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W.P. No.2006-10-01
October 2006

INDIAN INSTITUTE OF MANAGEMENT
AHMEDABAD-380 015
INDIA

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Abstract

The motion pictures business in India has certain unique aspects which pose challenges in front of those whose fortunes are linked with the industry. The shelf life of a movie is short whereas the cost of producing and marketing it along with the financial risks associated with its success are very high. The concept of hedging risks is in a very nascent state in the Indian Film Industry. The business, done in a traditional way, exposes producers, distributors and financers to undue risks. In this paper we have looked at the Indian film industry (typically the Mumbai based Hindi film industry), and the risks and challenges that the industry faces. We have analyzed various risks faced by the industry like the risk of a flop movie, financing risks, political risks, and competition from regional film industry and also competition from Hollywood movies which are gaining popularity in India to name a few. A number of these risks, it seems, looms large due to lack of proper visibility of right information due to existing information bottlenecks. We have categorized these risks into certain broad categories and looked at various ways to mitigate them. We have also analyzed the applicability of various financial instruments like options to hedge the risk of low business by a movie and looked at a novel idea of securitization of box office returns and float bonds with those returns as underlying to generate short term financing.

1. Introduction

The motion pictures business i.e. the movie business has certain unique aspects which pose challenges in front of those whose fortunes are linked with the industry. The stakeholders include producers, directors, actors, production crew, distribution houses, exhibitors and film business related magazines. The shelf life of a movie is short whereas the risks and the costs of producing and marketing it are high. The concept of hedging risks is in a very nascent state in the Indian film industry. The business is done in a very traditional way which exposes producers, distributors and financers to undue risks. In this paper we have looked at the Indian film industry, its evolution along with the risks and challenges that the industry faces. We have analyzed various risks faced by the industry like the risk of a flop movie, financing risks, political risks, and competition from regional film industry and also competition from Hollywood movies which are gaining popularity in India. We have categorized these risks into broad categories and looked at various ways to mitigate them. In addition to analyzing the applicability of various financial instruments like options to hedge the risk of low business, we have also looked at the novel idea of securitization of box office returns and float bonds with those returns as underlying to generate short term financing. The paper also looks into the evolution of various sources of financing and an increasing shift towards organized financing. Finally the paper talks about the factors influencing performance of movies which can be used to develop a box office prediction model.

The rest of the paper is organized as follows: in the next section, we provide a snippet of the Indian Film industry covering the history and current trends of the industry. In section 3 we introduce how the focus of movie making in India in on a change. Section 4 deals with the probable risks in front of the industry and in section 5, we discuss probable ways to mitigate these risks. We conclude the paper with discussion and road ahead in section 7 as we discuss methods to align customer segmentation and marketing strategy in section 6.

2. The Indian Film Industry: A snippet

Since the introduction of first talkies in India in 1931, the Indian film industry has produced more than 67,000 films in more than 30 different languages and dialects. Though majority of films are made in the South Indian languages of Telugu, Tamil and Malayalam but Hindi language films take the largest box office share [5].

2.1 History

The first feature film in India, Raja Harishchandra, was made by DadaSahib Phalke in 1917. Soon after the huge success of Alam Aara in 1931 which was India's first sound film Indian film industry made a shift to sound filming [2]. With this also started an era of musicals in the films especially romantic musicals which still is a rage in Indian film industry. Hindi[1] film Industry has taken the role of national film industry in India. Hindi movies had been by and large targeted to the broad audience. Only in the recent decade there has been some recognition of different segment of customers like urban young, NRI, rural etc. Some crossover films are also being attempted by Indian film producers which depict intermixing of Indian culture and western culture. In the present day there is a rising trend of movies focused towards social issues like terrorism, religious fanatics and AIDS awareness.

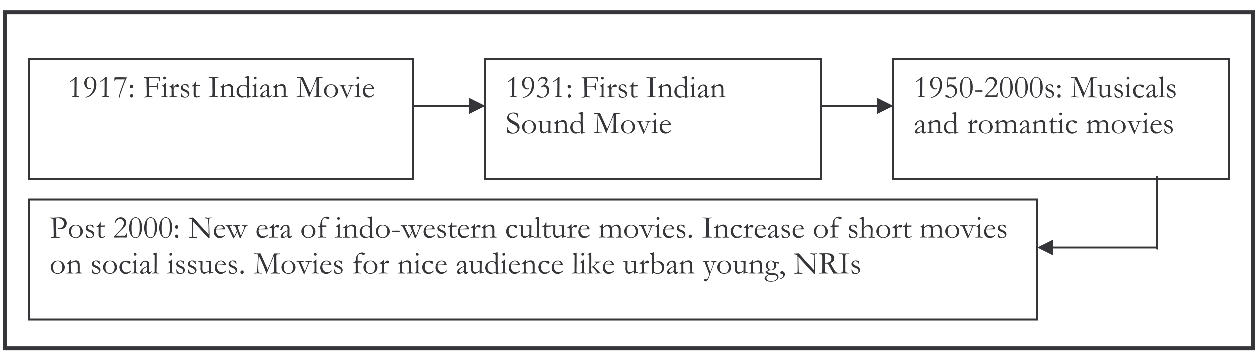

Figure 1: Changing Themes of Indian Cinema

Along with the Hindi film industry, the regional film industry in India is also a very developed and prosperous business. Regional films are made in native languages. In past

[1] Hindi is the national language of India and is spoken by 40 percent of people in India and understood by almost the entire nation.[21]

they did little business outside their states but gave tough local competition to Hindi movies. But today with advanced dubbing technologies these movies do move out of their state of origin and reach a wider customer base. The development time frame of Regional films is almost similar to a Hindi movie. In fact a lot of artists work both in Hindi movies and regional language movies. The actors in Indian film industry hold no less a status than their counterparts in Hollywood. Media glare ensures that the fans which easily number in millions are regularly updated about the lives of their stars. The stars in the industry are like youth icons in the country. The estimate of their popularity can be realized from the fact that actors earn much more than sports stars in India by endorsing for a variety of products. Their popularity is helpful for the movie as it adds to additional marketing for the film they are starring in.

2.2 Current trends of the industry

Films are the most popular form of entertainment in India. The movie business in India was given the status of an industry in 2000. The Indian film industry is largest in terms of number of admissions (more than three billion tickets sold per year) and one of the largest in terms of number of films produced. According to a 2005 report by Confederation of Indian Industry suggests and KPMG, the potential for growth in Indian Film Industry is huge. The industry was worth about $1.3 billion in 2004. This accounts for only about one percent of global film industry revenues. It is expected that the industry will grow significantly at the rate of 16% per annum and will be worth more than $3.1 billion by 2010 [16]. Interestingly, the average cost of a movie ticket in India is one of the lowest in the world. According to an estimate an average movie ticket in India costs US$ 1.20. This is very low as compared to US where an average ticket in 2005 cost US$6.41 [3]. This may also be attributed to the fact that movies are an important source of entertainment in the Indian society.

With increase in number of Indians settled outside India (especially in US and UK), the revenues from overseas business have grown phenomenally in the past. According to Internet Movie Database, an organization that tracks box office sales in several countries, films from India do more business in US than films from any other country. The Indian Diaspora in US is almost 3.5 million strong and growing. One of India's largest producers and distributors of films reported in September 2005 that Indian films in the United States grossed close to $100 million a year through theater screenings, and sale of videos and movie soundtracks [17]. These figures contribute significantly to the bottom line of Indian filmmakers. The potential of making big profit in the lucrative overseas market has also encouraged some producers to venture into production of movies based on cross-over themes.

With an increasing influence of western culture especially in big cities, international movies are also becoming increasingly popular in India. *Spiderman 2,* which was dubbed in 3 Indian languages, was amongst the top five films of 2004 in India [8] in terms of box office revenue. The rising trend of dubbing English movies to regional languages is a move to increase returns by widening the consumer base.

In the dimensions of technology, the industry is also not much behind. India has more than 100 digital cinemas at present [10]. According to Industry sources, a good percentage of movie halls will be converted for screening through the digital projection system [15]. This will significantly lower the cost of distributing films to theatres especially in remote areas. Satellite television and the emerging home video segment are the other distribution formats expected to help expand the Indian film market.

Almost 60-70% of the movies rarely exceed a budget of half a million dollar. The more expensive ones are normally produced at a cost close to $2.4 million. Then there are the ones that feature all the big and famous and have the most expensive sets which can cost more than $6 million. There has been an increase in the budget and number of big-budget movies produced in Indian film industry. In the first 8 months of 2006 four films with a budget of more than $7 million have been released compared to only one in the entire year of 2004. More than $60 million have been invested on the top 10 movies in 2006, an increase of over 50% over last year [7].

There is a wide spread optimism in the industry as more and more money is being pumped into the business. But this optimism is not without reason. The box office collections in the first half of 2006 are 35% more than that of the collections in first two quarters last year. The top film of year till August 2006 had crossed $30 million in collection. 3 movies have grossed more than $10 million [7].

All this have been possible due to the growth of multiplexes in the country which has helped in pushing larger box office collections, as has the trend to push more prints in the market in the starting week to improve collection by reducing piracy. Nearly 55 per cent of theatrical revenues of some of the successful films came from the 80-odd multiplexes across the country [7]. This also brings up the need to understand the customer in other places of the country from where the returns are low.

3. Movie making in India: changing focus

For making a movie a producer puts forward a proposal and borrows money from a financer. He appoints a director as the captain of the ship who decides the script with the help of script writer and finalizes on the star cast and distributors. These distributors also bring in money for financing the movie. Lower down the chain are the exhibitors who pay the distributors to bid for screening of the movies. Hence the money moves from exhibitors up to the producers. The entire system is so time consuming and hectic that the role of customer touch points in providing creative input back to the producer and director, has not been in proper usage and hence the useful consumer insight that could have been used is not used effectively by the production team. In figure 2, we depict the possible reverse flow of information (in dotted lines) that could have been put into proper usage.

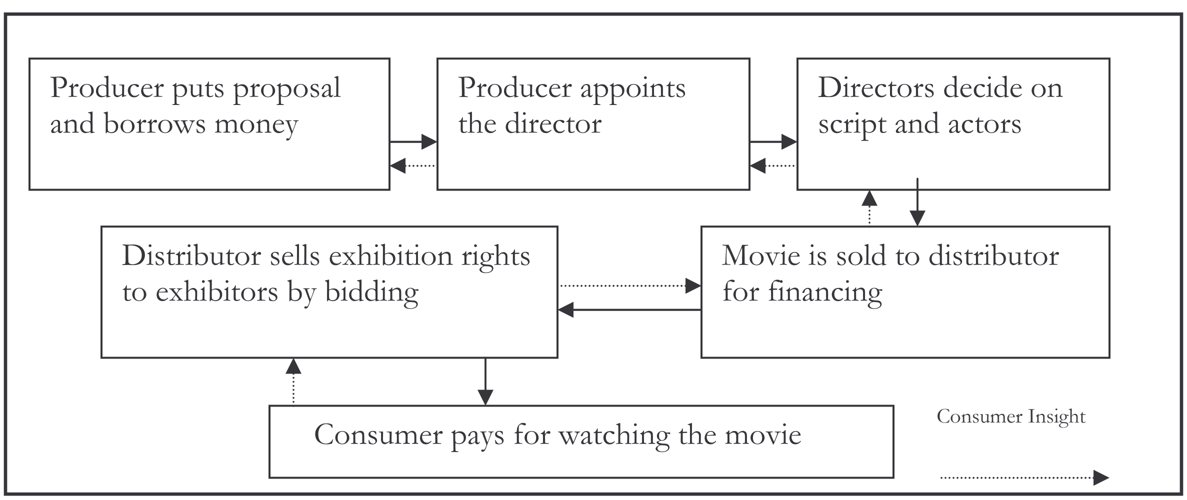

Figure 1: Making of a Indian Movie

Thus what becomes important consequently is just the face value of the movie and hence Directors and actors all focus on face value and opportunity for profit rather than content and quality of movies. All this means that creativity has assumed a new significance – creating profits! Everyone in the value chain is only interested in making his share and enjoying it. Directors exploit the greed of producers and get that as an excuse to sacrifice quality. Actors also are not concerned about the quality of films but only look for their fees and the meat in the role offered to them. Since there is perpetual shortage of saleable artists once who sell well are in high demand and they do charge excessively. Such stars manage to get a couple of hits while working with conscientious filmmakers who are serious about the films they make and work very hard on their subjects. While a vast majority of the movies end up being flop at the box office. In this entire process the one who suffers the maximum are the distributor and exhibitors who are now trying to shift back the risk to producers by agreeing to air a movie only on a percentage commission basis, instead of going for a fixed cost model.. Today the distributors are not ready to accept movies at face value and this is making the film producers think and enhance the quality of movies being made in the industry.

4. Probable risks faced by the industry

From our understanding about the industry from various secondary sources and interviews with various stakeholders, the risk in Indian film industry can be broadly classified into seven categories. These risks originate in different phases of the production and distribution of a movie and have a gamut of implications for the stakeholders.

4.1 Financing risk

The film financing market in India comprises producers (proprietorships, partnerships, and private limited & public limited companies), private financiers (traditional financiers & new players) and banks & financial institutions. Indian films can theoretically raise production financing from multiple sources as tabulated below (see Table 1). However, funding from most of these sources is not forthcoming presently due to reasons mentioned in Table 1[13]. Also the funding arranged by production houses is in general costly. The number of films that are financed by the organized sector is on increase. In 2001 only 4 movies were funded by organized sources, this number rose to 11 in 2002, 33 in 2003 and crossed 150 by 2005. Total funding from organized sector has increased from 430mn in 2001 to 1760mn in 2003 and likely to reach 5000mn by end of 2006. It will be appropriate to infer that ongoing growth in multiplexes especially in metros and larger cities is promoting production of niche films (which, in turn are being financed by private investors), which till about 2-3 years back were unviable due to non-availability of exhibitor screens for showcasing the movie to the target viewer segment. [13]

Mode of Financing	Remarks
Private Financers	Most frequently used source with interest rate differing depending on borrowers, lenders and their past relationship. As the industry is moving towards organized sources of finances the interest rates are becoming reasonable and stable
Promoter's Equity	The self equity of promoters. This is second most popular way to finance movie making
Larger Producers (in lieu of distribution rights)	This source is very less popular as profit from own movies is much more than taking risk of distribution for third party movies
Institutional Debt	Institutional debt market has a complete mismatch in India as producers who fulfill the norms and requirements do not need the debt and smaller producers who need it get buried down by the load of restrictions and sanctions which come with the debt.
Distributor's Finances	This is a very popular source and big banner movies easily get financed by distributors. All relatively off the track movies and also budget movies find it difficult to find distributors.
Venture Capitalists	At a company level due to lack of transparency and other risks venture capitalists funding is not very popular. Also at a company level it is difficult for these investors to diversify their risk. But on a project by project basis this mode is becoming important. Soon these investors would mature and seek for newer financing instruments to reduce their risk and earn assured returns
Initial Public Offerings	IPOs are a very good business alternative for big houses which have diversified business. Pritish Nandy Communications Limited reportedly raised 8 million dollars by IPOs because it is a big diversified company which ventures not only in movies but also television. The company is currently working on raising 12 million dollars by convertible debentures.

Table 1: Possible Modes of Financing in Indian Film Industry

4.2 Production risk

Production risks can be defined as the risk getting production extended beyond the projected date or the risk of over spending during production. Often, it has been found that the production cannot be restricted within the given schedule as the production team succumbs to various unseen factors while the movie is being produced. For example, the studios in the industry rely on only a few stars for most of their production and it is not uncommon for a popular actor/actress to be shooting for four or more movies. Thus they bear a huge risk exposure if any of the stars get injured. Actually, there have been incidents in the past like the one where a legendary actor (of Hindi movies) and the main protagonist in the movie was injured badly while shooting. In another incident, a protagonist and the producer was injured seriously and 51 of his colleagues died during shooting of a TV Serial and yet in another incident, a top actress of the industry and a lead cast was injured during the shooting of a recent movie [11]. With some of the stars out of work for months due to injury or illness the planned release may have to be delayed beyond schedule. Such delay in production may throw the whole production schedule out of gear and escalate the cost of the movie. At times damaging equipment may be essential to filming the scene as in shooting from inside a car heading to a crash. Other than such intentional damages which cannot be claimed from insurance there are other incidents for example bad weather during outdoor shooting where costly equipments can get damaged. Further there may be delays and escalated costs due to fire in the studio, natural calamity at the shooting site or legal issues that may crop up during production of the movie.

4.3 Distribution and Exhibition Risk

Distribution and exhibition risk refers to the situation where a movie producer is unable to find a distribution house to distribute its movie or an exhibitor to screen the movie. Today with so many niche low-budget films being made on particular social issues it has become a big concern to find distributors for these movies. Also at times movie houses find distributor but due to disagreement between distribution house and exhibitors on revenue sharing the screening of movie is affected lowering the box office collection. Such risks are mostly faced by small banner movies or movies with low profile actors and actresses, from whom the perceived gain of screening the film is low.

4.4 Risk from piracy

The cost of producing the movie is not the only significant contributor to the overall cost. The cost of distribution forms a good percentage of overall cost. At a cost of $1200 a print the cost of releasing movie with more than 500 prints can cost almost $600 thousand (close so 30% of the average cost of making a movie). Compared to Hollywood where the cost of prints for a grand nationwide release (almost 4000 prints) hardly ever exceeds 5% of the overall cost, this is a significant cost for Indian movies, even the big ticket ones. This cost limits the prints for the low budget films to just about 50-60 prints. The higher ones manage with around 500 prints [1]. The trend is to release the movies first in big cities. After few weeks when the collection from the big cities dips low enough the same print is used to release the movie in smaller cities. The problem with this approach is that the collections are prone to piracy. By the time the movie is released in the smaller towns the cable operators, using pirated CDs, have already shown the movie to his subscriber umpteen number of times. The pirated CDs are available for rent as well. Ideally a producer would like to take a carpet bomb release approach by releasing the movie across the nation. Problem as mentioned above is with the cost associated with the traditional way of recording, storing and distributing theatrical motion pictures on a celluloid film.

4.5 Post-release risk

There have been instances where the box office collection has taken a hit post release because of some controversy surrounding the movie. The controversy could be because of the subject of the film or because of political reasons (as in a recent movie because of statements made by the lead cast on a political subject) or because some political party or social activity group finds the movie or its poster too lewd for society. Whatever be the reason these incidents scare away people who want to watch the movie and affect the box office collection adversely. There have been incidents where in movies were temporarily banned in parts or whole of India or was shown under security after fundamentalists attacked the cinemas where the movie was showing. Further the role of third party is very important in the success of any movie. This third party includes independent critiques, review by film magazines and word of mouth publicity. In India word of mouth publicity is a very important driver that influences people in taking decision about watching a movie. So there always is a risk of poor word of mouth publicity or low ratings by some film magazines and newspaper which impact the movie's fate post release.

4.6 Risk of flop: Low box office collection risk

One of the greatest risks that all film producers face is that the movie would fail and bring very low box office returns. In India where the typical investment in movies is close to Rupees 70-80 million the flops turn out to be very costly. The success ratio of films today is very low close to just 20 to 25 percent [14]. Although these figures are slightly better than the numbers of 2001-02 (the success factor was as low as 10 to 11 percent). To understand the reason of such a low success rate there needs to be an in depth analysis of the entire procedure of making films in the largest film industry of the world. As discussed in the section 3 on movie making in India, one of the greatest reasons for flops is low quality movies is profit has superceded quality of Indian cinema.

Till recent past, finances for a movie used to come from individuals who had high risk appetite and the industry was seen to be a process for fulfilling numerous hidden agendas as the overall processes were not very professionally managed. This led to taking up of risky ventures which in turn, led to making of numerous flop movies. But now as times have changed the financing mechanism has become more organized and hence financing issues can not be held responsible for such a high percentage of flop movies.

4.7 Risk of misalignment of segmentation and marketing strategy

As every other commodity, movies also need to be positioned accurately so that the return from the investment is maximized. Positioning involves firstly identifying the target audience for the movie and then deciding the promotion strategies on basis of the customer segment. The timing of release, region of release and theatres where the movies would be released depends on the customer segment. The marketing strategy of a movie which is an outcome of the positioning involves the 4Ps as any other commodity (Figure 3). Thus it is very important for the movie production houses to define the customer segment and the positioning and align the entire marketing strategy with it. Thus there is a pertinent risk that if the customer segment is not identified correctly, the positioning would be inappropriate and the marketing strategy would get misaligned leading to lower returns.

- *Product*: This refers to selecting the movie theme, actors, songs and setting of the shooting sites
- *Promotion*: This refers to deciding the channel of communicating to the consumer about the movie and also deciding on the communication campaign of the movie
- *Place*: This refers to deciding the time, scale and regions of release. It also defines the modes of availability of the movie in addition to theatres (for example Direct to home, VCDs etc).
- *Pricing*: This refers to deciding on the price of VCDs and DVDs and the revenue sharing with distributors and exhibitors.

Figure 2: 4Ps of Indian Cinema

5. Risk mitigation in Indian film industry

In spite of all the risks, the Indian film industry has been performing well and is growing at the rate of 20% per annum. But use of certain methods and financial tools discussed in next few subsections would definitely help to enhance the revenue of the industry and mitigate to some extent, the risks as discussed in the previous section.

5.1 Mitigating financing risk

Today there are many sources for film makers to raise money, some traditional while others organized but still there is some risk of high financing cost and unsecured financing. Under these circumstances it becomes important for film producers to hedge their positions and arrange for risk free financing.

5.1.1 Increasing reach and widening customer base

Anything that leads to higher revenue generation for films will act as catalyst for attracting private sector investment in the film financing business. Indian films generate just 5% from home video while US films generate 35-40% revenues from home video segment. Domestic theatrical revenue constitutes almost 50% of a typical Indian film as compared to around 20-

25% for a typical Hollywood film. Therefore, suitable measures which lead to reduction of piracy), overseas (newer revenue areas in the theatrical, Pay TV & home video segment) and domestic theatrical circuit (higher revenue generation can be brought out by growth of digital distribution & exhibition in smaller towns) will induce increased investment queries from private investors for funding films through the equity route and increase comfort of debt investors. [3]

5.1.2. Emergence of newer financing structures and options

With rising interest of the world towards Indian film industries very soon newer financial instruments would come up, which would aim at providing financing for global projects. Further companies engaged in other M&E business segments like Broadcasting, Print Media, TV Content Production, and Film Distributors & Exhibitors will diversify into film production business with different objectives. While Broadcasters & Film Distributors / Exhibitors will aim to generate supply for their respective networks, TV Software producers will aim to provide growth to their existing businesses.

5.1.3. Securitization of box office returns

Home loan securitization and student loan securitization are very common today in India. But soon India would be the land of securitization of esoteric assets. One such possibility is securitization of box office returns. Box office returns are like assets that would bring cash in future. The risk involved is the amount of cash that might be generated depending on whether the movie is a hit or a flop. Thus the distribution houses can issue short term bonds with future box office returns as the underlying asset. Hence the collection from box office would pass on as return on bonds to the investors on these bonds. Also these bonds would help to easily raise money from the public for film making. Further these bonds would serve yet another purpose. The popularity of the bond would reflect the popularity of the movie concept and the expectation of the people about the movie. Hence this would involve the producers releasing a lot of information about the movie to the people. Hence the bond offering should be two-phased. One at the start and other after the music album release when the information in the market about the movie is greater than initial phase. The regional response towards the bond would help to determine the regions where movie is likely to be successful and also help to identify regions which need extra marketing efforts.

By implementing these changes and moving ahead Indian film industry would surely be able to mitigate most of its financing risk and become a more robust industry.

5.2 Mitigating production risk

Insurance although costly, is the most efficient tool to hedge production risk. Demand for more realism has driven the industry towards high expenses. With an increase in high budget movies and increasing budget of the films it is all the more imperative for the industry to seek insurance protection cover. The need for insurance for action movies which involve dangerous stunts goes without saying. There are certain traditional insurance coverage like commercial general liability, directors and officers, automobile, errors and omissions, fiduciary and crime that are needed. There are also certain special insurance covers that are required to cover production risks. Insurance cover assures that a movie that cannot be completed because the key cast member has left is compensated for it. Incidents on sets also sometimes lead to loss of property which is unintentional. As far as personal accident insurance is concerned Indian actors and actresses have a bit of catch up to do with their Hollywood counterparts. In Hollywood, big stars usually insure their talent or body parts for millions of dollars.

Insurance companies under their policies compensate for delays and losses due to cyclones, strikes, adverse weather conditions and traffic interruptions as well as harm to individuals involved in film making. Insurance can be taken for named artistes such as the main cast, important support cast, directors, technicians etc., properties, sets, production equipments, and negatives etc., public liability, money insurance, workmen insurance and accident insurance [5].

The premium on film insurance in India is close to 1-2 % which is very low compared to 6% in US. The insurance of the film is a pre requisite for bank loans for Hindi films. Thus anyone who wants to finance the movie using a bank loan has to take insurance for the film [5]. The concept of opting for film insurance is gaining momentum in India. Some of the big producers in the industry have already started insuring their movies. United India Insurance is a leading player when it comes to film insurance in India and has also provided insurance cover to regional movies.

5.3 Mitigating distribution and exhibition risk

Small movie makers who often find difficult to find distributors and exhibitors to market their movies can mitigate this risk by tying up with small cinema hall owners. Another possible solution for them is to cut out the theatre mode and market on its own by the VCD and direct to home telecast mode through television channels only initially or may focus the distribution to semi-urban and/or rural markets. On getting success through this they could launch the theatrical version as then the exhibitors would be willing to screen the movie.

5.4 Mitigating risk of piracy and lowering cost: Digital Revolution

Celluloid film, an analog technology for recording and transmitting the movies, has been in use from over a century now. True, that there have been technological advancements in the quality, but still there are issues with analog technology. Apart from the high cost there are also problems of quality degradation after each viewing. The solution to both the problems is Digital Cinema. Digital cinema refers to the use of digital technology to distribute and project motion pictures. The final movie can be distributed via hard drives, DVDs or satellite and projected using a digital projector instead of a conventional projector. Digital technology has revolutionized the whole entertainment industry. Its main advantage is that it can store, transmit and retrieve information as recorded originally. It also gives power of processing the information. Thus lot more processing can be done much easily on a digitally recorded movie than an analog one. Digital Cinema affects all three major areas of theatrical motion pictures - Production, Distribution and Projection.

Production of a digital video is about hundred times cheaper than making a film. Rick McCallum, one of the producers of "Attack on the clones" said that they spent only USD 16000 on 220 hours of digital tape where as they would have spent almost USD 1.8 million on same hours of film. Apart from the cost the digital video also offers a lot of flexibility. Digital format makes it very easy to edit the movie and put it together. Presently most of the filmmakers convert their film footage to digital format for post production process and then back to film for theatrical release. This conversion is costly, takes some time and degrades the image quality a bit. Since digital video already records information in the digital format it does not have to go through the conversion process. Also immediately after shooting footage it can be played back to see what and how the shot was and the editing process can start. Any problems with the footage can be figured out early by looking at the video and extensive retake can be avoided [18].

Traditional way of distributing a movie by shipping large prints to theatres and have them collected back afterwards is very expensive and bears high financial risk. A lot of investment is needed to make the prints without knowing if the movie will do well enough to recoup the investment. Releasing a movie that goes on to be a super hit in less number of theaters initially leads to a loss in the revenue from the film. On the other hand digital movies which are no more than digital data in a specific format can be very easily replicated and distributed, practically without any cost. The movies can be transferred to the destination through broadband cable or satellite transmission.[22]

Film projectors are used in most theatres around the world to project movie from the film to the screen. Every time a movie is played from the film the quality degrades a bit and after few weeks of playing the film scratches and bits of dirt are visible on the film. Using a digital cinema projector gets rid of this problem. A digital movie looks exactly the same every time it is played. Digital cinema also offers protection against piracy because simultaneous release of the movie is possible as against the staggered release. At present only around 100 cinemas in India are equipped for digital projection. Since most of the movies made in India are low budget and distribution cost is very significant proportion of total cost the number is projected to go up dramatically in near future. Exhibitors have an added incentive to go digital as using digital projectors they can also show content such as cricket matches, live special events, pre-show advertising and other digital or video content. It is also much easy for them to assign extra screenings to a hit and drop screenings of a flop. The cost of a new 4K digital projector is USD 60,000 (almost 2.7 million Rupees). It can display images at more than four times the resolution of current high-definition displays [18].

Thus use of this digital technology reduces piracy risk, lowers cost of production and improves quality of movie captured in the camera.

5.5 Mitigating post-release risk

Mitigating exhibition risk is one of the most difficult tasks in Indian film industry. The reason for this is that these risks arise after the entire film is made. Possible insurance cover should be taken by the production houses to cover the loss due to obstruction of exhibition due to religious and political reasons. Also the production houses should try to take the film magazines into confidence to ensure that nothing wrong in written about the movies. Further the marketing efforts of the movie team should help to spread good word about the movie as word of mouth is very powerful in India.

5.6 Mitigating risk of flop

There have been numerous efforts that have been done in past to mitigate box office risk. Box office prediction in itself is very difficult and there have been numerous models presented to model box office prediction. Mohanbir Sawhney[20] has suggested a model that defines two processes time-to-decide to view a movie and time-to-act to watch the movie. Both these processes are assumed independent and exponential processes and the exponential parameter can be found empirically. While this modeling has shown good results in first three week box office collections but it tends to deviate for later weeks. Eliasberg and team talk about *Moviemod* [19] the implementable decision-support system for pre-release market evaluation of motion pictures. The model is about different behavioral stages of a consumer and the factors that influence those stages. The factors included are movie theme, promotion and distribution strategy and movie quality. We feel that these parameters need to be modified in the Indian context and categorized into four categories:

Performance Parameters: There are certain performance parameters that determine the overall collection prediction for a movie. These parameters are as listed in Table 2.

Making of the film: The making of the film also is useful in prediction gross box office collections. Some important factors that cover this aspect are mentioned in Table 2.

Environment: Environment in the box office and the country at the time of movie release also has significant impact on the success of the movie. Some of the aspects related to the environment are captured in Table 2.

<table>
<tr>
<td>Performance Parameters

Weekly sales pattern in different regions
First week sales
Box Office verdict
Critic review
Number of screens showcasing the movie
Size of screens
Cumulative audience capacity
Success of music album
Rating given by Film Board
Fads – fashion, dialogues etc
</td>
<td>Publicity and Marketing

Advertising budget
Mode and channels of promotion
E.g. Superman used sale of toys
Word of mouth publicity
Performance in markets abroad and strategies of marketing abroad
Send over actors for publicity
Time Lag between release in different markets and publicity time lags
Choice of theatres for release and time gap between release of theatrical and DVD version
Effect of performance abroad/renowned award on publicity of movie being released with a lag in the market (e.g. Hollywood movie released in India after gap of few months)
</td>
</tr>
<tr>
<td>Environment

Competing Movies Released
Similar and dissimilar themes in recent times
Ongoing movies, new movies, to be released movies
Movies for similar demographic focus
Strength of distributor
With exhibitors and other movies currently undertaken
Socio-political environment and relation with movie, example Border
Current phase of movie business in terms of trend of flops/ hits
Controversy about movie theme, actors , scenes of the movie
Time of release: Does it coincide with vacation, festival, sports events etc.
Losses due to piracy
</td>
<td>Making of the film

Budget of the movie
Star cast rating
Success of stars, price paid for acting
New star introduction
Remake of English movies
Setting and location of shooting
Use of “spice” in movies
Genre of the movie
Use of successful combinations in star cast
Some directors/production houses also generated initial interest and free publicity
Is it a sequel?
Use of technology, props or specialized themes: Action, graphics, use of high speed cars , boxing, wrestling
</td>
</tr>
</table>

Table 2: Factors affecting the performance of a movie

Publicity and Marketing: Publicity and marketing are two most important tools used to reach the audience and enhance interest among audience for the movie. The factors related to publicity and marketing are captured in Table 2.

These factors are very relevant in Indian context and need to be considered to make an effective box office prediction model. Some of the other measures to mitigate this risk are discussed in subsequent subsections.

5.6.1. Going beyond theatre business

Yet another way to counter the risk of flops is enhance sales of products associated with the movies. Currently in India major part of revenues (close to 70%) comes from box office collections. While on contrary in US only 20% comes from box office collection, rest come from DVDs, satellite channels and sale of accessories, toys and goods branded in the name of the characters of the movie. In India also this trend is changing and hence by shifting towards new media like Internet, Direct to Home, mobile phones, radios and other pay-per-view concepts the collection of movies can be increased. In fact movies are the main source of entertainment content for the mobile operators who cater to a whooping 50 million. Wallpapers, ring tones, screensavers and games on mobile phones are reaching out to this section for publicity and revenue. [12] This shift would ensure that even if the box office collection is low movie would not make losses.

5.6.2. Use options to enhance quality of movies

One of the greatest concerns that distributors have that they invest substantial amount of money in movie production but producer does not take care of the quality of the movie. Hence rather than financing the entire movie production the producer should issue options for right to distribute the movie. This means that the distributor initially has to pay some amount of money to buy the right to decide in future about the decision to distribute the movie or not. This would force the stakeholders to be on their toes and produce good quality film or else the distributor would not distribute it. The pricing of these options would be determined by anticipated success of movie. Hence the box office production model with predicted performance parameters for future can be used for pricing. Further the remuneration of actors should also be split into a fixed and variable part. The variable part should be linked with the performance of the movie. This would ensure that actors lay emphasis on quality of performance as that would determine their monetary worth.

Again there can be options sold to customers who get payoff if the gross box office collection is below certain strike amount. This is like a put option where the payoff is greater of zero and difference between expected collection and actual collections. This would force the producer to make quality movie to avoid paying off to investors in those put options.

5.6.3. Put options on production & distribution house shares

Indian share market has become very receptive to box office returns. A successful movie leads to increase in share price of the distribution house and a flop leads to fall in share price. The share price of UTV Software Communications, which produced the year's first blockbuster hit, has gone up 5.49 percent to Rs.189.25 since the day of the movie's release, while the share price of Mukta Arts is down by as much as 15.39 percent to Rs.43.15. The company released 2 box-office duds in first week of April and May respectively. With the share market capturing the impact of movie film producers can hedge their risk by buying put options on shares of production houses and distribution houses before the release of the movie.

Thus use of these techniques can go a long way in reducing the risk of low collections for a movie but to develop tools like options as discussed above would take time as Indian markets are still not mature enough to price them correctly.

6. Alignment of customer segmentation and marketing strategy

One of the most important methods to align customer segment, positioning and marketing strategy is by collecting data about the customers. A number of the risks described above come up due to lack of visibility of proper information as the information bottlenecks loom large. As mentioned in figure 2, the information about the consumer of a particular movie is not moved back to the producer or director for a better understanding of the overall potential. In US most of the movie theatres profile the incoming audience and hence that data can be used to find out popularity of a particular genre among people of different age, sex, profession and religion. Implementing such a system in Indian theatres would production houses to relate the marketing effort needed with different kinds of movies by experiential learning from past data. This also helps to determine popularity of actors and typical time of release of movies. Also such profiling done by exhibitors would help in organized transfer of consumer insights back up the value chain, helping movie makers to make superior quality movies.

Risks	Suggestion
Financing risk	▪ Widen customer base through VCDs, direct to home and mobile ring tones ▪ Securitization of box office returns
Production risk	Use of insurance to cover actor's/actress's injuries, fire on sets and bad weather in shooting place etc.
Distribution and exhibition risk	▪ Tie with small cinema halls for screening movies ▪ Launch VCDs and DVDs first and then enter theatrical world
Piracy risk	Digitalization of production, distribution and projection
Post-release risk	Very tough to cover as crops up very late
Risk of failure	Widen collection base Use of options on share of distribution houses
Misalignment of customer and marketing strategy	Customer profiling at cinema halls

Table 3: Possible Risks & Its Mitigation in Indian film industry

7. Conclusion

The Indian Film Industry which is the world's largest film industry is very profitable and is growing tremendously. By understanding the risks and using appropriate systems and products and embracing new technologies to mitigate the risks and it can become more robust, profitable and attractive for investment. We have tried to cover most of the risks that film makers encounter in the entire process (Table 3). While some of the risks like financial risk can be methodically mitigated, other risks like the political or religious risk is totally unexpected and hence virtually unpreventable. The industry would grow by mitigating the risks that can be avoided and making use of the financial instruments discussed in the paper to enhance profits. The further scope of this paper is studying the correlation between performance of the movie and stock movement of the production/distribution company and developing a sound empirical hedging strategy using put options to hedge the risk of production and distribution houses and understanding how information systems may be used for doing away with the information bottlenecks.

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