
Examining the understanding and management of risk in the film industry

A Research Synopsis

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1 — Foreword by Patrick McKenna

Acknowledgements

The director Stephen Frears once observed that “the true heroes of films are the investors. They take the risk, after all.” The heroism bit may be a little overstated, but Stephen is right about the importance of risk-taking to the film industry.

The activities of production companies, in film as in music and other content genres, rest on a complex and unpredictable relationship to the market. There is sometimes a tremendous public demand for their products, the ‘hits’ on which the industry depends. But, critically, these activities are what I call ‘non demand-led’ in the sense that no market research has any useful predictive value as regards ultimate box office performance. Producers, more even than sales agents and distributors, occupy the high end of the spectrum of business risk.

However, and this is the key point, business risk in media content companies can be overcome if you have the market knowledge, the capital and the commercial skills to manage it. Michael Franklin’s research findings will come as no surprise to those of us who have worked in the business for as long as I have. Sadly however, a deep understanding of the risks involved in making and distributing film, and by implication of the steps required to succeed in this business, is comparatively rare.

I hope that Michael’s work will help to move the agenda forward by sharing an advanced understanding of the opportunities and challenges ahead. If it succeeds in this ambition I shall be glad to have played a part by supporting him.

Patrick McKenna

Founder of the Ingenious Group, Chairman of the Institute for Creative and Cultural Entrepreneurship (ICCE) Advisory Board and Chairman of the National Film and Television School (NFTS).

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I also wish to thank the participants of this study who provided their time and expertise freely and fully, often speaking for hours at a time. I truly appreciate their insight, generosity and candour.

Finally I wish to thank the academic supporters of this research at ICCE, whose advice and direction has been invaluable, and the editing support and expert insight of Olsberg•SPI.

Michael Franklin

2 — Executive Summary

2.1 — About the Research

This research explores the complex, multifaceted and contested subject of risk in the film business. The context is predominantly the UK independent film sector, although this is linked to, and affected by, the activity of major media companies, the international marketplace and other audiovisual sectors such as high-end television (HETV).

How risk is understood and managed in the film industry has a substantial impact upon which films are financed, produced and seen. Risk can therefore have dramatic implications on the impact of film – as a public good in its ability to help us engage with the world and each other¹, and with regard to economic returns for individuals and companies involved in film-making.

The research has examined the technical methods, experience-driven practices and business structures by which practitioners and the sector overall understand and manage specific sources of risk and broader industry uncertainties.

Research methods used include, primarily, analysis of consultations with over 40 high-level film industry professionals from across the film value chain² (the sequential sub-sectors, including production, distribution and exhibition – hereafter referred to as the FVC), and consultations with three world-leading academics. Participation was voluntary and anonymity offered for interviewees in order to access the richest information. The insights of these experts were analysed alongside any data or demonstrations that they provided. In addition, at the secondary level, some 300 documents were analysed, including company literature, academic research and industry reports.

This document represents a condensed version of the full research project. Further bibliographical and methodological detail is available digitally at www.filmriskresearch.com, along with information on future publications.

2.2 — Context

As evidenced by the announcement of the recent industrial strategy sector deal from HM Government³, the creative industries are of key economic and strategic importance. The UK film industry is a flagship for, and crucial component of, the creative industries, and is internationally recognised as one of the world’s best places for film-making⁴. However, there are pressing market and financial challenges to the independent sector which are inextricably intertwined with the film industry overall⁵. These challenges include business model development and access to finance, areas in which the understanding of risk is fundamentally important.

Risk in the film industry is a pervasive and complex concept, predominantly associated with the potential for financial loss or reward, and composed of multiple, deeply interrelated sources across the creative and business elements of the value chain.

Understanding risk and its management is key to building the sector and attracting investment – and a key issue therefore for policy-makers and industry support agencies.

2.3 — Key Findings

- There is poor information provision concerning risk in the film business and a knowledge gap has developed as a result. This has negative implications for industry practitioners, policy-makers and policy innovation. This knowledge gap adversely affects access to finance, the development of new business models and the wider diffusion of commercial best practice throughout the industry.
- This problem stems from the multiple and sometimes contradictory understanding of, and responses to, risk across project, business and market environment contexts. Poor information availability and lack of clear understanding infects much general commentary on the state of the industry with the consequence that much of it is lacking in insight and commercial awareness and the nature of film industry risk characteristics is obscured.
- The use of data-oriented approaches for specific, bounded tasks is under-explored, especially within the independent sector. This is partly due to incomplete understanding of risk concepts, which blurs complex distinctions between reverse engineering (attempting to replicate past successes) and derived demand⁶ (demand based on an intermediary's requirements, not the end user). Inadequate resources for accessing data-driven techniques means that companies are unable to benefit from all potentially available insights into business-relevant risks.
- To account for its complexity, risk in the film business is usefully considered in relation to the following themes:
 - Extended processes: the ongoing core film-making activity with risk management implicitly embedded e.g. development conversion, project access and selection;
 - Industry tools and approaches to project and market analysis: the specific devices that help to organise and mobilise the value chain e.g. revenue forecast ultimates, sales estimates, and finance plans;
 - Conditions of interpretation: the motivations, rationalisations and impacts of organisational / national industry cultures; and
 - Business structures: integrated models, cross-FVC boundary alignment and negotiated balance of power arrangements.

This analytical approach helps to show that risk is generally framed, or even intuited, rather than calculated, and that this process occurs across a sliding scale of formality.

2.4 — Conclusion, Recommendation and Proposals for Future Work

The picture that emerges from this research is of a sector which is largely impenetrable to outsiders and sometimes a mystery even to itself. Risk is universally acknowledged but is insufficiently understood or rationally differentiated within the industry. Endemic sector under-capitalisation is lamented and taken as a given, but there is little evidence of active, consistent consideration being given by practitioners and policy-makers to addressing its causes. Based on the views expressed by respondents in this study a main reason for under-capitalisation and consequential systemic commercial fragility seems clear: too little dependable *information* and, much more important, too little widely diffused sector *knowledge* in the sense of developed business skills and shared commercial understanding.

A number of proposals for future work, plus a single enabling recommendation, emerge from the analysis presented in this report. The overall **conclusion** of this research is that long-term positive change and sector reinvigoration in the UK film industry may be possible, but is highly conditional. There is no 'silver bullet', but one crucial requirement for releasing the sector's potential is greater data transparency. The greatly increased strategic use of information is a necessary if not a sufficient condition for maximising industry returns from UK creativity in film.

What is required is the development of new, coherent mechanisms for collecting, processing and disseminating industry data so that, subject to genuine considerations of commercial sensitivity, the benefits of such data become accessible to all businesses operating across the FVC. To be clear, this is not a recommendation for attempting simplistic reverse engineering of success from historic data, but for building and opening up datasets from (largely) existing but currently inaccessible repositories of information to help inform business decision-making.

The most persuasive approach to addressing the requirement for better information will require the creation of a new, institutionally accredited and appropriately supported industry resource designed to enable state-of-the-art data collection and dissemination and promote best practice in its commercial use. This resource would be established under the governance of industry trade bodies, accounting professionals and other industry stakeholders. Amongst other things this vehicle for applied analysis would undertake the urgent examination of technologically-enabled approaches to risk mitigation, including applications of blockchain technology. It would enable multiple routes of engagement with industry data and also address integration with EU and wider international initiatives.

Recommendation: an industry stakeholder group should be convened by the film industry team at the Department for Digital, Culture, Media & Sport (DCMS) to make this happen. Clearly the specification and set-up of this resource would be a large undertaking and require extensive feasibility and administrative

work and strong industry leadership. There might be a role for the new Policy and Evidence Centre (PEC), funded and currently being established by the Arts and Humanities Research Council (AHRC) under the rubric of the Government's Industrial Strategy Challenge Fund as part of the recently announced sector deal for the creative industries. The instrumental arrangements for implementing this recommendation are for discussion.

The new body should specify the measures required to deliver the following outcomes and make recommendations as to optimal delivery:

- The institutional accreditation of industry information and data so as to promote greater transparency and investor confidence in the sector;
- The enabling of appropriately-resourced sector data analysis;
- The consolidation and dissemination of information about best practice in film industry accounting standards; and
- The provision of leadership and guidance on the use of technology-based approaches to risk issues including blockchain architecture and shared and anonymised computation, to facilitate better industry understanding in areas such as audience analysis.

In addition, two further proposals for detailed work have emerged and should be placed on the industry's agenda, although both are more complex and possibly more contested than those outlined above:

- The examination of enhanced research and development (R&D) support options for content businesses throughout the wider creative economy, including exploration of tax-advantaged models; and
- The investigation of a deeper policy focus on developing support for domestic content businesses associated with inward investment flows and related industry infrastructure.

This is an ambitious programme by any standards and, to repeat, there is room for debate about the mechanisms for establishing the new body, its governance, precise terms of reference and remit. However, with the future of UK independent film at stake it is to be hoped that an early consensus might be reached as to how best to execute this recommendation.

2.5 — Structure of the Rest of the Document

Following an introduction to the research process (Section 3), the findings in this document are presented in four main sections, although these areas of enquiry exhibit many interlinking threads. They are:

- **Framing the Problem: Multiple and Imprecise Diagnoses of Risk (Section 4).** This explores the issue of the varied and imprecise understanding of risk and contextualises the concept in relation to the FVC;
- **Current Practice: Industry Responses to Risk (Section 5).** This examines current approaches to understanding and managing risk. Three sub-sections explore: approaches and practices in relation to risk, including development and project selection; the function of industry tool-kits and analyses, such as budgets, finance plans and sales estimates; and business motivations and structures;
- **Market Environment Uncertainty: Future-Oriented and Macro-Level Considerations (Section 6).** This shifts the analysis from specific risks to wider concerns about the market and its future development; and
- **Findings and Proposals (Section 7).** This final section introduces proposals including data and technology-led approaches, regulation and public intervention, integrated support initiatives, financial instruments and evidence-based policy-making.

3 — Motivations, Objectives and Approach

This section provides an introduction to the issue of understanding and managing risk in the film industry and gives an outline of the research approach.

3.1 — Overview

Risk is a critical issue for the film industry as whole, both creatively and economically. Risk is a very broad topic and it pervades the business. Complex issues of conceptual knowledge impact how the film industry is perceived and how it operates.

There are multiple approaches to understanding, describing and managing risk in the film business. This is not necessarily a conscious issue for all top-level market participants – the leading companies and individuals of the kind interviewed for this research. Successful practitioners have developed sophisticated understandings and insightful management strategies to deal with their current needs, as per their particular business model. However, a lack of consistency in conceptualisation and terminology in relation to risk adds to confusion in industry and policy documentation and can negatively impact broader practice. The literature includes unhelpful descriptions of film as both especially risky and no more risky than other industries⁷. It also conflates film with other creative industries. Hard and fast designations of whole industries fail to explain the nuances at play, resulting in the retention of stereotypical, broad brush and opaque conceptions of risk within and without the independent film sector. This means that longstanding problems, such as demonstrating business value and attracting investment, are not addressed coherently.

Against this backdrop, research was undertaken with the objective to provide a rigorous synthesis of professional expertise, industry practice and multi-disciplinary academic research on the film industry: “a business context surrounded by ambiguity, risk and uncertainty”⁸ whose characteristics are rarely separated out and explored in detail. The field is often subject either to broad characterisation as part of the creative industries, or viewed narrowly through the lens of theatrical box office modelling. This study addresses the topic using a more rounded approach that recognises the many interrelations and inter-dependencies that characterise the film industry. The perspectives and actions of different kinds of market participants are important. The tacit and explicit identification, evaluation, assessment, communication, materialisation (placing in technical tool-sets) and mitigation of risk all feature highly.

Three interwoven industry problems are especially pertinent:

1. A lack of clarity, precision and cohesion in analyses addressing risk in the film industry;
2. The weak corporate finances of UK film companies; and
3. The persistent inability of film production companies to retain benefits from the successful exploitation of intellectual property (IP).

This research finds the first problem to be an under-appreciated cause of the second and third. An improved understanding of the management of risk, in all of its component parts and multiple dimensions, has the potential to engender greater economic and cultural returns. Such outcomes may result

from increased investment in the sector based on a clearer appreciation of its particularities, and improved recoupment options for IP creators based on wider financing options such as those potentially generated by policy initiatives that increase R&D support. These are intrinsically linked to improvements in corporate finance and thus business sustainability.

One critical, core research question arises: what are the reasons for the persistently poor understanding of risk and risk management in the film business, and what can be done to improve the overall operating environment? There are some general and some specific reasons, some fundamental and some circumstantial. At the heart is the nature of risk in film as a product and a (twofold) industrial / organisational response. The high sunk costs and unpredictable returns of film⁹ have resulted in the independent system segmenting responsibility for costs and rewards across a sequential chain in which the producers, who are furthest from the audience, and have the slowest mode of operation, generally suffer greatest negative balance of power and thus financial detriment. Examining this market structure and associated market behaviour provides a window into the ways in which risk influences practice¹⁰.

3.2 — Study Parameters

Although this research is mainly concerned with the film industry in the UK and with issues impacting independent film companies, film is international and is linked to, and impacted by, the activities of major media companies, the international marketplace and other audiovisual sectors, especially high-end television (HETV).

Further sources of uncertainty not conceived at the time of planning in 2015 emerged during the course of research in 2016-17, notably Brexit and the timing of new European regulation on copyright and the digital single market. However, their implications are yet to be determined. Thus, while these ‘external’ issues are taken into account, the intrinsic understanding and management of risk in the film business remained the focus.

This research does not aim to provide an introductory text to issues well covered elsewhere¹¹, but to introduce an analytical framework within which professionals may consider their own risk-related practices.

In addition to these boundaries, it is also important to recognise that there are significant limitations imposed by the data available. For example, in its 2017 study on *The State of the UK Independent Film Sector*, Olsberg•SPI noted the dearth of information on sources of UK film finance: “One issue for this study was the lack of data on financing sources and finance plans, and changes over the timeframe... Unlike countries such as France and Sweden, the UK does not publish annual data on key sources of film finance.”¹²

Whilst this research benefited greatly from the generosity of many public and private market participants, there remains a widespread problem in accessing film finance information. In some cases, public agencies that do collect information



Suffragette, 2015, directed by Sarah Gavron, produced by Alison Owen and Faye Ward.

lack the resources to maximise analysis in-house and do not outsource such work due to perceived confidentiality concerns. This state of affairs informs a key finding of this research, a perspective that also informs a 2017 call for action from the European Film Agency Directors (EFADs): “EFADs will work strategically to ensure transparent access to film and audience data across the whole value chain... First, authors and right holders should always have access to the quantitative data on the full exploitation of their work and data on all publicly funded works must be made available to the funds, through legal mandates if necessary. Second, film agencies will increase their collaboration to share quantitative and qualitative data, analysis on audiences and initiate new studies.”¹³ This action is imperative at a time of potentially increased separation from international partners following Brexit.

4 — Framing the Problem: Multiple and Imprecise Diagnoses of Risk

This section provides insight into the reasons for a lack of understanding of risk in the film industry and the consequences. It also explores the differences between risk and uncertainty and issues around how industry structures relate to risk.

4.1 — Overview

“It doesn’t really work as a business as most businesses would. That comes back to the fact of how risky each film is.”

There is a general consensus, conferred by the press and supported by policy documents, industry commentary and market behaviour, that the creative industries are risky and film particularly so. A narrower band of literature proposes counter arguments that film is no more risky than any other business or industry sub-sector. There is an overall lack of depth, clarity and coherence in the wider understanding of the subject. This starts with confusion over the concept of risk itself. It includes a lack of detailed recognition over the sources, types, levels, layers, combinations and volume of risk, as well as the implications of, and responses to, these aspects. The general proposition is reflected in this statement: *“to reiterate the riskiness of the film business is moot, very little in the way of a coherent picture on the nature of risk has been presented.”*¹⁴

Many components of the topic often go altogether under-acknowledged. It is therefore essential to work towards greater clarity, for example addressing why films may have different financial risk categorisations and outcomes for different participants, and why *“risk and reward can only themselves be understood effectively in differential terms – dependent upon one’s position within and interaction with the norms, machinations and power plays”*¹⁵ of the business.

Oversimplifications and partial understanding of this subject can be damaging. Blanket descriptions of film as very risky are off-putting to potential investors. However, it is also the case that simplistic counter-assertions that film is no more risky than other business sectors, and which do not adequately represent film’s real and specific risks, can lead to the swift undermining of unrealistic expectations. The ability of the industry to support businesses and livelihoods based on new successes is undermined by the lack of long-term, informed financial backing. For film to flourish, for it to survive even, it requires financial support. That support is likely only to be forthcoming on a consistent basis if it is knowledgeably informed. Potential support is hamstrung without a true and well-rounded appreciation of risk.

4.2 — Starting Principles: Uncertain Demand, Risk and Reward

There is a multiplicity of risk types and understandings of risk¹⁶. The dominant or underlying risk for consideration in film, often implicitly recognised, is the risk of whether a film generates sufficient revenue so as not to lose money and provide a return on investment (ROI) to participants¹⁷. This fundamental conception of risk necessarily includes creative valuation components. The risk-reward relationship is intrinsically and intricately related to a variety of contributory types of risk and correlative management practices, such as overall commercial perspective, talent reputation, conditions of reception and other variables. However, the starting point is always consumer demand uncertainty – whether an audience will pay to see the film.

The global film industry has developed myriad strategies for minimising exposure to demand uncertainty, balancing them with strategies for capitalising on unlimited upside potential. The motivation to become involved with a film (via production, distribution, investment) is usually (though not always) to extract exceptional earnings from a hit. Once production, distribution and other costs are covered, returns can be exceptional¹⁸. However, access to returns depends completely on participation specifics. Whilst an equity participant will continue to earn indefinitely from a hit over the course of a film’s life cycle, the more protected debt positions – secured against tax incentives or pre-sales – are less risky but without extended benefits. Risk is indivisible from the concomitant opportunity for reward, but the details of the many complex commercial responses to managing uncertainty are under-explored in industry literature.

4.3 — The Nature of Risk and Uncertainty

A key issue of language hampers much industry expression. Risk and uncertainty are different concepts: *“Risk...is a calculation and is relatively known (cost benefit analysis)... In uncertainty, outcomes and possibilities are unknown. Uncertainty is a common feature in industries relying heavily on copyright. In the creative industries, where the copyright for creative content is important, there is great uncertainty about the success of any particular work; predicting how well a book or television programme will fare is difficult.”*¹⁹ There is a misperception that because much ‘risk’ in film escapes rational, probabilistic calculation and thus constitutes extreme uncertainty on some definitions²⁰, measures of mitigation are ineffectual. This is why the context of risk-taking is crucial: attention has to be paid to the processes, tools or devices being deployed, and conditions of interpretation.

Even within notions of calculable risk, there are variants. These range from future event likelihoods to the standard deviation of expected portfolio returns²¹, and from general abstract

financial magnitudes to sector specific prediction methods characterised in some research as a *“statistical divination rod to predict box office ‘blockbusters’.”*²² As well as identifying the specific understanding and linked methods being applied in any given case, it is important to map them to the underlying assumptions. Some approaches to risk are only rational when seen from the subjective position of the market participant: *“Often measures and management processes are only useful once over-riding issues have been accepted e.g. accepting that extrapolation of past events is a good guide to the future”*²³. As if to illustrate film industry complexity, this particular acceptance (past indicates future), as research has shown²⁴, both informs current practice but is also criticised reflexively as unreliable.

The importance of specifically framing the understanding of risk becomes increasingly apparent when further definitional components are considered. As noted earlier, the primary risk in film is often considered to be losing money, or not achieving sufficient return. Limitations to measurement are contextualised in particular ways of thinking: *“The risk is due to the uncertainty regarding future events and their effects in terms of revenues generated by a given project. The risk, therefore, can produce positive or negative effects by increasing or decreasing future revenues. A rational investor will try to measure ex ante the level of risk of a given investment, in order to assess whether to invest or not and at what price. Therefore, the risk has two dimensions: the ‘expected component’, that the rational investor expects and incorporates in its decision, and the ‘unexpected component’, that cannot be forecasted.”*²⁵ In this articulation, conditions of complete calculability are replaced by distinctions between specific instances and general conditions. There are elements that can be forecast to some degree, and elements of business that cannot. This kind of assessment can inform where companies with limited resources allocate time and effort, addressing where a difference can definitely be made, and where it is worth pursuing more information. This process of the detailed unpicking of risk components, which is often not explicitly articulated as risk mitigation in practice, is typically absent from policy and industry literature.

Risk management processes have both individual and organisational characteristics: *“risk is social, and to understand the culture of risk, we need to understand the wider cultural and political factors.”*²⁶ They differ across the variety of market participants in the film industry, from owner-operator independent producers to major Studio departments dealing with slates across multiple territories. Cultures of risk perspective vary according to types of finance e.g. debt and equity, operational goals of organisations, and individuals and their careers.

There are psychological aspects to risk mitigation and the development of strategic approaches that can be heavily influenced by organisational culture: *“Traditional concepts of risk are also framed at the individual level. Loss is not perceived symmetrically with gain, and the magnitude of potential losses matters...Tolerance for risk increases after big gains and after*

*losses when there is a chance to break even. Career risk may impact investment decisions for one investor very differently from that for another. Incentive structures and behaviour can vary and are thus important for understanding risk management and investment behaviour in practice.”*²⁷ This variety is borne out by different research participants’ reactions to slate performance, to tolerance of deal term changes at closing, and to developing business models. There is an interweaving of risk considerations at individual, organisational / company and industrial levels.

Given the well-established use of ‘risk’ as such a broad term, it would be near impossible to instantiate a strict taxonomy of concepts according to definitional differentiations between risk and uncertainty. However, moving towards more situational readings of risk is both viable and necessary.

4.4 — Risk is Required, Risk is Good?

Beyond investment and creative circles, risk is typically considered in terms of harm and hazard. A negative connotation similarly taints the broader condition of uncertainty: *“In general, uncertainty is not a good thing for firms or economies as it may result in wasteful avoidance behaviour... Risk is less of a problem, as being quantifiable, it allows firms to adopt risk management strategies.”*²⁸ In this formulation, the creative industries have uncertainty as a common characteristic. This presents a challenge for considering the calculative work both of downside protection against risk and potential upside measurement. How can the definition of risk as a *“relatively known”*²⁹ state of affairs apply to different risk sources in film-making processes across the FVC, and still allow for coherent sector analysis?

There is a need to account for the positive potential outcome of risk. An important link stands between the *“artist or creative and the entrepreneur of classical economics”*; both exist in an *“environment of pervasive uncertainty”* with *“risk-taking central to their function – to the creative process and product, and the life of creative businesses / endeavours.”*³⁰ There is a productive role to risk that emerges when risk as a hazard to be avoided is put in conversation with other elements, most importantly the positive upside it can unlock. This can create a more balanced perspective and has been used to argue that: *“risk-taking in CIS [creative industries] policy should be informed by skill and sense and be managed, but not avoided”*³¹. This approach *“decouples risk from uncertainty and looks at risk in relation to return in a trade-off. Risk is typically defined as a measurable probability of an outcome, whereas uncertainty is immeasurable and unpredictable (Knight, 1921). Risk implies the possibility of calculated decisions based on statistical inference from past trends, opening up the possibility for systemic management.”*³² Some parts of the film industry do utilise such methodologies as inputs to their understanding and have applied the learning gained to market decisions. However, little evidence exists of such methods being taken up in strict formulations, or of information about their contextual application being widely shared.

5 — Current Practice: Industry Responses to Risk

Driven by the potential for projects to reach a substantial audience and by the need to protect against the risk of insufficient returns, the film business utilises a wide range of interlinked risk management practices. This section surveys the nature of risk understandings at the interactive boundaries between FVC segments and considers how this impacts on the life of a film project.

4.5 — Implications of Creative Industries' Perceived Riskiness or Lack of Risk

How market participants view risk in relation to notions of chance, luck or control can substantially influence their strategic operations. The research literature contains debates over the implications of different levels of possible control: *"Many cultural industries scholars assume that it is impossible to assess the success potential of any good in advance, and that it is purely a matter of luck. However, the existence of selectors suggests that they have some value, and some selectors perform better than others"*³³. Rather than accepting that nothing can be known for certain, practitioners can and do learn from experience.

A repeatedly cited 2011 study focussing on the riskiness or otherwise of a wide spread of creative industries companies (not just film companies) articulated one perspective of non-engaging financiers: [the] *"High St banks' view: unless there is already a revenue stream, we just won't invest at all.... If creative businesses have a viable business plan with predictable revenues...[they] may present an opportunity. It also presents a risk; given that a creative business depends on an asset that exists inside the entrepreneur's brain, banks are unable to secure their investment against it."*³⁴ Film does exhibit inherent characteristics that a wide variety of academic disciplines and industry benchmarks denote as risky³⁵ on any definition. However, because the term is subjective and also relative, judgments of more or less risk depend on the definitions and methodologies of accounting for riskiness, which are often highly specialised. The traditional finance sector is often acknowledged to lack such detailed expertise regarding the film industry³⁶.

4.6 — Organisation of Industry Structure and Derived Demand

It can be argued that the independent film sector is organised according to the segmenting of risk and return for each project across the FVC. Producers are largely responsible for developing and delivering a film project, and in return typically stand to earn a producer fee, although this fee can be subject to pressure. Meanwhile, sales and distribution companies can put up significant sums to make production occur. Companies put up additional capital as more becomes known about a project over time. The framing of uncertainty narrows: ambiguity becomes more tolerable. This generally results in an uneven distribution of risk across different sub-sectors as participants join at different times, with widely varying costs of involvement. It should be noted that risk and return are often asymmetrically aligned, and they do not necessarily alter in parallel. Crucial last minute tranches of finance may be able to extract rights to outsize potential returns in their favour, illustrating the dynamic commercial environment in which risk valuations are made.

The FVC is an evolved structural attempt to insulate participants, as far as possible, against consumer demand uncertainty. Financiers are more likely to back a film if they believe it can be sold to distributors around the world, or to video-on-demand

(VOD) service providers. Thus, in making decisions, investors and fund managers are not solely considering audience demand, but rather *derived* demand – the demand from broadcasters, theatrical distributors, VOD services and other business-to-business buyers of content. These market participants are more predictable than theatrical audiences informing the behaviour of producers, one notes: *"As a producer, my market is the initial financing of the film, which is not a good situation, because it means I am not actually dealing with my real market."* This reliance on networked systems of intermediaries and their own internal valuation mechanisms not only places producers at a remove from their audience but complicates the application of any heralded transparency of audience data.

Companies in the film industry may therefore operate on a basis that cannot be accounted for by rational probabilistic risk analysis of their final market. However, so long as there are common understandings of evaluations between buyers and sellers, the conventions hold up. Considered from the perspective of inter-subjective rationality (if something is rational to the transacting parties it need not be objectively rational), the practice of operating project by project on the basis of trusted relationships and making decisions according to track record is strategically valid even if it seems highly risky to outsiders. Whilst proving untenable for many companies long-term, the overall observance of the FVC's parcelling out of risk has become the classic overall sector-level model – a model which some participants conceptualise as a kind of virtual national independent studio.

These FVC-grounded risk management strategies are of a different order to the probabilistic evaluation of risk regarding box office performance. However, they have become somewhat formulaic, or at least regularised and familiar, through the use of standard industry tools such as sales estimates sheets and other devices.

5.1 — Thought Processes and Practices

"It is not very scientific": "It's not a science": "It is no particular science"

5.1.1 — Non-Scientific Approaches

Many respondents enthusiastically designated the use of particular devices, e.g. revenue forecasting models, as explicitly non-scientific. This reflects their understanding that the combined context of ultimate demand uncertainty and their own conditions of decision-making render pure probabilistic approaches inapplicable. Their strategic response to uncertainty is adherence to well-established and familiar means to protect against losses, specific to the particularities of their involvement. Most forward-looking or predictive activity is characterised as low-level science, or quasi-scientific, and only moderately reliable at best. Market participants noted as using scientific terms at the financing stage are generally considered to be the most market-integrated investors, for example sales agents who propose such black-box formulae as 'X casting equals Y budget'.

Research participants foregrounded the role of experience, trusted partners, and the ability to capitalise on opportunity as key approaches to managing risk. The use of graduated and longitudinal practices such as reliance on multi-party finance, or financiers' deployment of a spectrum of nuanced instruments (e.g. discounting tax credits, pre-sales and equity involvement), rather than relying on probabilistic approaches to risk mitigation, is rarely examined anywhere. Deal structure specifics that determine potential for participant reward are separate to, but interlinked with, the chances of a particular film's performance in primary and secondary markets. Together they determine total project involvement risk. Yet these market features attract far less attention than headline box office variance and memorable aphorisms about unknowability.

One unintended implication of non-participants' lack of detailed knowledge of business risk profiles is that they can infer rejection of statistical approaches at one stage in the film life cycle to signify a lack of validity in their application in others, for example specialist audience segmentation and marketing. A generalised dismissal of the application of quantitative insights is shared by some producers and funders. The unknowability of ultimate consumer demand and of the potential for investor upside are much more well-known characteristics of the industry than the detailed practices used to engage with them.

5.1.2 — Development: Casting and Conversion

The primary risk encountered by a production company is that it does not get its films into production, thereby earning fees, and is forced out of business. Thus, substantial time and effort is allocated to bringing projects into fruition. There are a wide variety of approaches for pursuing conversion from development to production, depending on the type of companies involved, their scale, business model and so on. Addressing development risk is a complex endeavour. In addition to the driving motivation to make the best film possible from a creative perspective, is the need to offload the costs of production through the FVC by all possible means. A key example is encapsulated in the role of casting, which demonstrates the instrumental role of many valuation processes. The practice of pursuing 'bankable' talent and using the resulting sales estimates to facilitate (unverifiable) derived demand calculations aimed at closing financing and generating fees, illustrates how deeply risk management concerns are embedded in the activities of producers.

It is a truism that creativity in areas like script-writing, cinematography, acting and direction fundamentally influences the overall quality of a film. High-end creative inputs are intended to reduce risk of financial loss by generating work that audiences will enjoy and turn into a 'hit'. The motivation here is self-evident and vast swathes of the literature deal with those fine-grained aspects of the cinematic art that may be classified as execution risk. This research does not deal with execution risk from a creative perspective. Rather, attention is focussed on the logics and tools by which tangible components of creative intent and creative expression are evaluated and commercially transacted. The framing of cast and crew as project assets with their attendant reputational capital, and the imprecise valuation of potential future work based on past creative achievements, are crucially important examples.

5.1.3 — Project Selection and Access

While producers select the films they wish to develop, and hopefully produce, through a mixture of creative passion, business insight and pragmatic considerations relating to project turnover, other market participants involved in film finance also have to make decisions about resource allocation. It is a combination of the risk assessments of different participants coming together that leads to production and release.

Certain distinctions can be made to help understand when, how and by whom differently motivated evaluation processes are put to work in creating a film. The estimation of ultimate revenues for a proposed project is one such management procedure, the reference to comparable titles is another. Potential projects

are evaluated both in and of themselves and in comparison with competing projects. Potential projects are not all equal and nor are measures for their assessment. The potential for upside (profits) and downside (losses) are usually examined but are more of a concern for some participants than others.

In examining the respective perspectives and concerns of different market participants a number of themes emerged from the research. These themes express three widely shared beliefs as to current realities as follows:

- First, current market conditions, including digital disruption and the legacy of financial crises, have contributed to a generalised risk aversion and greater concentration on films containing certain ‘high level’ elements, for example established talent and familiar IP. This has led to extreme competition for product in this market segment;
- Second, revenue forecasting tool-sets are recognised but only as incomplete heuristics, with usage differing across FVC participants. Each participant sub-sector tends to over-rate the sophistication of others’ tools; and
- Third, a lack of consensus over the viability of comparable titles analysis, especially the timeliness of information, is evident, as with revenue prediction methodologies such as Monte Carlo simulations (probability models used for computing expected box office returns)³⁷.

5.1.4 — The Importance of Language

The use of language in the industry tends to be mixed and at times confusing. This includes the acknowledgement of the lack of certainty, regular use of terms such as probability and likelihood, but also the practice of defining business operations against chance. While data relating to predicted revenues is clearly prized, decisions are often explicitly portrayed not as neutral calculations but as expressions of conservatism influenced by viewpoints based on experience. Such decisions are formed within commercial frameworks set up in a way that makes the market participant feel comfortable with their familiar business model. Interaction between environmental (market) considerations, timing of decisions and loss of control are all important, yet these factors are rarely explicit.

The phrase “we will take a view” is key: many interviewees repeated the phrase in different contexts. This phrase emphasises agency and reflects reasoned, informed evaluation in a space in which knowing a distinct, finite outcome is impossible – subjectivity is therefore explicitly required. These dynamics and their associated sector structure drive over-inflated positivity in some FVC segments: “One of the big questions always in our business is how bullish people are about a particular project... and ultimately it [green-light decision-making] does tend to be based on your optimism about a film.”

Managing risk is complicated by several factors including competition and differing goals and ambitions within and

between companies. This makes it difficult to model the market. From a major Studio operations perspective, the project evaluation process can follow a condensed calculation across integrated FVC divisions. When projects are considered, the company “run numbers on it, which basically means a P’n’L [profit and loss account] under typically two or three scenarios. The scenarios will include a base case and then a low case and a high case.” The ability to do so with accuracy relies on their control of downstream ancillary exploitation such as TV. “At this point we have some idea what the cost of the film is, so we will plug that in, and then we will take a view on if this is a film we want to take a risk on.” For some companies, for certain films, due to the structure of their financial participation and/or their arrangements downstream there may be little to no risk at all, for example when a financier discounts Film Tax Relief (FTR) and/or pre-sales. Indeed some producers view sales agents to be taking on zero risk, deeming that they already have secured downstream buyers. An understanding of how their potential partners view a project informs producer perspectives and the way in which they cross-calculate the approach of potential partners in sales and distribution.

5.1.5 — Analysis of Comparable Titles

The performance risk of a given title is variable within structural and institutional norms. Thus, a distributor will be intensely involved in the creative risk of marketing, including the specialised execution of marketing spend. These components interact with such issues as audience access and willingness to pay. The latter set of concerns is partly softened by established practices of risk management across FVC boundary points. These include the contractual apportioning of risk on a film-by-film basis according to relationship precedents, for example sliding scales of revenue distribution contractually agreed amongst distributors, exhibitors, pay-TV providers and so on. So, whilst there is project risk every time, there is an infrastructure that mediates the process.

The reliability of estimated returns for home entertainment revenues is considered particularly robust. This is especially the case for distributors who own or repeatedly use the same supply chain: “It is the most formulaic and quantitative part of our business, home entertainment, in the sense that you use comparative titles to put together an estimate of what you are going to do in the home entertainment window. You will only look at films that are really recent, the last two years, and then you model. You say well, the conversion of box office to home entertainment for certain titles is as follows, so you get a range. Once you know what the box office is, you can then get an estimate of what the home entertainment is ... ultimately it’s just a guide: how many units should we be thinking we are going to sell.” This stepwise process thinking provides a framework for evaluation.

Cross collateralisation across exploitation windows and territories, and the increasing importance of an in-home window as a primary point of exploitation, are characteristics



Girl with a Pearl Earring, 2003, directed by Peter Webber, produced by Andy Paterson and Anand Tucker.

often considered intrinsic to larger companies’ balancing of risk and return. However, a willingness and ability to experiment, often assumed of large-scale traditional media companies by external commenters, appears to be overstated. This is partly because lead times, departmental silos and separation from audience decision-making in big conventional organisations make developing ‘best practice’ extremely hard and tend to discourage innovation.

5.2 — Industry Tools and Approaches to Project and Market Analysis

The operation of the FVC is mediated by the use of several crucial industry tool-kits. These tools include budgets, sales estimates, production incentives, finance plans, recoupment charts, ultimate profit and loss accounts and digital engagement metrics. They are often run in parallel, facilitating interaction between participants in a kind of mediated shuttle diplomacy. These combine with strategies such as reliance on partner networks (to access projects, talent and information), and with structural arrangements dealing with the scale, timing and windows of distribution. Each of these elements has an impact on individual projects as they move through the film life cycle. Problems of understanding and communication arise from the lack of detail with which such tools are explained, specifically in relation to business models.

Examining a variety of business model approaches to risk in film, a running theme emerges of both the regular use of established tools, for example, profit and loss account modelling based on historical data and comparable titles, and an overt recognition of the limitations of such tools – even when individually tailored. The viability of such tools is evident when analysed *in situ* and framed by their users. However, unsurprisingly this level of understanding and recognition of incongruity is not widely shared. As a result odd dualities can emerge which carry over and blend with other imprecisions common in the literature, for

example, false dichotomies between ‘creativity’ and ‘commerce’.

In various formulations, many market participants use past performance as an indicator for forecasting future revenues to inform their risk mitigation practices. At the same time this practice is frequently disavowed in investor presentations and similar literature in which warnings not to rely on such an approach are prominent. The limitations of using historic data for future purposes are commonly acknowledged, but external participants such as non-specialist banks often still crave conventional calculations of risk.

There is a collective tendency towards green-lighting (or product acquisition) being based on optimism derived from achieving past ‘hits’, rather than the far more numerous ‘misses’. This feature exists for a number of reasons. First, film generation decisions tend to be creatively driven by people with an intrinsic interest in realising the work, and extreme uncertainty over revenue distribution³⁸ not surprisingly leads them to accentuate the high side in order to get the project taken forward. Second, the unique creative attributes of any project likely to be considered strong with a potential to generate profits, are inevitably highlighted because the application of downside avoidance strategies is relatively uniform and can be more easily articulated. Given the direction of relative knowability – possible losses are absolute, whereas revenues are unbounded – calculation oriented to revenue generation potential tends to be more nebulous, though not necessarily less important in organising the market.

5.2.1 — Sales Estimates

Sales estimates for each international territory for which exploitation rights are available to distributors have multiple uses. They range in complexity and directness in relation to their intended purpose. The spread of high, low and medium estimates, or ‘ask’ and ‘take’ prices, indicates a range of values for a given film as a guide for the amounts a producer should look for as the minimum acquisition price from a distributor. This informs the structuring of finance plans which traditionally tend to rely on pre-sales in order to help compose the budget alongside other debt financing. The value of unsold rights may be construed as an indicator of likely performance, or as a guide to the collateral required.

The use of sales estimates as a tool for risk management highlights the wide variety in the presumed accuracy of different sales agencies’ figures. Informal trust networks share sense-checking recommendations to supplement their own detailed performance data built up through deal volume or bought in from data providers. Providing confidence to other investors is a crucial indirect function of sales estimates. Their significance does not relate solely to whether an agent is likely to hit a certain percentage of their take estimates or not, but also, separately, with when the agent can make sales and whether the agent will be able to pay up in a timely fashion.

5.2.2 — Film Tax Relief (FTR)

As a risk management tool FTR is relatively straightforward, but it carries complex interwoven knock-on effects. FTR reduces the total cost of a film to the producer. It functions as an incentive to stimulate business in the sector, and has multiplier spending effects for the economy as a whole. In particular, FTR has been extremely successful in attracting inward investment film productions to the UK³⁹, amounting to over £2bn for film and HETV in 2017⁴⁰. The contribution of FTR to a project typically requires cash-flowing by a financier, and so there are costs to accessing it, but the overall impact is to reduce the amount of money spent by the producer and thus being at risk of not being recouped.

The cash-flow function provides an opportunity for film financiers to add a low-risk loan strand to their business models. The counter-party in this context is HM Revenue & Customs (HMRC) and the risk of non-delivery is negligible: the payment of relief is dependent on administrative accuracy rather than the quality of the production or box office performance. Nonetheless FTR's risk management implications spread out in multiple directions. In particular FTR plays a crucial role in arguably the most important industry tool – the finance plan and associated recoupment chart and the structured sharing of risk that underpins them.

5.2.3 — The Finance Plan

The finance plan details the investment in and ownership of a film, and is expressed legally through the Inter Party Agreement (IPA). A substantial amount of preparatory calculation supports the work of financing a film. This iterative work involves the individual project participants and all the negotiating parties over extended periods. These calculations entail the use of a recoupment chart, or revenue waterfall, which models the allocation of returns.

Alongside the basic order of payment, preferential corridors to specific returns provide for an almost infinite variety of combinations of participant reward. It is vital to distinguish between the variety of possible participation positions in a film's financial structure, and the income streams those positions rely upon. Some models simply require films to be made rather than any measure of market performance. There are myriad different types of risk apportioned to different types of finance. The most common sources of finance are 'friends and family', generally offered on non-commercial terms; trade finance (which may be project or slate based); and bank or commercial finance, which may be tax-structured. How each party considers risk influences their activity, and attitudes to risk exposure become concrete in the arrangement of the finance plan. Some participants are able to take a blended mix of positions, with capital protection sought through less risky positions unrelated to box office performance and the upside then resting with sales either directly to distributors (business-to-business) or indirectly via distributors to end consumers.

5.2.4 — Counter-party Analysis

Counter-party analysis as a risk management approach is embedded in the construction of the finance plan. The deal term assessment and negotiation process can be supported by the use of different tools that may be informed by improved data use so that intuition and experience are complemented by aggregated verifiable information. For example, the nature of counter-parties' past performance is very important. However, quantitative expressions of previous performance are not necessarily probabilistic, nor always understood to be rational, or even always deemed appropriate in some cases, particularly when the market environment is changing so quickly, as for example with the TV markets that inform sales estimates.

What emerges from participant interviews and explanations of operational processes is that experience and expert judgement, not data collation, is most valued, but also that participants with the opportunity to do so will buy and collect data whenever possible. In particular information on discrete, applicable tasks or risks is sought, for example to examine and balance potential counter-party delinquency against the upside of involvement. Typically, most participants involved in a film will defer to the judgement of one of their number who they deem most informed – a kind of derived due diligence. The *ad hoc* nature of this process is rarely stated, and is often obfuscated by the formality of the language used in management analysis and investment literature. This can be confusing, lending authority to procedures that do not warrant it, and can make the sector opaque to external analysts. A frequent result is that these processes are effectively presented to investors as black boxes, so that reliance on track record becomes a major arbiter of future value.

Partnership networks that contribute to the management of risk vary in their formality, scale and nature. Networks of various ties with different kinds of strength influence the organisation of the film industry in critical ways, impacting both on creative realisation⁴¹ and casting and career paths⁴². Many levels and dimensions of risk management practice are evident, from the conversational habit of information sharing amongst individual professionals for purposes of temperature checking on specific deals, to integrated business models as strategic responses to competition for content, demonstrated for example in slate co-financier agreements and output or distribution deals.



Carol, 2015, directed by Todd Haynes, produced by Elizabeth Karslen, Stephen Woolley and Christine Vachon.

5.2.5 — Slates / Portfolios

Slates and portfolio approaches to risk management operate within more or less formal frameworks. The basic concept of spreading risk across a number of projects, rather than pursuing a single picture approach, is clear and commonly understood. However, when the practicalities of slate investment are considered and probabilistic approaches to decision-making are taken into account, the application of scientific portfolio methods to risk management immediately becomes more complicated⁴³.

In particular, the role of time-frames in different financing models is crucial and impacts how various slates operate. The regulation of Enterprise Investment Schemes (EIS), mini-majors' acquisition and release portfolios, and the structuring of mezzanine arrangements all impose different requirements on the timing of activity. The different perspectives of film practitioners and financial institutions illustrate how conceptions of risk and strategy interact. For example representatives of cross-FVC businesses note that they prefer to avoid the restrictions imposed by tax-linked structures and financial year ends because they do not fit naturally with their operational process. Respondents from big media companies offered contrasting evidence as to whether annual slate budgeting impacts their risk management practice throughout the year, some noting pressure on valuation considerations, others taking a contrary view.

Further levels of complexity become apparent when considering portfolio detail: for example, definitions of 'slates' vary wildly, from a handful of films to hundreds. For

one market participant portfolio construction may be a risk mitigation priority, for another it might be EIS eligibility criteria and guidance, or the optimal dating of theatrical release. These differently motivated participants collide to create the market at any given point. As a result of this contingent set of arrangements and the varied allocation of relevant assets, it is exceptionally difficult to identify any 'best practice' guidelines.

The subjective nature of risk as a business concept is illustrated in the UK by changes to EIS regulations,⁴⁴ in particular the latest risk-to-capital test defining *significant risk* as setting dependent⁴⁵. The importance of market context and commercial understanding has been flagged by the British Screen Advisory Council (BSAC) in relation to HMRC's guidance on venture capital schemes generally: BSAC stresses consideration of "the particular risk profile of the business of film and TV production, but also of the various ways in which individual film and TV production companies may attempt to mitigate that risk depending on the particular circumstances."⁴⁶

5.2.6 — Contextual Use of Industry Tools

Just as different types of finance play different roles, so participants do not all use the many industry tools employed in risk mitigation strategies in the same way all of the time; indeed they are not equally available to every participant. Their use depends on timing, competition and relative positions of power amongst partners. The tools can themselves form centres of tension revolving around estimation of likely future revenues and risk of financial loss. In packaging and closing deals, the IPA can form what sociologists call a "boundary object"⁴⁷, the IPA can be a location for negotiation in which objective assessment is balanced against other more subjective factors designed to influence the deal-making

process, such as film evaluation by counter-parties.

It is the combination of multiple viewpoints and multiple strategies that has allowed independent film-making to survive. However, some respondents now believe that the ongoing dilemmas imposed by having to rely on the pre-evaluation of films coupled with the radically reduced international market for pre-sales, is bringing matters to a head. According to some interviewees conditions are likely to decline into a state of serious threat to independent film-making: *“One of the problems of the British film industry is that it is constantly trying to make films that cost more than they are worth. Public money can bear some of the pain of that by saying it is a cultural intervention effectively. If you don’t want to only ever have American films, then you have to put some public money in, that’s through the tax credits, the BFI and BBC and Channel 4... this very weird, compromised British model that you would never, if you were starting with a clear blank piece of paper, you would never construct it this way”*.

This analysis is increasingly shared to the point at which it has acquired, at least in Europe, the status of a policy conclusion. As EFADs noted at the end of 2017: *“It is probable that public film funding, as a result of the fast changing landscape, will be required to initiate a process of rethinking of the fundamentals of the entire film financing system.”*⁴⁸

An alternative approach proposed by US interviewees is to foster greater entrepreneurialism. There is clear evidence of an Atlantic divide here: this was highlighted by an interviewee discussing the EIS as a source of finance: *“EIS, obviously, has been very useful for the UK film industry. It’s also allowed some crafty companies to basically run weird businesses that probably shouldn’t be businesses, but we don’t have those kinds of tax credits”*. In the US some independent producers turn to business angels and use credit cards. The acceptance of risk through personal debt in US independent film-making has some contrasting resonance with the very different position in the UK. Some critical reviews of the EIS have identified the dangers of allowing tax-advantaged investment structures to focus on capital preservation – investments that are relatively detached from performance risk. The new regulations and their accompanying guidance are explicitly designed to end that practice and compel investors to put their capital genuinely at risk – in the film industry and elsewhere. The impact of such changes is yet to be fully determined.

5.3 — Business Motivations and Structures

Moving to a more macro level, investigating the role of different market participants’ motivations, rationalisation processes and organisational cultures helps to contextualise risk approaches across company models, and in relation to the balance of operations through the FVC.

5.3.1 — Film Industry Risk Rationale is Complex and Imprecisely Expressed

In some instances these industry characteristics can lead to problematic *“narrow framings and sure things”*⁴⁹ that incorrectly overstate the probability of success and provide insufficient framing. This can occur where forecasts are made using methods that eliminate extreme cases without methodological cause, or tools are utilised to justify executive decisions under the guise of predicting success. Often, management understanding of risk is social rather than scientific in nature.

This phenomenon can and does influence the market. Retained intrinsic bias can exist and infiltrate the structuring and use of industry tools. Such habits generally have complex, contingent histories, are power and value laden and may very well be oriented to career goals. In terms of optimistic thinking, a pertinent illustration is the *“availability heuristic”*, a way in which market participants may reason some state of affairs to be more probable than warranted by any evidence if an example easily comes to mind⁵⁰ (consider the recurring example of *The King’s Speech*, its dated nature and Pact’s reporting that current conditions make such film-making *“almost impossible”*⁵¹).

Recognition of the dominant influence of the uncontrollable factors and unknowable conditions on ultimate project performance is deeply entrenched. This leads to some film activity being pursued despite the absence of a business case. Robust, high-quality, subjective approaches that counter biased models of profit forecasting with reasoned, measured practices are typically not well or widely expressed.

Many kinds of investment literature routinely include boilerplate instructions to investors not to rely on information about the asset or business opportunity being offered. In film this issue is further compounded by the use in some marketing documentation of problematic data sources. Much professional services and financial literature related to film and film trade commentary also generally suffers from the use of imprecise or inaccurate language. Even in higher-quality information sources and accreditation bodies’ publications, issues of language and depth of explanation arise. It could be argued that approaches to assessing potential investor upside are under-explained compared to the explanation of downside mitigation tools⁵² largely because revenue forecast assumptions or methodologies do not tend to be in the public domain.

5.3.2 — Motivations and Market Conditions

Extreme competition for high profile, key talent-driven independent films viewed as less risky by international buyers, is driving a trend towards FVC integration. Despite an increase in production volume generally, few projects are deemed to be at this level. The pressure on the types of film in demand, and their rarity, is in a way mirrored by the number of market participants looking at providing finance to independent film. It is a strange situation that there is so much international capital chasing a relatively limited number of high quality projects. For typical UK independent films there are only a handful of serious financiers operating. These participants generally operate on the basis of reasoned assessment and considerable operational expertise, but this has not always been true for all market entrants, some of whose operational models and motivations may have been detached from genuine industry-based commerciality: *“I am not saying they are being dishonest with people, I am saying they are fooling themselves more than anybody else. They have to believe that they are doing this [film involvement] for bottom line reasons...[but there is a] glamour discount of capital in the entertainment business... I think there really is. When you look at the overall economic return on capital, particularly in film-making, it is very hard to look at it and say from a risk reward standpoint that this stands muster with comparable investments. I explain that being the glamour discount. People are willing to change that risk reward equation in return for getting something else, and what they are getting is the glamour”*. The results of ill-informed market activity on the part of some new entrants and their corresponding impact on industry dynamics can have negative ramifications for the entire industry in respect of investor perceptions.

Management cultures relating to risk interrelate not only with overarching business models, organisational aims and intentions, but also with material practice. Insights drawing on the Studios’ and major media companies’ work in TV emphasise that risk management attitudes are often tacitly embedded in business practice. Some are prone to inertia and substantially influenced by individual, cultural or organisational mind-sets rather than driven by impartial best practice. *“Orthodoxies are not necessarily related to numbers, but can be related to conceptual origins or cultures...Decision-making is very personal and linked to individuals’ career paths.”*

Personal job perspectives, internal power dynamics and the relevant participant’s position in the FVC can play a part in evaluation decisions. This interviewee comment is instructive by way of example: *“The distributor will always come to an arrangement with the bank and the bank will always come to an arrangement with the distributor, within reason. They have sufficient alignment of their interest that they will work it out. The mezzanine and equity find that much more difficult.”* The balance of power in business-to-business relations is one of the many factors played out on the basis of personal experience and expertise, as opposed to strict reliance on quantitatively measured or legally defined understandings.

The notion of ‘calculated risk’ sometimes proposed in public and private literature is thus extremely problematic.

The reliability of some risk mitigation procedures can be called into question by approaches that privilege the use of specified tools when convenient, whilst dismissing them when not helpful to pre-selected decisions.

Sales estimates for example are noted to have limited shelf lives and contextual relevance. Alongside whether or not estimates are realised in the market or not, the timing of investment decisions is an important variable. Another is the purpose of reliance upon the sales estimates, which historically has varied, both in the public and private sectors. From using a specific coverage formula to map against investments, to referencing estimates as a more general guidance of market interest, the use of estimates and other industry tools or risk management processes is contingent. Public funds for example, may be disbursed in accordance with specific directives to ignore commercial concerns in favour of the imperative of talent development. Other participants, including new and would-be entrants such as tech companies, may choose to behave in a non market-oriented manner, acting wholly outside the internal commercial logics of the film business. This adds to confusion and a general undermining of the notion of best practice.

A variety of public and private actors with different motivations that may change over time and even across a single slate, interact in a complex ecosystem. In the public sphere some strategies for risk mitigation may be intrinsic to 3, 5, or 10-year policies. Even where commercial concerns are given explicit prominence, as for example recently with Film4⁵³, project success cannot be entirely divorced from long-term talent investment. A stated intent to take financially significant positions in substantial international films is one thing; being able to capitalise on a legacy of talent investment is quite another. At a handful of large integrated companies and ‘mini-majors’ extended talent investment is more practicable due to their scale of activity and access to capital. Elsewhere in the independent sector a project-to-project focus generally, though not always, militates against sustained, formal long-term investment in talent.

How the risk embodied in any given film is perceived influences all aspects of its life, including financial its structure, expectations of theatrical box office and required spend on prints and advertising (P&A). The perception of a film as ‘risky’ can be materialised in very different ways, from explicit designation within a particular genre implying it to be more or less likely to be popular, to attribution of a probability for a particular band of project financial return. In practice however, the evolving nature of project development and project realisation tends to militate against systematic categorisation, with the consequence that a generalised view of risk in film persists in most press and trade coverage.

6 — Market Environment Uncertainty: Future-Oriented and Macro-Level Considerations

This section provides an overview of how current trends and uncertainties in the wider marketplace for film are affecting the way in which companies consider and approach risk.

5.3.3 — Business Model and Company-Level Concerns

Business model development such as vertical integration, alongside traditional management practices such as business planning, are often identified as determining components of risk management success at the company level. However, in the audiovisual sector the picture is more complex than simple strategy selection. As with tool adoption, not all strategic business options are available to all market participants, not least because of the absence of scale in the great majority of film and other content businesses.

For those with externally-generated capital film can often be seen as a place to play for upside when the losses of involvement are affordable and when activity does not have to be on a business basis. In these cases such capital can purchase non-normal controls to act outside the logics of film business economics, for example working capital reserves sufficient to avoid financial pressure to convert projects from development into production, or the capacity to overpay for project access.

Indeed when this type of market participant engages in production they try to do so by avoiding the inherent limitations of pure production models. Often they buy into complementary combinations of financing, sales and distribution, HETV or other creative industries to access more reliable revenues. The pursuit of notional sustainability remains in many cases externally linked to the idea of calculation and the increasing integration of marketing or audience engagement activities supports it.

In technology-led or digital distribution companies the application of data-led analysis is a matter of course, and an intrinsic, organic pursuit. However, there are barriers to the widespread adoption of such approaches, due either to lack of internal clarity about business rationale, or perhaps lack of resource. For instance in some companies risk management devices are taken to be mainly performative tools, demonstrating a traditional responsible approach to those who have no inside knowledge. In other cases the expected internal data sharing and data utilisation sometimes assumed of major media companies with cross FVC interests, is illusory.

For some large organisations data does exist and is used internally, but for limited purposes. Rather than mechanical application in a series of single decision instances, it is mainly used to sense check assumptions and develop project evaluation thinking over an extended time-frame. The benefits of an increased volume and transparency of data often hoped for by smaller companies are rarely conceived in this longitudinal application, instead of this assumption and argument support role, a Q&A response is sometimes conceived. Thus, it is vital that the application of more transparent data is considered alongside all calls for its provision.

Business model fit with risk management tools is crucial. Most successful audiovisual companies push back against simple reverse engineering as a creative or commercial process, highlighting its futility and self-limiting methodology: it stands in the way of achieving necessary innovation⁵⁴. However,

smaller companies understandably look for alternative proxies for understanding and control. In another example of where effective sources of risk management can be obfuscated, the understanding and control on display in established operations that may come from layers of experienced management and large deal books, is also often accompanied by formal skills capabilities. Professional business planning, accounting, management and strategy should be employed across the board as common practice. Most successful companies largely adopt such processes, but addressing this issue alone will not markedly improve smaller companies' business fortunes, for example by increasing access to finance. Although UK film companies have been criticised for not being able to present their business case in a language intelligible to traditional financiers, the level of turnover and growth are stronger barriers. The 'equity gap' issue⁵⁵ is a two-way problem of presentation and appreciation of value.

Business and management skills and tools are necessary, but not sufficient conditions for success, and are understood as support functions, rather than as business drivers. Creativity struggles in an environment focused too rigidly on risk mitigation. There "needs to be a right to fail" but one which is allied with the capacity to capitalise on creativity made possible by knowledgeable deal-making practice plus the generation of reliable supplementary revenue streams. These might include the servicing of inward investment films, director / producer career partnerships, or other complementary endeavours in advertising or talent management. These components may begin to unlock business investment and enable capital to be invested in IP development, thus contributing to improved deal structure possibilities and allowing for financial success to attract further investment.

"We do have some European distribution [companies] increasingly expressing interest in getting involved early in our projects and developing our projects with us because, you know, everyone's desperate for product. There's lots of product around but it's hard to find good product and good material."

UK distribution and international demand are areas of long-term uncertainty, but some of the specificities of the current market bear investigation from a risk perspective. The quote above relates to the global push for a narrow band of highly sought-after creative content, business consolidation, and the impending threats posed by Brexit and regulatory change in the EU. In addition to potential investors' level of understanding of the direct drivers of approaches to risk, their reaction to changes in the medium-term market environment is also crucial.

Current trends are exacerbating the underlying problems that form the focus of this study. Flat or declining US and EU theatrical admissions, decreasing EU direct consumer spending on films, and at the same time a higher volume of productions being completed, contribute to a challenging landscape⁵⁶. Film's extreme polarisation of returns, increased competition in the flight to 'quality', the undermined international sales financing model, over-supply of under-supported titles, challenges in cast/crew/studio access and audience migration to Subscription Video On Demand (SVOD) are all driving the industry towards the greater integration of business models, vertically (distribution and production) and horizontally (film and HETV), and in broader digital sectors.

This trend is not universally seen as a panacea to the industry's problems: "That is why so much diversification is going on, and the change I have seen is so many companies going: 'Well we have got to get into TV because we are not going to survive otherwise, how are we going to get any IP, how are we going to get a basket of rights that is going to provide us with some royalties because working on the classic old fashioned broken production fees model...we have to give away the majority of our fees because we have to close the gap and so we have not ended up with anything left.' That is such a cliché but it still happens every day." Successful independent film business models are often multi-faceted, developed over time, and exploit market niches. Certain combinations of finance, service provision, and rights creation and exploitation can work very well, but require scale to achieve commercial sustainability, which is rarely found. The attractions of TV and now HETV, including more stable pipelines, the potential for building an asset base and clear route to exit due to the standardised norms of retained rights ownership, attract more new entrants and more conventional finance than the more speculative business of producing films.

However, despite the sentiments of some market participants successfully moving to TV and largely abandoning the world of film, there is also a consensus in both the independent and Studio camps that the two media are substantially different



Girl with a Pearl Earring, 2003, directed by Peter Webber, produced by Andy Paterson and Anand Tucker.

and that few who make the transition will succeed. The anticipated success of hybridised companies is associated with their opportunistic, organic development driven by the creative content itself, rather than by an explicit switch in their business strategies. Indeed, access to the highlighted benefits of the TV model is receding. HETV content co-produced or originating elsewhere and the SVOD cost-plus model bring the financing (and IP ownership) model closer to independent film. A threat has been identified that the UK TV sector could in future mirror the film business with small, innovative companies effectively being overshadowed by a sector essentially focused on servicing inward investment business⁵⁷.

Investment in UK TV companies is continuing, including from international federalist TV distribution entities – the largely foreign owned 'super-indies' buying into innovative domestic producers, but it is noted that few British independent drama producers of scale remain in British ownership⁵⁸. On the TV project side the potential incremental upside compared to a blockbuster hit film is comparatively limited. However, research

7 — Findings and Proposals

The key findings of the research are outlined in this section, along with a number of interlinked proposals for improving analysis and the further consideration of risk in the film industry.

participants also commented on the poor quality of most film proposals looking for finance, and this is considered to perpetuate negative relative perceptions of the film industry.

Stereotypes referring to the core characteristics of the business play out surprisingly often, for example in relation to non-market investor perspectives: *“They kind of rationalise to themselves to some extent as to why film investment might make more sense than it really does, they tell themselves they are doing it strictly for bottom line purposes...you are looking at the investment that they are making and the risk reward components that you have, and I realise that if it was a plumbing company in St Louis with the same risk reward components they would not touch it.”* When film businesses are successful, they are not required to divulge their inner workings. Investors do not generally conduct an audit when things are going well, and as few UK companies are scaled sufficiently to enable them to pursue institutional finance, disclosure is limited. Thus, information about high-quality operations is hard to come by, whereas general surface-level commentary and often damning sector data is plentiful.

It is an open question whether greater industry data transparency would make the sector more attractive to a larger number of external finance sources and improve overall access to finance. For example, fuller information about the fundamental dynamics of revenue distribution and the threats imposed by the continued disruption of oligopolistic internet service providers and content aggregators possessing direct to consumer (D2C) data and relationships, may not appear enticing. The general notion that (more) complete information would lead to greater investor confidence and thus similar treatment to any other business sector, is simplistic and based on incomplete and flawed analysis. Pure information, that is to say data, is not the same as operational *knowledge*. Without the capacity to take advantage of new insights anticipated sector benefits are unlikely to be significant. From the perspective of some internal market participants, the current broader market environment adds a further disincentive to reassessing existing business practices. Sticking to what you know based on hard-won core competencies is deemed by some to be a safer strategy in disruptive times.

7.1 — Identifying and Addressing the Industry Knowledge Gap

There is a lack of clear, detailed, high-quality information about the film industry. This refers not only to the oft-cited lack of revenue and profitability data, but also to information about the way in which film project characteristics are evaluated, projects accessed, and financial involvement in films structured. How the industry is perceived impacts how it operates. This knowledge gap likely contributes to a lack of investor confidence and therefore contributes to difficulties in accessing finance. It also creates challenges for the generation of evidence-based policy.

7.1.1 — Institutional Accreditation / Recognition for Industry Information Provision

The operational rationale of the film industry is complex and often imprecisely expressed. The language, practices, instruments and biases pertaining to risk in film give rise to misunderstanding and disengagement. Professional financial services reports, financial literature and trade commentary often suffer from a lack of clarity, sometimes replicated within the sector itself. These issues all contribute to a general sense of financial marginality. Pact notes that production companies are starved of critical investment, which limits growth and global competitiveness⁵⁹.

In many areas the industry lacks stable, regulated hallmarks of quality. The recognition of, and institutional accreditation of, certain core building blocks of industry information, meaning useful data-sets and worked examples of recommended practice, for example in industry accounting, could help address this problem. Public bodies like the former UK Film Council and the British Film Institute (BFI) have historically set out support for particular film finance initiatives such as FTR or EIS, they also grant accreditation to certain schemes or practices. Starting with specific reference to the concept of risk, and the means by which it is managed, and by refining and articulating their own definitions, positions, processes and provision of information, public and private organisations could work together to lead on delivering a number of empirically grounded initiatives so as to counter this knowledge deficit.

Access to finance reports regularly propose better liaison between financial bodies and the creative industries in general. The provision of trusted expert information, for example on investment methodology, could be a first step on a path to potential long-term positive change for the film industry. There may be a role here for the new Policy and Evidence Centre (PEC) to be established by the AHRC, as well as the DCMS, the BFI, BSAC and the accounting bodies. This is for discussion amongst stakeholders, but formal accreditation will be essential to build confidence.

7.1.2 — Appropriately Resourced Data Analysis

A lack of reliable market data is regularly noted as a cause of under-capitalisation in the independent film sector. It is important not only that data be validated but that its use be appropriate. Currently there is a lack of data sharing across industrial agency silos and organisations, and the potential of using the information such organisations collect as a matter of course, such as finance plans and budgets for market schemes and certification processes, is under-exploited. A lack of dedicated resources for analysis and a lack of commonly-recognised data handling standards holds back advances in the use of data, as does an absence of common recognition for the viability of analysis for particular tasks. This general state of affairs stands in stark contrast with Chinese film industry data integration⁶⁰, and leading activity in the global exhibition sector and other creative industries⁶¹.

Data analysis innovation could be maximised in specific areas of demonstrable impact, such as audience identification between distribution and exhibition. The terminology, process, and strategy of public organisations should be linked with processes used to measure and manage progress towards related goals – for example, in assessing how film businesses might demonstrate how they can become ‘sustainable’, or take ‘calculated risks’, or indeed replace these concepts. The leveraging of evaluative data for the benefit of the sector should be considered.

Riskiness is often given as a reason to persist with the status quo and, for example, to avoid diversity in talent representation⁶². Without the evidence base for change inertia in all areas, including business models, will persist. Lack of data also closes off current practice to proper scrutiny and analysis. Many characteristics of risk mitigation at the industry level militate against innovation and diversity of creative expression, for example the pursuit of a ‘bankable cast’ or material deemed acceptable to international audiences through the filter of derived demand.

It is important to identify where better data, and better use of data can help. As the BFI recognised in calling for a specific stream of Government work in 2015 on the right policies to build companies of scale⁶³, serious attention is required to explore the best data analysis options long-term. This requires a (currently absent) empirically-led resource for data analysis – as recommended by the Warwick Commission⁶⁴ possibly linked to the new AHRC PEC or similar centres of expertise. Through such work, data use can be oriented toward instances where unhelpful, entrenched infrastructural norms can be challenged and value created. Clearly foreseeable benefits to map alongside the more certain costs of change are vital. It is also important, alongside the consideration of what kind of data would enable greater access to finance, to consider the potential deployment of such capital.



Suffragette, 2015, directed by Sarah Gavron, produced by Alison Owen and Faye Ward.

For an example of how aggregated data analysis could be of benefit at the industry level, consideration should be given to the potential role of centralised data and expertise. So, for instance, this could enable collaboration with the capacity-building operation of European Commission's Cultural and Creative Sectors' Guarantee Facility (CCSGF). Public organisations could look to work with the CCSGF to examine how data and analysis provision might be pulled together across international markets and either extend provision to the UK or underpin a proxy service. The French Institut pour le Financement du Cinéma et des Industries Culturelles (IFCIC) provides specialised expertise to lenders in the evaluation of creative propositions⁶⁵. The ability to smartly leverage such available information is crucial to exploiting opportunities in the independent sector⁶⁶. Systemic investigation of the impacts of capped upside deals (SVOD) replacing incremental sales (DVDs) could be examined and responsive business models developed.

7.1.3 — Combination of High-Quality Information with Official Direction on / Consolidation of Accounting Standards Best Practice

Leadership by Government and public organisations is further required for (the regularly recommended⁶⁷) consolidation of – and direction on – accounting standards. This is inherently linked to access to finance, as difficulty in valuing film companies is typically presented as a key challenge for banks and larger investors. This is neither an easy nor a UK-specific issue. In the US the Securities and Exchange Commission (SEC) states the need for specific businesses to present tailored risk factors regarding their operations and avoid using unhelpful boilerplate language⁶⁸. Robust and sector-specific guidelines respecting the complexity and diversity of film business models

would assist companies and investors⁶⁹.

While the challenge of effectively communicating the nature of risk and approaches to its mitigation is pervasive, there are areas for potential progress. These include considering how best to capture the value of talent networks and investment in development. These challenges require expertly-advised accounting measures to be devised, standardised and explained for wider industry benefit.

7.2 — Putting Knowledge to Work

Once aggregated and qualified market data and processes have been validated, the potential for applied data innovation can be realised. Data accrues at different times and places along the FVC⁷⁰, and is rarely systematically combined, analysed or shared. Through-lines of data-led work at larger companies with

requisite data access are currently inhibited by different department team specialisms, inertia or human resource legacies, whereas independents do not have access to the appropriate data or the resources required to use it.

7.2.1 — Distribution / Exhibition – Marketing Efficiency and Audience Reach Models Informed by Logics of Global Leading Practice

Although some extrapolated end goals of initiatives such as Sundance's Transparency Project give an over-estimated illusion of control (the laudable enterprise to increase revenue and audience data sharing was heralded by some as a panacea to project uncertainty), there are potential benefits to increased data provision. Most notably, benefits are proposed in audience marketing efficiencies through collaboration across the FVC, especially between distribution and exhibition. It is in these areas of discrete tasks such as audience segmentation and film release dating that technology-led approaches to risk may apply⁷¹. Application to a contested windows marketplace where a better-understood and actively engaged cinema audience has been developed, could help reduce elements of uncertainty for new products.

At the industry level, consumer rejection of periods of enforced darkness and artificial scarcity are driving a need to build different business models, hence the increase of day-and-date releasing and SVOD uptake. Data efficiencies will likely play a role in any premium VOD windowing or new direct to consumer SVOD models, for instance in sliding revenue split calculations. Implementation of such innovations may aim to employ the logics of Chinese social media ticketing apps, examples of which have integrated data analytics from distribution and exhibition and reversed into production and finance based on direct audience understanding and access.

7.2.2 — Facilitating Efficiencies in Contracting and Payment to Replace Balance of Power Network Reliance and Potentially Improve Investor Confidence

Applications of computation on cross-FVC data sets are not limited to marketing. The multiple impacts of HETV and SVOD success generate specific challenges. There are macro considerations such as growing concerns of a bubble, or that TV may become like film – a 'mere adjunct' of US companies, dependent on foreign capital, addressing a globalised viewership⁷². There are also business model concerns centring on the constriction of home entertainment viewership into the SVOD window which limits overall incremental sales of films and thus undermines the unbounded upside of hits and attendant company impacts of steady longitudinal income from library titles.

Innovative applications of technology could be explored to address such issues, potentially firstly by ensuring all extant systems are as effective as possible and enable successes to be maximised. One example is the need for more efficient tools and processes in closing finance, in part to facilitate flexibility of workflow as windows of talent availability emerge. Exploring smart, private contracts for closing finance and executing payment based on revenue reporting; and other distinct areas of more transparent management, can begin to replace balance of power network reliance and thereby potentially improve investor confidence.

7.2.3 — Facilitating Improvements in IP Valuation

Linked to the need to capitalise on existing repositories of data mentioned above, a wealth of budget and finance plan information resides in different public organisations' application and certification databases. Exploring how to harness this data, whilst recognising the technological, ethical, commercial and practical application challenges, is a key task. This work can inform future business model development by for instance improving SVOD revenue assessment evaluation.

7.2.4 — Leadership on the Use of Innovative Technological Approaches

Technology and management models in other creative industries provide templates to learn from in the adoption of innovation partnerships and in the opportunities potentially afforded by innovative technology such as blockchain architecture and shared computational analysis. The Open Music Initiative (OMI)⁷³, a cross-industry public/private partnership, could further inspire such innovation in film. Their approach is ground-up and very long-term, starting from simple building blocks to get necessary market participants on board. The OMI started with identifying a Minimum Viable Data & Metadata package for a song as a point to build upon. The potential implications for addressing issues such as the analysis of pooled anonymous data, or networked trust to formalise the derived due diligence currently operational only via separate

industry tools is worth pursuing. Steps can be taken by exploring potential decentralised data marketplaces such as Enigma where data might be appropriately valued and computation may be effected on confidential, encrypted data at the point of use⁷⁴. Progress in this field requires industry leadership.

7.3 — Addressing the Overarching Conditions of Work

In addressing both new problems including funding loss and/or uncertainty due to Brexit, potential territoriality collapse, and tech sector disruption, and older persistent issues such as the extremes of revenue distribution, the nature of how different market participants are able to engage with the sector is important. Often, access to successful conditions or resources for reorganising involvement in the FVC to a given market participant's benefit relies upon an ability to act outside the logics and constraints internal to the system. As a result, it is very difficult to outline fully transparent pathways to involvement in the film industry that are attractive and driven by intrinsic characteristics of the business.

It is important that any interventions recognise these market conditions and focus support on those market participants that are forced to play the game by its own internal rules. Independent companies' successful realisation of film projects should accrue advantages, for example of financial returns, knowledge building, networked access to assets and so on. Independent film businesses should not be starting from scratch with every project every time.

Market participants noted the success of initiatives such as the Producer Equity Corridor (PEC) and Producer Equity Entitlement (PEE), fee and overhead protection and revenue locked boxes. When considering what further initiatives might support the generation of felicitous conditions such that success may be rewarded and reinvested, it is crucial that all potential knock-on effects of intervention are modelled. For example, in relation to an increased tax credit of 40%, as called for by Pact⁷⁵, what are the potential implications regarding producers' interaction with financiers that typically cashflow FTR alongside other provisions? Measures to improve the position of UK film businesses must be cumulative and complementary. Access to capital is one step, being able to put that capital to work appropriately is another.

7.3.1 — Exploration of (Tax Advantaged) Cross-FVC R&D Support for Content Businesses

Development was the FVC segment most regularly cited by research participants as the locus in which prospective value can most effectively be generated relative to intervention cost. Instances of extra public financial resources provision have helpfully been used as working capital for increased or diversified development spending, usually deployed in extra staffing or rights acquisition costs. This is as opposed to direct provision of producers' equity investment in their own films – the typical lack of which limits access to revenues high up the recoupment chart.



Carol, 2015, directed by Todd Haynes, produced by Elizabeth Karlsen, Stephen Woolley and Christine Vachon.

Development is where unmediated risk often lies. New entrants including FAANG (Facebook, Apple, Amazon, Netflix, Google) type companies were noted as tending not to invest in it, choosing rather to acquire finished content of known quality. This destabilises the overarching FVC architecture which relies on scaled investment in development and production upfront such that hits have a chance to emerge.

To address this shift in production involvement and value capture, which is perceived to be disproportionate by some UK incumbents, a re-examination of development support, especially that which might encourage scale of budget and correlative release, would be advantageous. Scale of project ambition inherently interacts with budgetary dynamics, audience reach and distribution requirements and these connections illustrate the different dimensions of risk at play. Interviewees highlighted the need to get above a threshold (if unknown) status of scale⁷⁶ sufficient to break out, and to compete with other entertainment forms. This is deemed vital in order for a film to stand a chance of delivering meaningful revenues sufficient to help distribution and production companies to progress toward sustainability. The pursuit of this aim requires support at the base of the industry pyramid (the notional nationwide virtual studio⁷⁷), which is development.

Nesta assesses the recognition of R&D as a legitimate practice in the arts, arguing that creative experimental development meets the systematic work requirement needed for public support⁷⁸. This area is becoming increasingly pertinent as an innovation issue, as technology / services companies which also produce content for film, VR, and games, cannot access this kind of support to help produce content – which is utterly vital to the ecosystem. Tech-sector thinking

is also promoted in the industry with regard to consideration of financial arrangements, with examples given of the Silicon Valley VC model in which investors accept that producers who deliver success should own a substantial portion of their work, even if they have not provided equity⁷⁹.

An R&D initiative could provide an avenue for flexible interaction to involve distributors, reflecting the competitive pressure that drives distributors' earlier project engagement, but also encourage increased threshold levels of scale – in production and release. Pact advances its economic logic of increased FTR to 40% having a sector-level impact by noting it would enable producers to “roll the dice more

often” and that “one or two additional hits will have a colossal impact”⁸⁰. A view was expressed that not only are more opportunities needed (that is to say projects), but that they also need to be at an appropriately high scale of quality.

This research did not provide consensus on investment arrangements or business models involving tax wrap-arounds. Several successful businesses note the inherent problems of such interventions leading to the tail wagging the dog and on occasion the undermining of business processes, including the ability to manage risk according to intrinsic creative properties, rather than timetabling for allocating investment in a given tax year, to take one example. Additionally, it was noted that EIS arrangements, while a valuable source of project finance, have not in the main produced sustainable, growing businesses. Thus, any new initiative should focus on addressing exploitation loopholes and driving a case for business building with potential knock-on impacts for retention of taxable revenues.

7.3.2 — Policy Focus on Developing Umbrella Support at the Business Level by Engaging Inward Investment Companies and Infrastructure

“How we can translate the volume of [inward investment] work coming in and the work it is providing into longer term sustainable benefit for people coming up now, and people who want to establish creative business and work in the UK?... inward investment has to be part of that mix, not regarded somehow as a threat.”

Another area of mixed industry viewpoints relates to the costs and benefits of inward investment growth to the independent film sector⁸¹. The decrease of mid-budget independent film-making is recognised as a barrier to talent development. The complex relations between inward investments' pump primer utility, talent escalator role, and the industry's wish to avoid functioning purely as a service industry require mapping out more precisely. *“Film in the UK is booming and the role of the BFI is to ensure that independent film – the incubator of creativity – flourishes in this environment.”*⁸² If the UK industry is to continue to function (though hopefully not solely) as an incubator, then there is a clear requirement to provide the protection and nourishment necessary so that the UK industry can succeed for itself, and for the global industry.

Identifying the best collaborative cross-benefit framework for inward investment and domestic film-making, was noted as a key priority for some important public organisations. For specific investigation is the role that inward investment infrastructure could play in supporting UK businesses. Across the world, the benefits of large-scale film-making, especially on technological companies that are then able to move into film creation and rights exploitation, are evident. How might similar benefits be derived for companies in other FVC positions? Could movement of talent from independent to Studio projects be reciprocated with corporate benefits, for example the provision of commercial advice and services, potentially improved access to finance by underwriting a percentage of loans, facilitation

of access to over-subscribed talent, crew and studio space?

The value of business skills and their formal expression was an issue of contention amongst different research participants. Some public organisations, investors, and some producers, as well as much access to finance literature, cite the lack of ability to demonstrate traditional business management practices as a barrier to company and sector development. Contrastingly, numerous extremely successful practitioners view business planning as intrinsically unhelpful and thus, often a waste of time. Some instrumental uses are accepted, such as for investor reassurance, but research participants often highlighted the core fallibility of the tool in the film business context.

This example points to a wider trend. When the underlying dynamics of the industry mean that there is high likelihood of failure of the overall project, or at least the very high likelihood of no control over the eventual outcome, the cost-benefit analysis of engaging in formal management activity (largely predicated on different industries) is unattractive to independents. This leads to circumspection when it comes to change for example in new data-led model adoption, especially if market participants are already successful in navigating complexity in some respects and can see definite gains in focussing on their existing core competencies, such as creative development.

Linking skills development to demonstrable, larger infrastructure and industry benefits may therefore be a productive strategy – one that could be embedded in creative clusters. For example, there is a knowledge gap in traditional film businesses in applying cohort analysis⁸³ to audience data, which is becoming increasingly prevalent as tech-led distribution companies further integrate across the FVC. This expertise exists in-house at larger, advanced (usually international) companies and education or service provision could form part of umbrella links between international and domestic industry participants. While keeping in mind there will be limitations to the proposition, there are still certainly benefits in training to speak the same language and negotiate in the same currency across the FVC.

8 — Appendices

8.1 — About ICCE

ICCE delivers entrepreneurship, cultural management and policy education to the creative and cultural sectors, and supports research into new approaches to business, financial models and policy and management in the Creative Economy. It delivers a range of academic programmes and presents activities and events to promote an environment in which creative and cultural entrepreneurship can flourish. Our approach is to integrate entrepreneurship and new management, within the development of creative practices, and to take a creative approach to the development of new businesses and the infrastructure that supports them.

Goldsmiths' reputation as a leading provider of creative education, and its longstanding engagement with cultural practice and analysis, make it the ideal home for ICCE. Engagement with the creative industries and the not-for-profit cultural sector has long existed across many of Goldsmiths' academic departments and research centres. What makes ICCE different is its interdisciplinarity. Artistic creativity increasingly blurs the old boundaries of subject disciplines such as music, drama, dance, fine art, design, communications, media and technology. ICCE serves as an area for experimentation, where all of these disciplines can come together to learn from each other and to develop new creative alliances.

ICCE's diversity of engagement goes beyond the academic disciplines. ICCE also engages directly with external partners from the creative industries and from other specialist higher education institutions. Some of our partners are actively involved in curriculum development or in providing training opportunities, whilst others act in an advisory capacity. Through their direct engagement, all of them ensure that ICCE's courses and other activities address the priorities and needs of the growing creative and cultural sector itself.

8.2 — References and Further Information

Further methodological details and reference information, including links to digital sources are available at www.filmriskresearch.com. Images provided courtesy of Ingenious Media. Anonymous quotes are not footnoted.

Endnotes

1 “Movies are the most powerful empathy machine... The great movies enlarge us, they civilize us, they make us more decent people.” Ebert, R. 2015. Walk of Fame Remarks. <https://www.rogerebert.com/rogers-journal/eberts-walk-of-fame-remarks>

2 Bloore, P. 2009. Re-defining the Independent Film Value Chain. UK Film Council. <http://www.bfi.org.uk/sites/bfi.org.uk/files/downloads/redefining-the-independent-film-value-chain.pdf>

3 BEIS. 2018. HM Government Industrial Strategy Creative Industries Sector Deal. Open Government. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/695097/creative-industries-sector-deal-print.pdf

4 Department for Digital, Culture, Media & Sport, Department for Business, Energy & Industrial Strategy, The Rt Hon Greg Clark MP, and The Rt Hon Matt Hancock MP. 2018. Creative Industries Sector Deal launched. DCMS Press Release. <https://www.gov.uk/government/news/creative-industries-sector-deal-launched>

5 British Film Institute. 2017. BFI Launches Commission on Independent Film Chaired by Lionsgate's Zygi Kamasa to Investigate Health of the UK Independent Film Sector. <http://www.bfi.org.uk/sites/bfi.org.uk/files/downloads/bfi-press-release-bfi-launches-commission-independent-film-lionsgate-zygi-kamasa-2017-07-11.pdf>

Olsberg•SPI. 2017. The State of the UK Independent Film Sector. Pact. <http://www.o-spi.co.uk/wp-content/uploads/2017/04/The-State-of-the-UK-Independent-Film-Sector.pdf>

6 Finch, J., Horan, C. and Reid, E. 2015. The performativity of sustainability: making a conduit a marketing device. *Journal of Marketing Management*, 31(1-2), pp.167-192. <http://eprints.gla.ac.uk/99676/1/99676.pdf>

7 A widely cited document claims understanding creative industries as inherently risky is a lazy assumption - Burrows, H. Ussher, K. 2011. Risky Business. Demos. https://www.demos.co.uk/files/Risky_business_-_web.pdf?13208419

The conceptual and methodological limitations of this analysis are specifically addressed in Ingenious Media, 2012: Written Evidence to the House of Commons Select Committee on Culture, Media and Sport, footnote 1. <https://publications.parliament.uk/pa/cm201314/cmselect/cmcmums/674/674we15.htm>

8 Bielby, D. 2015. Talent Agencies and the Market for Screenwriters. In Roussel, V and Bielby, D. 2015. *Brokerage and Production in the American and French Entertainment Industries: Invisible Hands in Cultural Markets*. Lexington Books. pp. 23-54, pg. 27. Note the multiple different terms used to characterise the field of inquiry.

9 The fundamental dynamics of which are summarised as: non-linearity, skew and kurtosis, infinite variance, revolution around a stable Paretian model, volatility, information inequality and self-similarity - De Vany, A. 2004. *Hollywood economics: How extreme uncertainty shapes the film industry*. Routledge.

10 Searle, N and Brassell, M. 2016. *Economic Approaches to Intellectual Property: How IP influences markets and society*. Oxford University Press.

11 Multiple works rigorously and repeatedly set out the fundamental problems of the UK independent film sector. See: Northern Alliance. 2009. *The Corporate Finance of SMEs in the UK Film Industry*. UK Film Council. <http://www.bfi.org.uk/sites/bfi.org.uk/files/downloads/uk-film-council-analysis-of-the-corporate-finance-of-smes-in-the-uk-film-industry.pdf>

Northern Alliance. 2014. *The Corporate Finance of SMEs in the UK Film Industry*. British Film Institute. <https://2025be3zddzi1rbswe1rwhgo-wpengine.netdna-ssl.com/wp-content/uploads/2017/12/uk-film-council-analysis-of-the-corporate-finance-of-smes-in-the-uk-film-industry.pdf>

Olsberg•SPI. 2012. *Building sustainable film businesses: the challenges for industry and government*. <http://www.o-spi.co.uk/wp-content/uploads/2013/09/Building-Sustainable-Film-Businesses.pdf>

Olsberg•SPI. 2015. *Economic Contribution of the UK's Screen Sectors*. <http://www.o-spi.co.uk/wp-content/uploads/2015/02/SPI-Economic-Contribution-Study-2015-02-24.pdf>

Olsberg•SPI. 2017. *The State of the UK Independent Film Sector*. Pact. <http://www.o-spi.co.uk/wp-content/uploads/2017/04/The-State-of-the-UK-Independent-Film-Sector.pdf>

12 Op.Cit. Olsberg•SPI. 2017. pg 15.

13 European Film Agency Directors (EFADs). 2017. *Vision working document on future of film: Towards a Strong, Sustainable and Dynamic European Film Industry and Culture in 2030*. EFADs Vision working document on future of film. <http://www.efads.eu/common-positions/efads-vision-working-document-on-future-of-film-towards-a-strong-sustainable-and-dynamic-european-film-industry-and-culture-in-2030.html>

14 Phillips, R. 2004. The Global Export of Risk: Finance and the Film Business. *Competition & Change*, 8 (2), pp.105-136. pg 107. <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.852.7148&rep=rep1&type=pdf>

15 Ibid, pg 107.

16 Dempster, A.M. 2014. *Risk and uncertainty in the art world*. Bloomsbury Publishing.

17 Wei, Y. 2015. *Product Similarity Network in the Motion Picture Industry*. University of California Santa Cruz. https://rady.ucsd.edu/docs/seminars/Yanhao%20Wei_%20Paper%20Draft_Oct.pdf

18 Elberse, A. 2013. *Blockbusters: hit-making, risk-taking, and the big business of entertainment*. Macmillan.

19 Op.Cit. Searle and Brassell. 2016. pg. 13.

20 Op.Cit. De Vany. 2004.

21 Booth, J. 2014. *Emerging Markets in an Upside Down World: Challenging Perceptions in Asset Allocation and Investment*. John Wiley & Sons: London. pg. 98.

22 Op.Cit. Phillips. 2004. pg. 107.

23 Op.Cit. Booth. 2014. pg. 98.

24 Op.Cit. De Vany. 2004. pgs. 97, 98, 261.

25 La Torre, M. 2014. *The Economics of the Audiovisual Industry: Financing TV, Film and Web*. Palgrave Macmillan. pg. 140. <https://link.springer.com/book/10.1057/9781137378477>

26 Neff, G. 2012. *Venture Labor: Work and the Burden of Risk in Innovative Industries*. MIT Press. pg. 5.

27 Op.Cit. Booth. 2014. pg. 98.

28 Op.Cit. Searle and Brassell. 2016. pg 13-14.

29 Ibid, pg. 13.

30 Op.Cit. Dempster. 2014. pg. 25.

31 McMaster, 2008 in Dempster, 2014, pg.36. McMaster, B. 2008. *Supporting excellence in the arts*. Department for Culture, Media and Sport. <http://webarchive.nationalarchives.gov.uk/+/http://www.culture.gov.uk/images/publications/supportingexcellenceinthearts.pdf>

32 Op.Cit. Dempster. 2014. pg. 28. ; Knight, F. H. 1921. *Risk, Uncertainty and Profit*. Beard Books.

33 Peltoniemi, M. 2015. *Cultural Industries: Product-Market Characteristics, Management Challenges and Industry Dynamics*. *International Journal of Management Reviews*, 17(1), pp.41-68. pg. 55. <https://jyx.jyu.fi/dspace/bitstream/handle/123456789/48846/mirvapeltoniemiculturalindustriesreviewfinal.pdf?sequence=1>

34 Op.Cit. Burrows and Ussher. 2011. pgs. 39-42.

- 35 Ghiassi, M., Lio, D. and Moon, B. 2015. Pre-production forecasting of movie revenues with a dynamic artificial neural network. *Expert Systems with Applications*, 42(6), pp.3176-3193. <https://www.sciencedirect.com/science/article/pii/S0957417414007088>
- 36 European Commission. 2016. Boosting SMEs in the cultural and creative sectors: European Commission and EIF launch a new guarantee scheme. http://europa.eu/rapid/press-release_IP-16-2345_en.htm; De Voldere, I. et al., 2013. Access to finance for European cultural and creative organizations. European Commission. http://ec.europa.eu/assets/eac/culture/library/studies/access-finance_en.pdf
- 37 Ma, L., Montgomery, A. and Smith, M.D., 2016. *The Dual Impact of Movie Piracy on Box-Office Revenue: Cannibalization and Promotion*. Available via Carnegie Mellon University. <https://www.andrew.cmu.edu/user/alm3/papers/movie%20piracy.pdf>
- 38 Op.Cit. De Vany. 2004.
- 39 KPMG LLP. 2016. Film Financing and Television Programming: A Taxation Guide. <https://home.kpmg.com/xx/en/home/insights/2016/09/film-financing-and-tv-programming-a-tax-guide.html>
- 40 Op.Cit. BEIS. 2018. pg.2.
- 41 Cattani, G. and Ferriani, S. 2008. A core/periphery perspective on individual creative performance: Social networks and cinematic achievements in the Hollywood film industry. *Organization Science*, 19(6), pp.824-844. <https://pubsonline.informs.org/doi/pdf/10.1287/orsc.1070.0350>
- 42 Grugulis, I. and Stoyanova, D. 2012. Social capital and networks in film and TV: Jobs for the boys?. *Organization Studies*, 33(10), pp.1311-1331. https://www.researchgate.net/profile/Irena_Grugulis/publication/275444868_Social_Capital_and_Networks_in_Film_and_TV_Jobs_for_the_Boys/links/565455a308ae1ef929768e29/Social-Capital-and-Networks-in-Film-and-TV-Jobs-for-the-Boys.pdf
- 43 Op.Cit. De Vany. 2004.
- 44 British Screen Advisory Council. 2018. BSAC Submission to HMRC consultation on 'Venture Capital Schemes: Risk-to-capital condition draft guidance'. <https://www.bsac.uk.com/reports/bsac-comments-venture-capital-schemes-risk-capital-condition-draft-guidance/>
- 45 HMRC. 2018. HMRC Internal Manual Venture Capital Schemes Manual VCM8500. <https://www.gov.uk/hmrc-internal-manuals/venture-capital-schemes-manual/vcm8500>
- 46 Op.Cit. British Screen Advisory Council. 2018. pg. 11.
- 47 Bowker, G., and Star, S. 1999. *Sorting Things Out: Classification and Its Consequences*. MIT Press.
- 48 Op.Cit. European Film Agency Directors (EFADs). 2017.
- 49 Op.Cit. De Vany. 2004. pg. 270.
- 50 Grant, J. 15.3 2011. "Plato's Philosophy of Art", Oxford. <https://podcasts.ox.ac.uk/1-platos-philosophy-art>
- 51 Producers Alliance for Cinema and Television. 2017. The Risk Game. Pact. <http://www.pact.co.uk/news-detail.html?id=british-film-industry-bids-for-growth>
- 52 Although conversely, poor quality documents do typically oversell and oversimplify upside potential.
- 53 Garrahan, M. 2018. Three Billboards Outside Ebbing puts focus on Film4 ahead of Baftas. *Financial Times*. <https://www.ft.com/content/7dffe7b8-123b-11e8-940e-08320fc2a277>; Goodfellow, J. 2018. Channel 4 to make up to £15m from 'Three Billboards Outside Ebbing, Missouri'. *ScreenDaily*. <https://www.screendaily.com/news/channel-4-to-make-up-to-15m-from-three-billboards-outside-ebbing-missouri/5127594.article>
- 54 Jones, C., Svejenova, S., Pedersen, J.S. and Townley, B. 2016. Misfits, mavericks and mainstreams: drivers of innovation in the creative industries. *Organization Studies*, 37(6), pp.751-768. https://www.research.ed.ac.uk/portal/files/26445095/candace_jones_accepted_version.pdf
- 55 Op.Cit. Northern Alliance. 2014.
- 56 European Audiovisual Observatory cited in Wiseman, A. 2018. Nine Industry storylines set to dominate in 2018. *ScreenDaily*. <https://www.screendaily.com/news/nine-industry-storylines-set-to-dominate-2018/5125198.article>
- 57 Paterson, R. 2017. The competition discourse in British broadcasting policy. *CREATe*. <http://www.create.ac.uk/publications/the-competition-discourse-in-british-broadcasting-policy/>
- 58 Ibid.
- 59 Op.Cit. Producers Alliance for Cinema and Television. 2017.
- 60 Brzeski, P. 2015. *Alibaba Film Chief Grants First Interview: What China Can Do for Hollywood*. *Hollywood Reporter*. <https://www.hollywoodreporter.com/news/alibaba-film-chief-grants-first-84>; China Film Insider. 2018. *Headlines From China: Ticketing Firm Tao Piao Piao Dominates Chinese Film Distribution*. <http://chinafilminsider.com/headlines-from-china-ticketing-firm-taopiaopiao-dominates-chinese-film-distribution/>
- 61 Manovich, L. 2018. Digital Traces in Context 100 Billion Data Rows per Second: Media Analytics in the Early 21st Century. *International Journal of Communication*, 12, pp.473-488 <http://manovich.net/index.php/projects/media-analytics>
- 62 See work of the first author - Coles, A. and MacNeill, K. 2017. Policy Ecologies, Gender, Work, and Regulation Distance in Film and TV Production. In *Women, Labor Segmentation and Regulation* pp. 211-231. Palgrave Macmillan US. https://link.springer.com/chapter/10.1057/978-1-137-55495-6_12#Sec2
- 63 British Film Institute. 2015. *Response to the Business Innovation and Skills Committee Inquiry on the Digital Economy*. <http://www.bfi.org.uk/about-bfi/policy-strategy/consultations-publications/consultations-bfi-has-responded>
- 64 Warwick Commission. 2015. *Enriching Britain: Culture, Creativity and Growth*. University of Warwick. <https://warwick.ac.uk/research/warwickcommission/futureculture/finalreport>
- 65 European Investment Fund. 2017. *Over EUR 130 million of loans for cultural and creative SMEs in France and across Europe*. http://www.eif.org/what_we_do/guarantees/news/2017/ifcic-france Monclus, R.P. 2015. Public banking for the cultural sector: financial instruments and the new financial intermediaries. *International Review of Social Research*, 5(2), pp.88-101. <http://web.a.ebscohost.com/ehost/pdfviewer/pdfviewer?vid=0&sid=bfc25f68-00b1-489d-a93b-5f043f3c5752%40sessionmgr4007>
- 66 Op.Cit. La Torre. 2014. Sections 7-9.
- 67 Op.Cit. Northern Alliance. 2009, 2014.
- 68 PriceWaterhouseCoopers. 2016. *Highlights of SEC comment letters and financial reporting trends in the Entertainment, Media, & Communications sector*. Via www.pwc.com.
- 69 Op.Cit. British Screen Advisory Council. 2018. pg. 11.
- 70 Funk, J. (ed). 2016. *Proceedings of the Big Data Big Movies Conference*. Erich Pommer Institut and the Film University Babelsberg Konrad Wolf, Marketing Center Münster at the University of Münster. <https://en.epi.media/news/news.56.bigdata-bigmovies-conference-proceedings/>
- 71 N.B. Some tools do methodologically attempt comprehensive film packaging and forecasting based on probabilistic modelling.
- 72 Op.Cit. Paterson. 2017.
- 73 www.open-music.org.
- 74 Zyskind, G., Nathan, O. and Pentland, A. 2015. *Enigma: Decentralized computation platform with guaranteed privacy*. https://enigma.co/enigma_full.pdf; Enigma Project. 2017. *Beyond Catalyst: Enigma's Vision for the Future of Data: How Catalyst will help us build a next-generation data marketplace*. <https://blog.enigma.co/beyond-catalyst-enigmas-vision-for-the-future-of-data-22fbb5845556>
- 75 Op.Cit. Producers Alliance for Cinema and Television. 2017.
- 76 Some evidence would place the level far higher than typical UK film budgets, and certainly above £4m. Macnab, G. 2018. *Britain's film renaissance: made in UK, owned in USA?* *Financial Times*. <https://www.ft.com/content/90908690-373d-11e8-b161-65936015ebc3>
- 77 Op.Cit. Producers Alliance for Cinema and Television. 2017.
- 78 Bakhshi, H. and Lomas, E. 2017. *Policy Briefing Defining R&D for the creative industries*. Nesta. <https://ahrc.ukri.org/documents/project-reports-and-reviews/policy-briefing-digital-r-d/>
- 79 Sargent, W. 2017. in Syon, F. 2017. *Start Up Stories: Soho and the Creative Cluster*. *Financial Times*. <https://www.ft.com/content/b9384b64-031b-4ddc-afec-15a9de1c96b9>
- 80 Op.Cit. Producers Alliance for Cinema and Television. 2017.
- 81 Steele, D. 2015. Rethinking the focus of UK film support: Is subsidising US studios a safe strategy for UK film production in the coming decade? *Cultural Trends*, 24(1), pp.74-79. <https://www.tandfonline.com/doi/full/10.1080/09548963.2014.1000590>
- 82 Op.Cit. British Film Institute. 2017.
- 83 Arokiasamy, A., Sadekar, K., Uppalapati, R., Sridharan, S., Padmanabhan, P., Raghavan, P., Zakaria Siddiqi, F., Chow, E. 2016. *Meson: Workflow Orchestration for Netflix Recommendations*. *Netflix Technology Blog*. <http://medium.com/netflix-techblog/meson-workflow-orchestration-for-netflix-recommendations-fc932625c1d9>

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