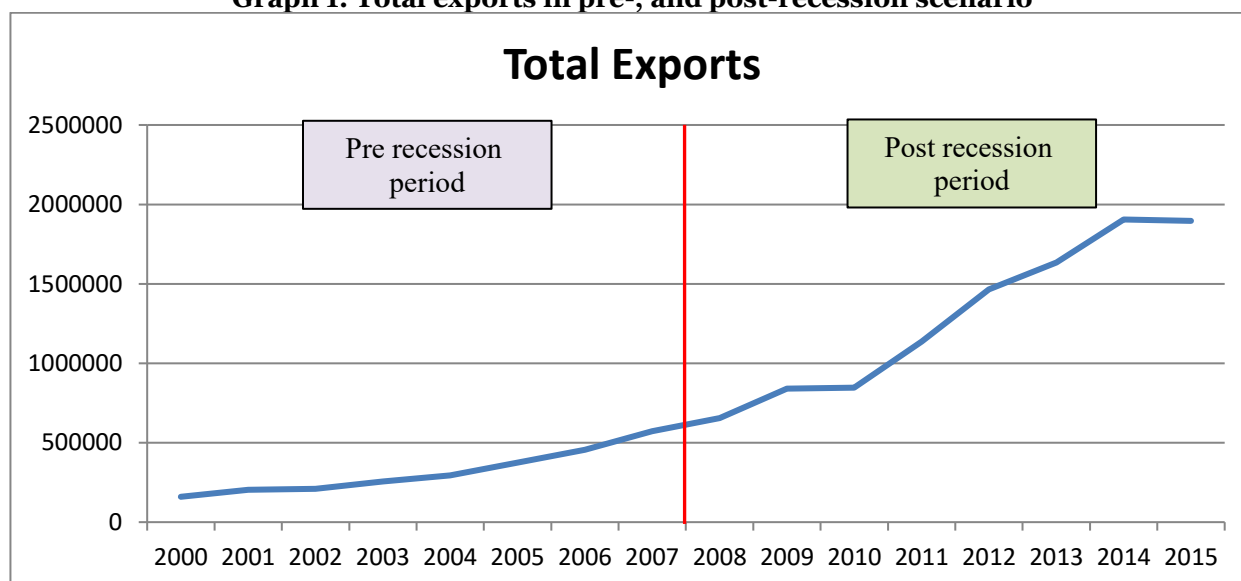
Graph 2: Total G&J exports pre-, and post-recession scenario
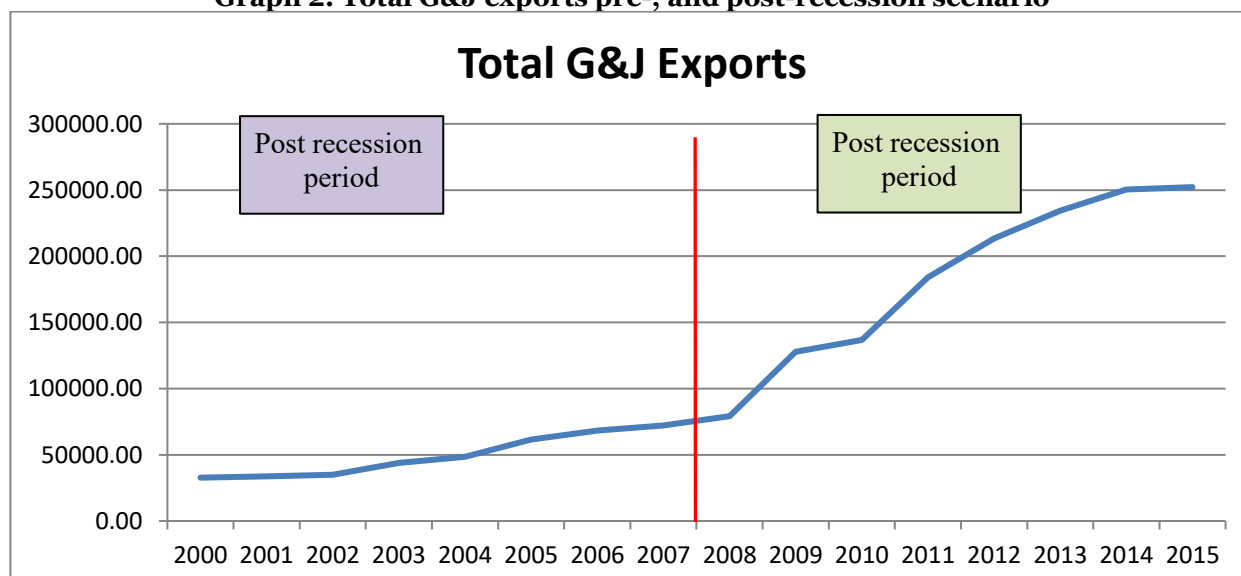
Event Study Methodology

Event study refers to
- In finance or economic or accounting research
- Analysis of whether there is any statistical significance of the past occurrence in financial market
- Event is hypothesized
- Effects on public firms' market values

- Design to investigate the effect of an event on a specific dependent variable

Event study is done based on specific events. In this study the event was the global recession in 2008. To this study the amounts were converted from corer Rs to billion Rs.

Event study is used to analyze the impact of any event on selected variables which can be applied with the help of OLS estimation only. Therefore, researcher has used this technique to analyze the impact of recession on export of Gems and Jewellery. The whole data has been divided in two parts i.e. Pre Recession Period (2000-2007) and Post Recession Period (2008-2014).

Researcher has analyzed the OLS estimation only for the pre-recession period. The critical t-test value is 1.96. If the t-test values are less than critical value, it will mean there was an impact of recession. If the t test value is higher it will simply no impact of recession.

Hypothesis: There is no significant effect on total exports due to World recession.

To prove the significance of this hypothesis the researcher has done the t-test to OLS according to the event (Event – World recession in 2008).

Total Exports				
Year	Actual Exports (AE)	Expected Exports (EE)	Deviation (D=AE-EE)	t test (D/S.E.)
2008	6558.64	5666.11	892.53	2.12
2009	8407.55	6224.08	2183.47	5.18
2010	8455.34	6782.05	1673.29	3.97
2011	11369.64	7340.02	4029.63	9.55
2012	14659.59	7897.99	6761.61	16.03
2013	16343.18	8455.96	7887.23	18.70
2014	19050.11	9013.93	10036.18	23.79
2015	18963.48	9571.90	9391.59	22.26
	Intercept	644.37		
	Slope	557.97		
	S.E	421.81		
	R Square	0.92		

In case of total exports, the intercept is 644.37, slope is 557.97, S.E. is 421.81, and R square is 0.92. These values are calculated based on pre-recession period (2000-2007) data. Based on these values the post-recession values (2008-2015) are estimated. The difference between the actual and estimated export has been calculated.

Each of the t-test values for total exports is more than the critical value (1.96) for all the years 2008-2015. This means, there was no impact of recession on total exports from India

Hence the above

Hypothesis: There is no significant effect on total exports of gems and jewellery due to World recession.

To prove the significance of this hypothesis the researcher has done the t-test to OLS according to the event (Event – World recession in 2008).

Table 1: t-test for total G&J exports

Total G&J Exports				
Year	Actual Exports (AE)	Expected Exports (EE)	Deviation (D=AE-EE)	t test (D/S.E.)
2008	792.09	781.44	10.65	0.27
2009	1278.73	845.13	433.60	10.84
2010	1367.04	908.83	458.22	11.46
2011	1841.20	972.52	868.68	21.72
2012	2133.76	1036.21	1097.55	27.44
2013	2343.26	1099.91	1243.35	31.08
2014	2503.53	1163.60	1339.93	33.50
2015	2522.02	1227.30	1294.72	32.37
	Intercept	208.18		
	Slope	63.69		
	S.E	40.00		
	R Square	0.95		

In case of total G&J exports, the intercept is 208.18, slope is 63.69, S.E. is 40, and R square is 0.95. For the year 2008, the t-test value is 0.27, which is less than the critical value (1.96) for t-test. This implies there was an impact of recession on total G&J exports in 2008. However, in the rest of the period (2009-2015) each of

the t-test values for total G&J exports is more than the critical value (1.96). This means, in the period 2009-2015 there was no impact of recession on total G&J exports from India.

The t-test reveals that in the year 2008 the effect of recession is seen as the significance level is more than the calculated value. Therefore the hypothesis is rejected. While in the case of other years, the calculated value is more than the significance level and thus hypothesis is accepted.

This means the gems & jewellery exports industry is not affected by world recession.
T-test for G&J Exports to Australia during 2000-2015
Hypothesis: There is no significant effect on exports of gems and jewellery to Australia due to World recession.

Table 2: T-test for Australia

Australia				
Year	Actual Exports (AE)	Expected Exports (EE)	Deviation (D=AE-EE)	t test (D/S.E.)
2008	5.34	4.87	0.47	1.78
2009	9.87	5.38	4.50	17.06
2010	8.50	5.88	2.62	9.93
2011	9.52	6.39	3.13	11.87
2012	12.16	6.90	5.26	19.97
2013	15.54	7.41	8.13	30.83
2014	18.18	7.92	10.27	38.95
2015	17.33	8.42	8.91	33.79
		Intercept	0.30	
		Slope	0.51	
		S.E	0.26	
		R Square	0.96	

In case of G&J exports to Australia, the intercept is 0.30, slope is 0.51, S.E. is 0.26, and R square is 0.96. For the year 2008, the t-test value is 1.78, which is less than the critical value (1.96) for t-test. This implies there was an impact of recession on G&J exports to Australia in 2008. However, in the rest of the period (2009-2015) each of the t-test values for G&J exports to Australia is more than the critical value (1.96). This means, in the period 2009-2015 there was no impact of recession on G&J exports to Australia.

T-test for G&J Exports to Belgium during 2000-2015
Hypothesis: There is no significant effect on exports of gems and jewellery to Belgium due to World recession.

Table 3: t-test for Belgium

Belgium				
Year	Actual Exports (AE)	Expected Exports (EE)	Deviation (D=AE-EE)	t test (D/S.E.)
2008	79.04	71.86	7.18	2.20
2009	86.20	76.40	9.80	3.00
2010	77.77	80.94	-3.17	-0.97
2011	108.83	85.48	23.35	7.16
2012	182.85	90.02	92.84	28.45
2013	132.22	94.56	37.67	11.54
2014	161.69	99.10	62.60	19.18
2015	163.49	103.63	59.85	18.34
		Intercept	31.01	
		Slope	4.54	
		S.E	3.26	
		R Square	0.93	

In case of G&J exports to Belgium, the intercept is 31.01, slope is 4.54, S.E. is 3.26, and R square is 0.93. For the year 2010, the t-test value is -0.97, which is less than the critical value (1.96) for t-test. This implies there was an impact of recession on G&J exports to Belgium in 2010. However, in the rest of the years in the period 2009-2015 each of the t-test values for G&J exports to Belgium is more than the critical value (1.96). This means, in the period 2008-2015 there was no impact of recession on G&J exports to Belgium, except in 2010.

T-test for G&J Exports to Canada during 2000-2015
Hypothesis: There is no significant effect on exports of gems and jewellery to Canada due to World recession.

Table 4: t-test for Canada

Canada				
Year	Actual Exports (AE)	Expected Exports (EE)	Deviation (D=AE-EE)	t test (D/S.E.)
2008	2.33	2.19	0.14	0.37
2009	4.07	2.34	1.73	4.68
2010	3.03	2.48	0.55	1.50
2011	4.19	2.62	1.57	4.24
2012	6.67	2.76	3.91	10.58
2013	5.95	2.90	3.05	8.24
2014	8.75	3.05	5.70	15.42
2015	8.53	3.19	5.34	14.45
		Intercept	0.91	
		Slope	0.14	
		S.E	0.37	
		R Square	0.51	

In case of G&J exports to Canada, the intercept is 0.91, slope is 0.14, S.E. is 0.37, and R square is 0.51. For the years 2008 and 2010, the t-test value are 0.37 and 1.50 respectively, which are less than the critical value (1.96) for t-test. This implies there was an impact of recession on G&J exports to Canada in 2008. However, in the rest of the years in the period 2009-2015 each of the t-test values for G&J exports to Canada are more than the critical value (1.96). This means, except in 2008 and 2010, there was an impact on G&J exports to Canada. For rest of the years in the period 2008-2015 there was no impact of recession on G&J exports to Canada.

T-test for G&J Exports to France during 2000-2015
Hypothesis: There is no significant effect on exports of gems and jewellery to France due to World recession.

France				
Year	Actual Exports (AE)	Expected Exports (EE)	Deviation (D=AE-EE)	t test (D/S.E.)
2008	2.52	1.90	0.62	3.10
2009	5.27	1.98	3.29	16.41
2010	2.89	2.06	0.83	4.14
2011	3.43	2.15	1.29	6.43
2012	4.55	2.23	2.32	11.58
2013	4.92	2.31	2.61	13.03
2014	4.49	2.39	2.10	10.48
2015	5.98	2.48	3.50	17.49
		Intercept	1.16	
		Slope	0.08	
		S.E	0.20	
		R Square	0.54	

In case of G&J exports to France, the intercept is 1.16, slope is 0.08, S.E. is 0.20, and R square is 0.54. For every year in the period 2008-2015, the t-test values are more than the critical value (1.96) for t-test. This implies there was no impact of recession on G&J exports to France in the period 2008-2015.

T-test for G&J Exports to Germany during 2000-201
Hypothesis: There is no significant effect on exports of gems and jewellery to Germany due to World recession.

Germany				
Year	Actual Exports (AE)	Expected Exports (EE)	Deviation (D=AE-EE)	t test (D/S.E.)

2008	4.99	4.64	0.35	0.47
2009	13.97	4.86	9.10	12.45
2010	6.76	5.08	1.68	2.29
2011	3.98	5.31	-1.33	-1.82
2012	6.03	5.53	0.50	0.69
2013	5.18	5.75	-0.57	-0.78
2014	6.75	5.97	0.78	1.06
2015	6.59	6.19	0.40	0.54
		Intercept	2.65	
		Slope	0.22	
		S.E	0.73	
		R Square	0.39	

In case of G&J exports to Germany, the intercept is 2.65, slope is 0.22, S.E. is 0.73, and R square is 0.39. The t-test values for Germany are more than critical t-test value (1.96) only in 2009 and 2010). For 2009 and 2010, there was no impact of global recession on G&J exports to Germany, But for rest of the years in the period 2008-2015, there was impact of world recession on G&J exports to Germany.

T-test for G&J Exports to Hong Kong during 2000-2015
Hypothesis: There is no significant effect on exports of gems and jewellery to Hong Kong due to World recession.

Hong Kong				
Year	Actual Exports (AE)	Expected Exports (EE)	Deviation (D=AE-EE)	t test (D/S.E.)
2008	205.26	162.91	42.35	4.28
2009	242.00	175.09	66.91	6.76
2010	295.64	187.27	108.37	10.94
2011	394.65	199.45	195.20	19.71
2012	536.10	211.63	324.47	32.77
2013	569.01	223.81	345.20	34.86
2014	675.98	235.99	440.00	44.44
2015	745.78	248.17	497.62	50.26
		Intercept	53.29	
		Slope	12.18	
		S.E	9.90	
		R Square	0.91	

In case of G&J exports to Hong Kong, the intercept is 53.29, slope is 12.18, S.E. is 9.90, and R square is 0.91. For all the years in the period 2008-2015 t-test value are more than the critical value (1.96) for t-test. This implies there was no impact of recession on G&J exports to Hong in the period 2008-2015.

T-test for G&J Exports to Italy during 2000-2015
Hypothesis: There is no significant effect on exports of gems and jewellery to Italy due to World recession.

Italy				
Year	Actual Exports (AE)	Expected Exports (EE)	Deviation (D=AE-EE)	t test (D/S.E.)
2008	3.75	2.85	0.90	4.10
2009	6.55	3.09	3.46	15.80
2010	3.66	3.33	0.32	1.48
2011	3.21	3.57	-0.37	-1.67
2012	5.40	3.82	1.59	7.23

2013	4.86	4.06	0.80	3.65
2014	6.44	4.30	2.14	9.78
2015	7.94	4.54	3.40	15.53
	Intercept	0.68		
	Slope	0.24		
	S.E	0.22		
	R Square	0.89		

In case of G&J exports to Italy, the intercept is 0.68, slope is 0.24, S.E. is 0.22, and R square is 0.89. For the years 2010 and 2011, the t-test value are 1.48 and -1.67 respectively, which are less than the critical value (1.96) for t-test. This implies there was an impact of recession on G&J exports to Italy in 2010, 2011. However, in the rest of the years in the period 2008-2015 each of the t-test values for G&J exports to Italy are more than the critical value (1.96). This means, except in 2010 and 2011, there was an impact on G&J exports to Italy. For rest of the years in the period 2008-2015 there was no impact of recession on G&J exports to Italy.

T-test for G&J Exports to Japan during 2000-2015
Hypothesis: There is no significant effect on exports of gems and jewellery to Japan due to World recession.

Japan				
Year	Actual Exports (AE)	Expected Exports (EE)	Deviation (D=AE-EE)	t test (D/S.E.)
2008	18.12	20.93	-2.81	-1.41
2009	17.02	21.27	-4.24	-2.13
2010	12.10	21.60	-9.51	-4.77
2011	12.69	21.94	-9.24	-4.64
2012	17.75	22.28	-4.53	-2.27
2013	18.70	22.61	-3.92	-1.97
2014	20.97	22.95	-1.98	-0.99
2015	17.15	23.29	-6.14	-3.08
	Intercept	17.90		
	Slope	0.34		
	R Square	0.17		

In case of G&J exports to Japan, the intercept is 17.90, slope is 0.34, S.E. is 1.99, and R square is 0.17. For each of the year in the period 2008-2015, the t-test value are less than the critical value (1.96) for t-test. This implies there was an impact of recession on G&J exports to Japan all through in the period 2008-2015.

T-test for G&J Exports to Kuwait during 2000-2015
Hypothesis: There is no significant effect on exports of gems and jewellery to Kuwait due to World recession.

Kuwait				
Year	Actual Exports (AE)	Expected Exports (EE)	Deviation (D=AE-EE)	t test (D/S.E.)
2008	0.17	0.93	-0.76	-2.60
2009	1.01	1.02	0.00	-0.02
2010	0.65	1.11	-0.46	-1.56
2011	0.43	1.20	-0.77	-2.62
2012	1.06	1.29	-0.22	-0.77
2013	0.67	1.38	-0.71	-2.44
2014	0.55	1.47	-0.92	-3.16
2015	2.84	1.56	1.28	4.38
	Intercept	0.12		

Slope	0.09	
S.E	0.29	
R Square	0.40	

In case of G&J exports to Kuwait, the intercept is 0.12, slope is 0.09, S.E. is0.29, and R square is 0.40. For each of the year in the period 2008-2015, the t-test values are less than the critical value (1.96) for t-test. This implies there was an impact of recession on G&J exports to Kuwait all through in the period 2008-2015.

T-test for G&J Exports to Netherland during 2000-2015
Hypothesis: There is no significant effect on exports of gems and jewellery to Netherland due to World recession.

Netherland				
Year	Actual Exports (AE)	Expected Exports (EE)	Deviation (D=AE-EE)	t test (D/S.E.)
2008	0.28	0.27	0.01	0.11
2009	1.69	0.24	1.45	12.42
2010	0.73	0.21	0.52	4.47
2011	2.06	0.18	1.88	16.04
2012	1.31	0.15	1.16	9.93
2013	0.96	0.12	0.83	7.13
2014	1.16	0.10	1.07	9.12
2015	0.99	0.07	0.93	7.93
	Intercept	0.52		
	Slope	-0.03		
	S.E	0.12		
	R Square	0.29		

In case of G&J exports to Netherland, the intercept is 0.52, slope is -0.03, S.E. is 0.12, and R square is 0.29. For the year 2008, the t-test value is 0.11, which is less than the critical value (1.96) for t-test. This implies there was an impact of recession on G&J exports to Netherland in 2008. However, in the rest of the period (2009-2015) each of the t-test values for G&J exports to Netherland is more than the critical value (1.96). This means, in the period 2009-2015 there was no impact of recession on G&J exports to Netherland.

T-test for G&J Exports to Saudi Arab during 2000-2015
Hypothesis: There is no significant effect on exports of gems and jewellery to Saudi Arab due to World recession.

Saudi Arab				
Year	Actual Exports (AE)	Expected Exports (EE)	Deviation (D=AE-EE)	t test (D/S.E.)
2008	0.42	0.19	0.23	6.19
2009	1.56	0.20	1.36	37.19
2010	0.40	0.20	0.19	5.31
2011	0.57	0.21	0.36	9.89
2012	0.72	0.21	0.50	13.79
2013	0.50	0.22	0.28	7.64
2014	0.66	0.22	0.44	11.97
2015	0.47	0.23	0.24	6.56
	Intercept	0.15		
	Slope	0.01		
	S.E	0.04		
	R Square	0.12		

In case of G&J exports to Saudi Arab, the intercept is 0.15, slope is 0.11, S.E. is 0.04, and R square is 0.12. For each of the year in the period 2008-2015, the t-test values are more than the critical value (1.96) for t-test. This implies there was no impact of recession on G&J exports to Saudi Arab all through in the period 2008-2015.

T-test for G&J Exports to Singapore during 2000-2015
Hypothesis: There is no significant effect on exports of gems and jewellery to Singapore due to World recession.

Singapore				
Year	Actual Exports (AE)	Expected Exports (EE)	Deviation (D=AE-EE)	t test (D/S.E.)
2008	8.75	32.32	-23.57	-1.49
2009	25.13	36.05	-10.92	-0.69
2010	28.34	39.79	-11.44	-0.72
2011	21.56	43.52	-21.96	-1.39
2012	29.42	47.26	-17.84	-1.13
2013	34.60	50.99	-16.39	-1.04
2014	32.08	54.72	-22.65	-1.43
2015	30.08	58.46	-28.38	-1.79
		Intercept	-1.28	
		Slope	3.73	
		S.E	15.81	
		R Square	0.28	

In case of G&J exports to Singapore, the intercept is -1.28, slope is 3.73, S.E. is 15.81, and R square is 0.28. For each of the year in the period 2008-2015, the t-test value are less than the critical value (1.96) for t-test. This implies there was an impact of recession on G&J exports to Singapore all through in the period 2008-2015.

T-test for G&J Exports to South Africa during 2000-2015
Hypothesis: There is no significant effect on exports of gems and jewellery to South Africa due to World recession.

South Africa				
Year	Actual Exports (AE)	Expected Exports (EE)	Deviation (D=AE-EE)	t test (D/S.E.)
2008	1.07	1.02	0.05	0.23
2009	3.32	1.13	2.19	9.93
2010	1.68	1.24	0.44	2.00
2011	2.42	1.35	1.07	4.85
2012	4.27	1.46	2.81	12.74
2013	3.80	1.57	2.23	10.09
2014	5.27	1.68	3.59	16.26
2015	4.68	1.79	2.89	13.10
		Intercept	0.03	
		Slope	0.11	
		S.E	0.22	
		R Square	0.64	

In case of G&J exports to South Africa, the intercept is 0.03, slope is 0.11, S.E. is 0.22, and R square is 0.64. For the year 2008, the t-test value is 0.23, which is less than the critical value (1.96) for t-test. This implies there was an impact of recession on G&J exports to South Africa in 2008. However, in the rest of the period

(2009-2015) each of the t-test values for G&J exports to South Africa is more than the critical value (1.96). This means, in the period 2009-2015 there was no impact of recession on G&J exports to South Africa.

T-test for G&J Exports to Spain during 2000-2015

Hypothesis: There is no significant effect on exports of gems and jewellery to Spain due to World recession.

Spain				
Year	Actual Exports (AE)	Expected Exports (EE)	Deviation (D=AE-EE)	t test (D/S.E.)
2008	1.73	1.71	0.02	0.10
2009	2.85	1.89	0.97	4.97
2010	1.67	2.06	-0.39	-2.02
2011	1.72	2.23	-0.52	-2.66
2012	1.64	2.41	-0.77	-3.96
2013	1.63	2.58	-0.95	-4.87
2014	1.97	2.75	-0.78	-4.01
2015	2.72	2.93	-0.20	-1.05
		Intercept	0.16	
		Slope	0.17	
		S.E	0.19	
		R Square	0.85	

In case of G&J exports to Spain, the intercept is 0.16, slope is 0.17, S.E. is 0.19, and R square is 0.85. For the year 2009, the t-test value is more than the critical value (1.96) for t-test. For rest of the years in period 2008-2015, the t-test values are less than the critical value. This implies, there was impact of world recession on G&J exports to Spain on all years in the period 2008-2015, except in 2009.

T-test for G&J Exports to Switzerland during 2000-2015

Hypothesis: There is no significant effect on exports of gems and jewellery to Switzerland due to World recession.

Switzerland				
Year	Actual Exports (AE)	Expected Exports (EE)	Deviation (D=AE-EE)	t test (D/S.E.)
2008	8.53	6.37	2.16	2.68
2009	9.49	6.39	3.10	3.84
2010	5.05	6.41	-1.37	-1.69
2011	8.19	6.44	1.75	2.17
2012	18.01	6.46	11.55	14.30
2013	10.72	6.49	4.23	5.24
2014	21.24	6.51	14.73	18.24
2015	17.96	6.54	11.42	14.14
		Intercept	6.15	
		Slope	0.02	
		S.E	0.81	
		R Square	0.01	

In case of G&J exports to Switzerland, the intercept is 6.15, slope is 0.0.2, S.E. is 0.81, and R square is 0.01. For the year 2010, the t-test value is -1.69, which is less than the critical value (1.96) for t-test. This implies there was an impact of recession on G&J exports to Switzerland in 2010. However, in the rest of the period (2008-2015) each of the t-test values for G&J exports to Switzerland is more than the critical value (1.96). This means, in the period 2009-2015 there was no impact of recession on G&J exports to Switzerland.

T-test for G&J Exports to Thailand during 2000-2015
Hypothesis: There is no significant effect on exports of gems and jewellery to Thailand due to World recession.

Thailand				
Year	Actual Exports (AE)	Expected Exports (EE)	Deviation (D=AE-EE)	t test (D/S.E.)
2008	15.72	16.15	-0.43	-0.33
2009	14.77	17.20	-2.43	-1.89
2010	14.66	18.26	-3.60	-2.80
2011	17.49	19.31	-1.83	-1.42
2012	28.92	20.37	8.55	6.63
2013	33.68	21.42	12.26	9.52
2014	45.63	22.48	23.15	17.97
2015	40.61	23.54	17.07	13.25
		Intercept	6.65	
		Slope	1.06	
		S.E	1.29	
		R Square	0.82	

In case of G&J exports to Thailand, the intercept is 6.65, slope is 1.0, S.E. is 1.29, and R square is 0.82. For the year 2008-2011, the t-test values less than the critical value (1.96) for t-test. This implies there was an impact of recession on G&J exports Thailand in years 2008-2011. However, in the rest of the period (2008-2015) each of the t-test values for G&J exports to Thailand is more than the critical value (1.96). This means, in the period 2009-2015 there was no impact of recession on G&J exports to Thailand.

T-test for G&J Exports to UAE during 2000-2015
Hypothesis: There is no significant effect on exports of gems and jewellery to UAE due to World recession.

UAE				
Year	Actual Exports (AE)	Expected Exports (EE)	Deviation (D=AE-EE)	t test (D/S.E.)
2008	162.52	155.06	7.46	0.45
2009	494.18	175.11	319.07	19.34
2010	585.32	195.16	390.16	23.65
2011	761.69	215.20	546.49	33.13
2012	781.87	235.25	546.62	33.14
2013	1015.82	255.30	760.53	46.11
2014	770.94	275.35	495.59	30.05
2015	750.22	295.39	454.83	27.57
		Intercept	-25.37	
		Slope	20.05	
		S.E	16.49	
		R Square	0.91	

In case of G&J exports to UAE, the intercept is -25.37, slope is 20.05, S.E. is 16.49, and R square is 0.91. For the year 2008, the t-test values less than the critical value (1.96) for t-test. This implies there was an impact of recession on G&J exports to UAE in years 2008. However, in the rest of the period (2008-2015) each of the t-test values for G&J exports to UAE is more than the critical value (1.96). This means, in the period 2009-2015 there was no impact of recession on G&J exports to UAE.

T-test for G&J Exports to UK during 2000-2015

Hypothesis: There is no significant effect on exports of gems and jewellery to UK due to World recession.

UK				
Year	Actual Exports (AE)	Expected Exports (EE)	Deviation (D=AE-EE)	t test (D/S.E.)
2008	11.48	12.90	-1.42	-1.70
2009	24.39	13.74	10.65	12.75
2010	14.81	14.57	0.24	0.29
2011	14.58	15.41	-0.83	-0.99
2012	22.71	16.24	6.47	7.74
2013	25.10	17.08	8.02	9.60
2014	24.59	17.91	6.68	7.99
2015	29.28	18.75	10.53	12.60
	Intercept	5.39		
	Slope	0.83		
	S.E	0.84		
	R Square	0.87		

In case of G&J exports to UK, the intercept is 5.39, slope is 0.83, S.E. is 0.84, and R square is 0.87. For the years 2008, 2010, and 2011, the t-test values are less than the critical value (1.96) for t-test. This implies there was an impact of recession on G&J exports to UK in years 2008, 2010, and 2011. However, in the rest of the period (2008-2015) each of the t-test values for G&J exports to UK is more than the critical value (1.96). This means, except for 2008, 2010, and 2011, in the period 2009-2015 there was no impact of recession on G&J exports to UK.

T-test for G&J Exports to USA during 2000-2015
Hypothesis: There is no significant effect on exports of gems and jewellery to USA due to World recession.

USA				
Year	Actual Exports (AE)	Expected Exports (EE)	Deviation (D=AE-EE)	t test (D/S.E.)
2008	200.18	223.54	-23.36	-2.52
2009	209.70	237.11	-27.42	-2.95
2010	222.46	250.69	-28.22	-3.04
2011	238.43	264.26	-25.83	-2.78
2012	322.36	277.83	44.53	4.80
2013	364.16	291.40	72.76	7.84
2014	469.59	304.97	164.62	17.73
2015	511.69	318.54	193.14	20.80
	Intercept	101.40		
	Slope	13.57		
	S.E	9.29		
	R Square	0.94		

In case of G&J exports to USA, the intercept is 101.40, slope is 13.57 , S.E. is 9.29, and R square is 0.94. For the years 2008-2011, the t-test values less than the critical value (1.96) for t-test. This implies there was an impact of recession on G&J exports to USA in years 2008-2011. However, in the rest of the period (2012-2015) each of the t-test values for G&J exports to USA is more than the critical value (1.96). This means, in the period 2012-2015 there was no impact of recession on G&J exports to USA.

T-test for G&J Exports to Others during 2000-2015
Hypothesis: There is no significant effect on exports of gems and jewellery to other countries due to World recession.

Others				
Year	Actual Exports (AE)	Expected Exports (EE)	Deviation (D=AE-EE)	t test (D/S.E.)

2008	59.88	58.81	1.07	0.22
2009	105.66	64.64	41.02	8.62
2010	80.91	70.47	10.44	2.20
2011	231.56	76.30	155.26	32.64
2012	149.95	82.13	67.83	14.26
2013	95.26	87.95	7.31	1.54
2014	226.59	93.78	132.81	27.92
2015	157.70	99.61	58.09	12.21
	Intercept	6.37		
	Slope	5.83		
	S.E	4.76		
	R Square	0.91		

In case of G&J exports to other countries, the intercept is 6.37, slope is 5.83, S.E. is 4.76, and R square is 0.91. For the year 2008 and 2013, the t-test values less than the critical value (1.96) for t-test. This implies there was an impact of recession on G&J exports to other countries in years 2008. However, in the rest of the period (2009-2015) each of the t-test values for G&J exports to UAE is more than the critical value (1.96). This means, in the period 2009-2015 there was no impact of recession on G&J exports to other countries.

Global Economic Crisis

The global economic prices hit the Indian economy at the time when it was riding an unprecedented high growth. The major economic reforms began in 1991, with the LPG policy. The growth rate in the 8th five-year plan that is from the year 1992-93 to 1996-97 was averaged to 6.7% per annum, which within 10 years increased to 7.7% per annum. This is when the global economic crisis hit the Indian economy. Based on past data, the growth target for the period 2007-08 to 2011-12 was pegged at 9% which could not be achieved because of the global crisis. However, in the gems & jewellery exports, the situation was reverse as during and after recession, this sector witnessed growth. Therefore, it seems that at recession, gems & jewellery exports get favorably affected as the funds get moved away from other financial instruments to gems & jewellery.

There is another factor that needs close scrutiny related to gems & jewellery exports when the rules and regulations, and paperwork is increased by the Indian government, then the gems & jewellery exports show a marked decline, even when the exports have been increasing. In the current decade, India has been recognized as the fastest growing economy, globally, after China. One major reason for the uptick in the exports is the improvements in government policies for the future growth and upgrades in the service sector.

Since Indian business groups were aware of their USP in terms of designs and craftsmanship for gems & jewellery, going for exports was a natural progression. As the value addition grew substantially, India gradually became one of the most important production centers worldwide for gems & jewellery. This growth continued in 1990s and further in the start of year 2000. The global markets presented tough challenges that undermined the global competitiveness and enhanced the producers and emerging economies like China and India to adopt the changes in global demand of gems & jewellery. A new pattern of international competition caused a significant downturn just before recession. According to the data collected from India Stats there is a sudden rise in the exports in spite of recession. The only reason for this was that the safest way for investment is jewellery. . The trade data analysis reveals a great heterogeneity in international markets which not only increases the gold jewellery exports, but also the exports of silver jewellery, pearl jewellery, etc.

However, shut down of many SEZs leads to a sharp decline in the gems & jewellery exports. A majority of firms face problems due to increased rules, regulations, and paperwork due to changing government policy. This mainly affects the managerial and commercial skills. While a smaller set of companies are still competing in the international markets, they have invested in the years preceding the recession crises to improve their products through designs and to develop a retail strategy. This small group of companies comprises of big firms and branded items. The smaller ones also have functionally upgraded into own brands and retail channels. They have also adopted the strategy to upgrade their processes in order increase exports.

Conclusion

In this Paper the gems & jewellery exports related data has been analyzed in the pre-, and the post-recession times. The entire period of study from 2001 to -2015, has been divided into two parts 2001-2008, and 2009-2015 pre and post-recession. This also highlighted that how the exports have reacted in the global market during the period of global crises, despite being the same industry and to same country. Overall, the findings reveal considerable charges by taking out the annual growth rate in these two periods. Finally, what has been observed from the data is that except for 2008-2009, there was more of less uniform year-on-year growths in all other years.

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