

Antecedents of Resilience: an Investigation into Bharat Forge

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Resilience has got paramount importance for the firms to survive in a turbulent business world. Which are the antecedents of resilience is a festering problem in the management literature. The present study investigates and presents the antecedents of resilience. Bharat Forge is an emerging economy multinational firm from India. Despite the poor institutions in India and the turbulent global conditions, it has been successful from its inception in 1961. This study probes into the practices of Bharat Forge from its inception to trace the antecedents of resilience. It was found that strategic agility, strategic learning, resilient leadership and financial reserves are the antecedents of resilience. Literature also corroborated our findings.

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Introduction

Firms operating in the 21st century are vulnerable to many disruptive changes. They should develop resilience to perform well in the turbulent environment (McCann et al., 2009). Firms that are operating across the nations are vulnerable to detrimental effects of many disruptions. They are prone to adverse effects of sudden disruptive changes that can stem from natural calamities, economic crisis, political crisis, and attacks by terrorists and so on. They require resilience to alleviate these adverse effects of disruptions and to get back to stable position. Boin & Eeten (2013) argue that resilience helps firms to bounce back from the damages done by the disruptions to a stable state. Further, “resilience offers the promise of an intuitively plausible, attractive and seemingly attainable strategy to prepare for and deal with various types of adversity” (Boin & Eeten, 2013:430). Albeit resilience is an important capability for the survival of firms, what are the antecedents of resilience remains a festering problem in practice and research. Bhamra et al. (2011) also advocated the need for further research on resilience as it is essential for firms to recover from various disruptions.

In the past few decades, the world has witnessed many disruptions like 9/11 World Trade Center attack by terrorists, the tsunami in Asia in 2004, and hurricanes etc. In the future also, there will be some unanticipated catastrophes (Rose, 2007) which cannot be controlled by firms. What they can do is recover as early as possible from these kinds of shocks. Especially, India and China are good destinations to offshore the services and manufacturing activities respectively. Multinational enterprises are also expanding their business activities in emerging countries like India and China to exploit the low cost of services in these countries. At the same time, they are also vulnerable to disruptions in countries like China and India and they all require resilience to manage uncertainties (Fiksel, 2015). Hence, exploring the antecedents of resilience by investigating a firm from an emerging economy like India is essential.

Background

Resilience concept is popular across many fields like ecology, metallurgy, psychology, supply chain management, safety engineering, and strategic management. Albeit contexts are different, resilience refers to the ability of an element or system to get back stable condition after a disruption (Bhamra et al., 2011) which means that resilience is the capacity to regain the stability after the effects of a disruption. In his seminal paper "Resilience and Stability of Ecological Systems", Holling, (1973:498) defines resilience as the ability of a system to adapt changes and persist. Resilience refers

to the firm's ability to recover and regaining the position while there are unexpected and detrimental changes in the environment (Arsovski et al., 2010). Haimes (2009) defines resilience as "the ability of a system to absorb external stresses; or as a system capability to create foresight, to recognize, to anticipate, and to defend against the changing shape of risk before adverse consequences occur; or the inherent ability and adaptive responses of systems that enable them to avoid potential losses. Resilience is the result of a system (i) preventing adverse consequences, (ii) minimizing adverse consequences, and (iii) recovering quickly from adverse consequences." Further, Lee et al. (2013:29) define resilience as "a multidimensional, socio-technical phenomenon that addresses how people, as individuals or groups, manage uncertainty." Across all these definitions alleviating the adverse effects of changes and recovering from adverse conditions are common. Hence, we define resilience as the capability of a firm to alleviate the adverse effects of disruptions and bouncing back from a crisis situation as quickly as possible.

Since resilience is significant for firms to recover from disruptive conditions it will be a good contribution if we explore the antecedents of resilience which further offers implications for the organizations to develop resilience. Many of the studies, so far focused on resilience, discussed the importance of resilience for firms to deal with uncertainties or disruptions, supply chain resilience, measuring resilience, economic resilience, and manufacturing resilience and so on. Only a few studies

(Demmer et al., 2011; Pal et al., 2014; Scholten et al, 2014) have addressed the issue of antecedents of resilience. There is also a need for conducting real-world research on resilience (Bhamra et al, 2011). We further want to explore the antecedents of resilience and provide implications for organizations. This study contributes at least in three ways. First, it explores the antecedents of resilience by investigating into an emerging multinational company Bharat Forge, India. Albeit emerged from the developing economy, Bharat Forge is the second largest forging company in the world. From its inception, it has been developing many practices so as to adapt to the changes and to respond to the disruptions in the turbulent environment. Second, our study gives more support to the extant literature on antecedents of resilience. Firms operating in developing economies are suffering from poor institutional frameworks and inefficient market. For these firms, developing resilience is a real challenge. It is interesting to study a firm developing antecedents of resilience even in the presence of poor institutional frameworks and inefficient market. Third, by exploring the antecedents of resilience we provide implications for firms to develop resilience.

Strategic Agility

Resilient organizations are agile in nature. Cognitive, behavioral and contextual resiliencies' interaction helps the firm to develop resilience capacity. Firm's core values, vision, mission and risk mitigating mechanisms and problem-solving abilities and sense-making abilities constitute cognitive resilience. Behavioral

resilience helps firms to learn from past experiences and use new routines through investing resources. Contextual resilience is the collaborative response to environmental complexities (Arsovski et al., 2010). We can summarize these as the firm's ability to sense environmental changes and responding to them quickly would lead to resilience.

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Doz and Kosonen (2008; 2010) argue that strategic agility helps firms to sense rapid changes and responding to them quickly. The literature says that resilience is not corresponding to quick changes but unexpected changes which are highly uncertain and detrimental to the firm. Hall and Beck (2009:2) argue that "an organization's resilience capacity captures its ability to take situation-specific, robust, and transformative actions when confronted with unexpected and powerful events that have the potential to jeopardize an organization's long-term survival. Strategic agility is a complex, varied construct that can take multiple forms but captures an organization's ability to develop and quickly apply flexible, nimble and dynamic capabilities". However, to be resilient firms need to bounce back quickly from detrimental conditions or disruptions. Firm's ability to respond to changes quickly helps it to bounce back quickly. Therefore, strategic agility is required for firms to develop resilience. Thus, strategic agility is positively related

to resilience and is one of the antecedents of resilience.

Strategic Learning

Resilience focuses on predicting and responding to secular trends that can disrupt the ability of firm's core business to earn profits. Disloyal to current status, knowledge gaining and sharing, identifying opportunities and strategic experiments help firms to develop resilience. Eliminating the loyalty to existing status (status quo), internal knowledge sharing, external scanning to gain new knowledge, identifying new options and entrepreneurial opportunities, externalizing innovation through M&As, alliance, and outsourcing, and supporting strategic experiments (Demmer et al., 2011) also help the firms. Strategic experiments are required for firms to learn new things. Therefore, firms need to keep on gaining and sharing information to learn. When incidents that affect firm's core business are happening firms need to learn from those incidents and has to document the knowledge so that it will be helpful to manage the same incidents in the future.

Hills (2015) argued that scenario-driven exercises can help firms to develop resilience. These scenario-driven exercises are also the type of strategic experiments. Firms need to be prepared to deal with sudden disruptions. Strategic experiments are required for firms to learn new knowledge to deal with disruptions. Strategic learning refers to continuous learning process to formulate new strategies to deal with environmental changes (Idris et al., 2013). If firms are not prepared in

advance to confront disruptive changes, they will be vulnerable to disappear. If there is a disruption, what they should and can do? They should be aware of risks (Fiksel, 2015) emerging from disruptions. This kind of strategic thinking helps firms to conduct strategic experiments and fill the gap between what should they do and what can they do when disruptions occur. These strategic experiments provide strategic knowledge that will serve as a guide to managing disruptions. Strategic learning entails strategic thinking and strategic experiments. Strategic learning is required for firms to develop resilience. Strategic learning is positively related to resilience and is one of the antecedents of resilience.

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Resilient Leadership

It is not merely to recover from disruptive conditions to normal conditions, but a speedy recovery is required for firms to bounce back quickly and to resume their activities. When can it be possible? To recover quickly from disruptions, a firm needs to make decisions quickly to process necessary activities. To become resilient, organizations depend on strong leadership, leaders' ability to assess conditions, understanding vulnerability and addressing the changes. Leadership is a key enabler of resilience. Resilient leadership is the leadership that enables a firm to be resilient. Resilient leadership facilitates effective communication during crisis times as well. Leaders need to assess

the situations and they have to make decisions quickly. To make the decisions quickly they need consensuses among them. Leadership unity helps leaders to make decisions quickly (Doz & Kosonen, 2008) to address the changes in the environment. Authentic leadership is required in the turbulent environment (Avolio & Gardner, 2005). Family owned businesses are more resilient than non-family owned businesses because in the family-owned businesses family members hold top management positions (Amann & Jausaud, 2012) and they make decisions quickly. In the same way, a leader also needs to make decisions quickly to recover from disruptions quickly. Leadership agenda also helps leaders to make quick decisions. Quality internal dialogue, collaborative decision making, and shared ideas help leaders to develop proper leadership agenda. We, therefore argue that resilience leadership is the leadership that has the characteristics of leadership unity, leadership agenda, sensing changes and quick decision-making to make the firm recover from adverse conditions caused by a crisis. These arguments are leading us to claim that resilient leadership is positively related to resilience and is one of the antecedents of resilience.

Financial Reserves

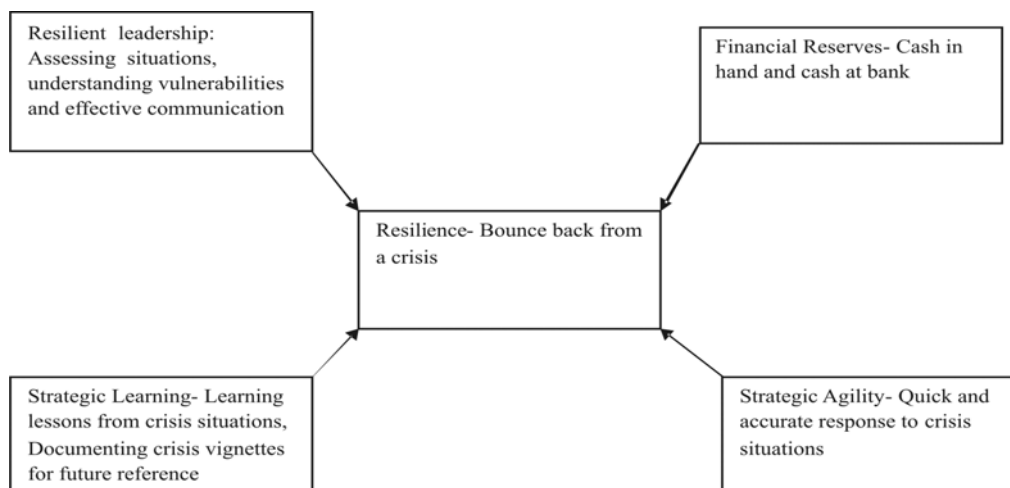
After 9/11 attacks many airline companies struggled to get back to their normal conditions. But few were able to be resilient during the crisis in U.S. because of their positive relationships with individuals and their financial reserves or slacks. Those resilient firms had financial slacks to circumvent layoffs which

further helped them to keep their positive relationships with the employees (Gittel et al., 2006).

During the crisis or disruptive times, firms need to invest more to become normal from the disturbed state. Their financial ability matters a lot to develop resilience capacity. Employee morale is also significant to the organization to manage the disruptions. Meyer (1982) identified that financial reserves or slacks work as the shock absorbers during the crisis time. Firms with abundant financial reserves can procure necessary resources, protect employee morale and protect the confidence of stakeholders in the firm, which further helps the firm to develop resilience to manage the crisis. Financial resources can buffer losses (Gittel et al., 2006) occurred during the crisis. Financial slacks help firms to increase the ability to be resilient during the crisis time. These would allow firms to retain resources required to manage disruptions (Vogus & Sutcliff, 2007). Therefore, we claim that firms' financial reserves are positively related to resilience and the financial reserve is one of the antecedents of resilience. Thus, resilience is the result of strategic agility, strategic learning, resilient leadership and financial reserves.

Resilience = Strategic Agility × Strategic Learning × Resilient Leadership × Financial Reserves

Resilience is the result of strategic agility, strategic learning, resilient leadership and financial reserves.

Fig. 1 Antecedents of Resilience

Bharat Forge – An EMNC

It is a real surprise that Bharat Forge, an Indian company is the world's second-largest forging company which is serving the forging needs of major suppliers in the world. Nelkanth Kalyani established Bharat Forge in 1961 in Pune, India. Bharat Forge started its commercial production in 1966 to serve local forging needs of India, and now it has customers all over the world (Exhibit 1). It has its headquarters in Pune, India, and nine manufacturing units in India and Germany. Babasaheb Nelkanth Kalyani alias Baba Kalyani, the son of Nelkanth Kalyani joined Bharat Forge in 1972 and added much pace to the growth of Bharat Forge. He did his Master of Science from the prestigious Massachusetts Institute of Technology (MIT), USA. He is steering the company on the right path, with his great vision and direction. Table 1 presents the evolution and milestones of Bharat Forge. There have been many changes in forging and related industries since its inception.

Bharat Forge is agile and resilient enough to sense and adapt to changes and sustain for a long time. It is not simply the innovation that drove Bharat Forge, but its inclination to change and learn from the changes. Challenges can be turned into opportunities if, we understand them and act accordingly. Bharat Forge faced many challenges and it tailored its activities and strategies to survive and sustain in the presence of challenges triggered by environmental turbulence.

Albeit Bharat Forge is originated from an emerging economy, it has developed many attributes and capabilities that helped the firm to be resilient enough to survive and sustain in the turbulent environment. One can ponder how long it takes to develop resilience. It may not take much time if one has strategic agility, resilient leadership, strategic learning and financial reserves. Table 1 tells the brief story of Bharat Forge and its milestones from which one can sense its resilient capability. Bharat Forge sensed,

Table 1 Evolution & Milestones of Bharat Forge

Year	Evolution and Milestones of Bharat Forge
1961	• Establishment of Borat Forge Ltd to local forging needs of India
1966	• Initiated commercial production using Forge Shop Hammer Technology
1985	• Started exports to Europe
1990	• Focused on technology up gradation by investing in state of the art technology
1991	• Started supplying powertrain and chassis components to Japan and America
2001	• Acquired order book of Dana
2002	• Invested in state of the art heavy duty truck crankshaft machine facilities, research, and development, and testing and validation
2004	• Collaborated with Birla Institute of Technology and Science Pilani Institute, India to improve internal talent
2007	• Established Centre for Advanced Manufacturing in Baramati, India
2008	• Commissioned largest commercial open forging press of India
2009	• Initiated forging and high horsepower, industrial- rail, marine and oil and gas crank shaft machining facility at Baramati, India
2010	• Established the Kalyani Center for Technology and Innovation. Opened first industrial gearbox service and assembly center in Hosur, India
2013	• Started supplying crankshaft for Indian rails. First indigenous supplier of crankshaft
2014	• Partnered with Safran to address opportunities in Indian civil and military aerospace
2015	• Started “High Tech Rail Manufacturing Facility” at Bharat Forge Centre for Advanced Manufacturing, Baramati, India. Acquired Mecanique General Langroise (MGL), an oil and gas machining company in France
2016	• Made strategic partnership with India’s Tata Motors for the India’s Ministry of Defence’s, Future Infantry Combat Vehicle (FICV) program worth \$ 11 billion. Completed the shipment of first titanium flap track forgings for Boeing Next Generation

737

evaluated and adopted changes in the environment. We have noticed several attributes and capabilities of Bharat Forge what we call in this article antecedents of resilience. The next section delineates the antecedents of resilience at Bharat Forge.

Bharat Forge’s Strategic Agility

Without agility, Bharat Forge would not have been able to survive and sustain for a long time in the turbulent environment. During crisis times, quick and accurate decisions have to be made in order to get back to normal conditions quickly. As discussed in this paper there are many disruptions caused by natural

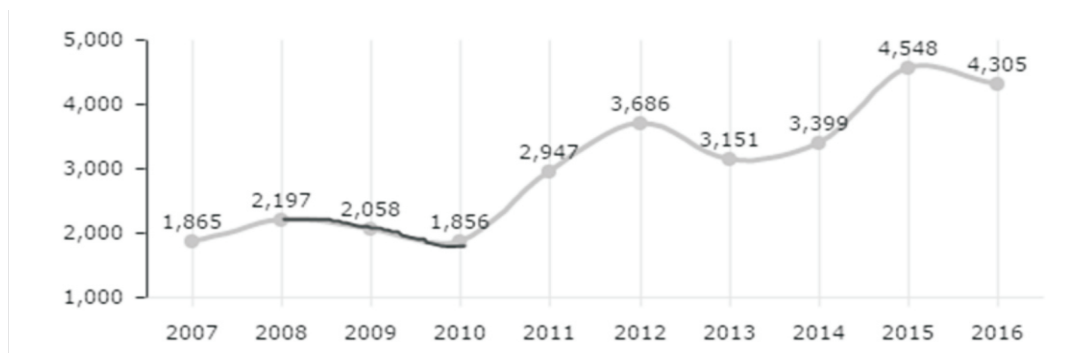
disasters and other catastrophes that directly and indirectly influenced the market. The biggest disruption faced by Bharat Forge is 2008 financial crisis. During that period, it witnessed the sudden downturn in its sales. The entire world has faced this crisis. However, Bharat Forge recovered from the recession quickly and it also produced profits even during crisis period (Fig. 2 & Fig. 3). As Bharat Forge is agile in nature it was able to make the decisions quickly

As Bharat Forge is agile in nature it was able to make the decisions quickly to analyze the situation and tailor the activities accordingly.

to analyze the situation and tailor the activities accordingly. “.....sharp declines were witnessed in other major markets such as the USA, Brazil, and Japan. The situation was so bad that even strong companies have posted losses. With such a sharp fall in automotive demand in the US and Europe – your companies major geographies outside India – order books fell between 60% and 75%” – said Baba Kalyani in 2008-09. These words interpret the severity of 2008 global financial crisis. Despite this quagmire condition of the slump in sales turnover during 2008-10, Bharat Forge was able to generate profits and it also bounced back quickly

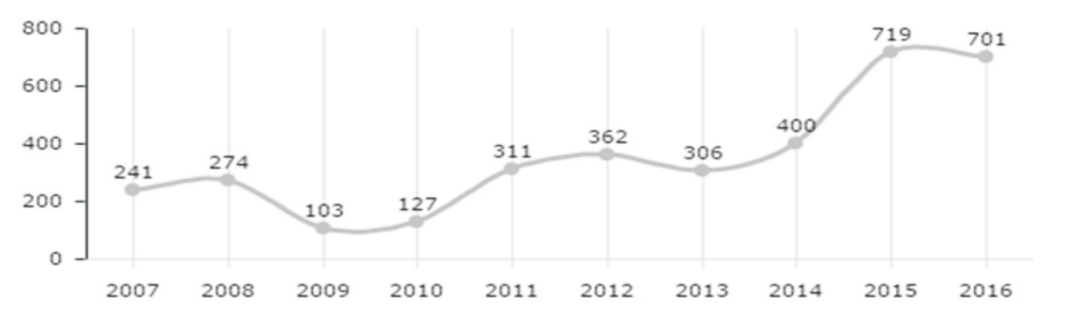
in 2011 with the great escalation in sales turnover and profit after tax. There was the gradual increment in profits from 2009 after 2008 crisis. Strategic agility is one of the reasons for its survival during crisis time and also to bounce back to its normal condition. Leaders or Board of Directors of Bharat Forge in 2008 (Exhibit 2) were having consensus in making decisions, which helped them to make the quick decisions. They were also representing other boards, because of which they have knowledge of about dealing with the crisis. They also made quick decisions to deploy resources even during crisis time.

Fig.2 Bharat Forge: Sales Turnover (2007-2016) (Rs. Crores)



Source: Adapted from www.bharatforge.com (accessed 10th October 2016).

Fig. 3 Bharat Forge: Profit After Tax (2007-2016) (Rs. Crores)



Source: www.bharatforge.com (accessed 10th October 2016).

Strategic Learning at Bharat Forge

“In India, we are seeing a demand contraction of almost 25 to 30 percent in the commercial vehicles’ segment. Outside India it is 10 to 15 percent, Europe is 15 percent and North America is about 10 percent, China is as bad as India - 25 to 30 percent. So, there has been demand contraction this year. But I think that it is cyclical, temporary. We have seen this before and I am sure you know since demand has contracted, we will see - in the next two more quarters may be - demand increase quite substantially. So, I am not very concerned about it”, said Baba Kalyani on recession in 2012 in his interview with Business Today, 2013. His words resemble his confidence in driving Bharat Forge during recession time and getting back to normal conditions. As he said, it is because they have already faced similar kind of situations. They learned from the previous situations of crisis and they are using their experience in dealing with the similar kind of repeated situations. It is the strategic thinking of Baba Kalyani to pervade company activities across the globe such that severity of vulnerability at one geographical area is alleviated by its activities in another geography. When we learn strategically from the crisis situation, it helps us deal better with the prospective crises.

Bharat Forge’s Resilient Leadership

Without resilient leadership, Bharat Forge would not have been able to overcome the after effects of the crisis in 2008 and in the second half of 2012. In 2008, Board comprised 14 members (Exhibit 2). They had meetings in between short intervals. They were giving directions to Bharat Forge during crisis time. Because of their experience and knowledge, they could assess the situations quickly and they have taken antidote actions to recover from the crisis. They were also representing many other boards of other firms, from where they have gained more knowledge about dealing with the crisis. This resilient leadership provided the resilient capability to Bharat Forge to recover from any crisis situation.

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Bharat Forge’s Financial Reserves

During an economic crisis time raising funds is one of the tough jobs. However, firms need funds to recover from crisis quickly. Bharat Forge is very strong

Table 2 Financial Reserves and Surplus of Bharat Forge from Mar 2011 to Mar 2016

(In INR Million) (1 USD = 67 INR)

Particulars	Mar 2016	Mar 2015	Mar 2014	Mar 2013	Mar 2012	Mar 2011
Share Capital	465.58	465.68	465.68	465.68	465.68	465.68
Reserves and surplus	35938.92	34491.05	26467.40	22645.64	20965.27	19488.18
Total Shareholders Funds	36404.60	34956.74	26933.08	23111.32	21430.95	19953.86

Source: www.bharatforge.com (accessed 10th October 2016).

at financial reserves. Table 2 presents the financial reserves and surplus of Bharat Forge from March 2011 to Mar 2016. There is a gradual increment in financial reserves and surplus of the firm. There was a decline in sales turnover as well as profits in 2012-13 (Fig. 3) as there was recession in the second half of 2012. However, it had enough financial reserves to tackle the quagmire situation and to recover quickly. There was the escalation in sales and profits (Fig. 2 & Fig. 3) after 2012-13 i.e., in 2014. It was in no need of searching for funds to make antidote actions to recover from the recession as it had enough financial reserves and surplus.

Anything Missing?

Firms that operate in emerging economies suffer from weaker institutional frameworks. They won't get much support from the institutions. Business groups are said to be efficient in emerging economies. These are legally independent firms that are linked through social ties. This affiliation facilitated firms to share knowledge and resources among the affiliated firms. Business group affiliation attenuates the negative effects of weaker institutional frameworks. Bharat Forge is a business group in India. The characteristics of the business group also helped Bharat Forge to be resilient enough to survive and sustain in the globally turbulent environment. Firms that are affiliated with business groups can share the knowledge and resources among them. This nature of business groups allows them to be agile and resilient enough to survive and sustain in the globally turbulent environment.

Conclusion

Firms must develop resilience to survive in the turbulent environment. Firms that cannot develop resilience may end up with closing their plants, selling their businesses or shutting down their businesses. All changes are not harmful to all the firms. It is the firms' ability to sense and evaluate the changes such that proper weight is given to changes for adoption. There is no single and static way to develop it because changes in the environment are different in nature. However, the antecedents of resilience serve as the practices through which a firm can develop resilience to survive and sustain for a long time in turbulent environments. Why not other firms mimic Bharat Forge and become successful? They can mimic Bharat Forge's practices but not the prowess and the leadership Bharat Forge has in altering the practices during economic crisis times and or turbulent times. It has developed its resilient capability over a long period of time (history dependent). From Bharat Forge, we understand that leadership is the most important factor that steers company during rapid changes and crisis times. Despite being an emerging multinational company, it has become most eminent forging company in the world. Chairman and Director Baba Kalyani's leadership played the vital role in each critical vignette that Bharat Forge underwent.

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Exhibit: 1 Bharat Forge Presence Across the World



Source: www.bharatforge.com (accessed on 10th October 2016).

Exhibit 2 Board of Directors: 2008-09

Composition of the Board

As on 31 March 2009, Bharat Forge’s Board comprised Fourteen Directors. The Board consists of the seven Executive Directors (including Chairman and Managing Director, who is a promoter Director) and seven non-executive Directors, six of whom are independent.

NUMBER OF BOARD MEETINGS

In 2008-09, the Board of the company met 6 (six) times on 20 May 2008, 31 July 2008, 25 October 2008, 27 December 2008, 9 January 2009 and 22 January 2009. The maximum gap between any two Board meetings was less than four months.

Details of Composition of the Board of Directors, Directors’ Attendance Record and Directorships

Name of the Director	Category	Attendance Particulars			No. of other Directorships and Committee Memberships/ Chairmanships in other Indian public companies		
		Number of Board Meetings	Last AGM	Other Directorships	Committee Memberships	Committee Chairmanships	
							Held
Mr. B.N. Kalyani (Chairman and Managing Director)	Promoter, Executive & Managing Director	6	6	Yes	13	2	2

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Mr. P.H. Ravikumar * (Nominee of ICICI Bank Ltd.)	Independent	6	3	Yes	4	1	1
Mr. S.S. Marathe (Late) **	Independent	2	2	Yes	9	8	1
Mr. S.M. Thakore	Independent	6	3	no	3	nil	1
Mr. S.D. Kulkarni	Independent	6	4	yes	3	2	1
Mr. P.G. Pawar	Independent	6	5	no	6	1	Nil
Dr. Uwe Loos	Independent	6	3	yes	Nil	nil	Nil
Mr. P.C. Bhalerao	Non-Executive	6	5	yes	5	nil	Nil
Mrs. Lalita D. Gupte	Independent	6	2	yes	5	4	Nil
Mr. Alan Spencer	Independent	6	4	yes	Nil	nil	Nil
Mr. G.K. Agarwal	Executive	6	6	yes	1	Nil	Nil
Mr. Amit B. Kalyani	Executive	6	6	no	13	4	Nil
Mr. B.P. Kalyani	Executive	6	6	yes	1	nil	Nil
Mr. S.E. Tandale	Executive	6	5	yes	Nil	nil	Nil
Mr. P.K. Maheshwari	Executive	6	6	yes	3	nil	2
Mr. Sunil K. Chaturvedi	Executive	6	5	yes	1	nil	Nil

Source: www.bharatforge.com (accessed on 10th October 2016).

Exhibit 3 Board of Directors 2016-Bharat Forge

S.No	Name	Designation
1	Mr. N.B. Kalyani	Chairman and Managing Director
2	Mr. G.K. Agarwal	Deputy Managing Director
3	Mr. Amit B Kalyani	Executive Director
4	Mr. B.P. Kalyani	Executive Director
5	Mr. S E Tandale	Executive Director
6	Mr. Kishore Saletore	Executive Director
7	Mr. Pratap G Pawar	Director
8	Mr. S M Thakore	Director
9	Mrs. Lalita D Gupte	Director
10	Mr. P H Ravikumar	Director
11	Mr. P C Bhalerao	Director
12	Mr. Naresh Narad	Director
13	Dr. T Mukharjee	Director
14	Mr. Vimal Bhandari	Director

Source: www.bharatforge.com (accessed on 10th October 2016)