

Understanding the rationale for publicly-backed investment funds in the creative content industries

An economic analysis

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Executive Summary

- The creative industries operate in an environment characterized by 'market failure'.
- Some market failures – stemming from the deep microeconomic features of creative goods and services - can restrict the supply of capital flowing to small independent creative content producers.
- Still other market failures predispose the creative industries towards a phenomenon known as 'increasing returns', where profits increase with the scale of production and demand.
- These market failures also help to explain why the creative content industries are organised the way they are - along so-called 'produce-gatekeeper' lines.
- Increasing returns could account for the 'extreme uncertainty' associated with creative products. It is very difficult to predict *ex ante* which the hits and misses will be, and when the hits are big they are likely to be *very* big.
- Extreme uncertainty may also act as a constraint on finance to small independent producers. As a result, most finance is channelled through the gatekeepers because they may well be 'efficient portfolios' of risky creative projects.
- But digitalization could change all this. On-line distributors now have virtually unlimited 'shelf space' and portfolios of projects in 'the long tail' that the gatekeepers previously felt were unprofitable may now become viable.
- At the same time, investment institutions are increasingly looking to 'alternative investments' to help diversify their portfolios. There has been an upsurge of interest from hedge funds in film in particular as a source of 'uncorrelated returns'.
- The recent market turmoil has been a setback, but the 'fund of funds' industry is still awash with capital and the logic of the pursuit of diversification benefits should return.
- Most of the market failures affecting the industry are the results of their microeconomic structure and informational constraints, which would affect public sector as well as private sector investors.
- As a result, the tentative conclusion is that it is too early to conclude that these market failures necessitate public intervention in the form of the backing of a fund. The suggestion would be to see how the private market develops over the next few years but to revisit the issue at frequent intervals.



Overview

The creative content industries are special. They are special for all sorts of reasons, not least for the central part they play in our cultural lives. But their economics are also special, and these drive their structure, conduct and performance and set them apart from many other industries.

In this document we argue that the special, interesting economics of the creative industries account for many of their more intriguing features. From the relationship between small creative content producers and the large distributors, to the kinds of contracts negotiated between stars and their employers, to the number of hits relative to flops that typifies much of their output, the economics of information production can help to enlighten us.

In particular we suggest that these special economic features have interesting implications for the supply of funding to all firms operating in the sector, but especially for funds available to the smaller creative content producers.

We suggest that the creative industries operate in an environment characterised by what economists call 'market failure'. And that these market failures affect all aspects of the industry.

For example, we argue in section 1 that the very nature of the goods and services produced by creative firms can cause problems when it comes to raising finance. In this section, we discuss how two types of market failure, associated with the concepts of 'non-excludability' and 'asymmetric information', can raise the cost of capital for creative content firms, and in extremis can cut off the supply of investment funds altogether.

We then go on in section 2 to argue that another set of market failures, related to the fact that many creative goods are essentially information goods, predisposes the industry towards a phenomenon known as 'increasing returns'. We explain what this concept means in more detail in section 2, and why we think it is important, but it has two very important consequences.

The first is that it might explain to a large degree why these industries are so often organized along the lines they are – namely where large numbers of relatively small creative content producers work with a relatively small number of large, vertically-integrated, so-called 'gatekeeper' firms. As a result, the creative industries depart some way from the textbook models of 'perfect competition' and the gatekeepers often exert much more significant market power than their suppliers, the creative content producers.

This industrial structure may in some sense be a natural outcome of increasing returns, but it also means investors to date have tended to channel funds through the large, familiar distributors, rather than direct to the creative producers themselves. We explore these arguments in more detail in section 3.

The second by-product of increasing returns is extreme uncertainty. In the second part of section 3, we show how increasing returns can mean that some creative products will take off and become major hits while many more will not. And, importantly, it is near impossible to predict *ex-ante* which.

In a world of extreme uncertainty – and we define what we mean by this more precisely in section 3 – from an investor's point of view it may make sense to delegate the job of spreading your risks amongst various creative projects to the gatekeeper firms, who might know more about them, and we argue that the gatekeepers are sometimes best thought of as large portfolios of risky creative projects. In other words, the gatekeepers have in the past been good 'diversifiers' of the risks associated with creative content production.

In practice, financial market investors often deal with situations of high uncertainty by investing in so-called options. And in section 4 we demonstrate that many of the contracts that characterise the producer-gatekeeper relationship have features that make them look very like financial market options. But these so-called 'real options' have two important consequences.



The first is that gatekeepers can be seen not just as portfolios of risky projects but as portfolios of options on these risky projects. The second is that, in principle, there is no reason why independently-run funds should not replicate this exposure to high-risk creative investments through their own portfolios of options, thereby by-passing the gatekeepers entirely. We detail this argument in section 5 but also suggest a number of reasons why these private markets do not exist in great depth – as yet.

Of course, the world is changing thanks to digitalization, and as well as having an enormous impact on the production and distribution of creative industry goods, the onward march of the digital economy will have an enormous impact on the financing of these firms as well.

In section 6, we outline the theory of the long tail, which fits nicely with our earlier observation that increasing returns gives rise to a pattern of sales, output or profits that is highly uncertain. In fact, we can use statistical distributions to fit these patterns, and it turns out that they look very like the ones Chris Anderson highlights in his influential article ‘the long tail’. The argument he makes is that digitalization makes those thousands of individually unprofitable projects in the right-hand long tail of these distributions suddenly viable again.

And the same may well be true of the financial dimension. In the past, most investment was channelled through the gatekeepers to their portfolio of screened creative projects, leaving many in ‘the long tail’ struggling to find funding. The internet and the new-found potential profitability of portfolios of these ‘long-tail’ producers, may well open the way to more direct forms of funding, whether debt or equity.

And there are signs that this may be happening to a degree. Of course, the gatekeepers are not going to disappear, but there has been an upsurge of interest from hedge funds and private equity investors in the last couple of years, who looking to invest in the creative content, most notably film. The basic driving force here has been the search for ‘uncorrelated returns’ – assets whose returns are uncorrelated with those on the stock or bond markets.

We noted before how the gatekeeper firms have in the past been good ‘diversifiers’ of risk. And we discuss the principle of diversification at various points in this document – notably sections 5 and 6. But the basic idea is that it makes sense not to ‘put all your eggs in one basket’, and that simple tenet is central to the principles of good investment policy. ‘Uncorrelated assets’ are the holy grail here and it may be that film and other creative products can form just such an asset class in the future. We describe the progress made in these areas in a couple of boxes in section 7, the second of which describes an interview with a well-placed and sympathetic hedge fund investor.

Of course, we have not yet said much about the role of the public sector. And that is deliberate because this is meant to be a descriptive rather than a prescriptive analysis. That said, our tentative conclusion is that it is too early as yet to be calling for significant additional public funds, whether explicit or contingent, to back an investment fund for the creative content, above and beyond what is already available in the form of government-backed loan guarantees and the specialist regional funds. In section 8 however, we do outline a modest proposal for a P2P loans site, to help support the smallest projects that currently struggle to get bank finance, and that might benefit from public endorsement.

The reason we suspect the case for public intervention on a larger scale has not yet been made decisively is because the pace of technological change, together with rising interest in alternative investments on the part of the private capital markets, will probably have major effects on the structure of these industries as well as the way they raise finance over the next few years. As a result, it probably pays to wait and see what the private markets will deliver first.

The creative industries are central to our way of life and our economic performance here in the UK. Assessing whether market failure means that too little creative activity takes place for lack of funds should be a government priority. This report argues that those funds may increasingly be forthcoming from the private sector, direct to content producers, partly because of the way new technology is changing the world. But it pays to be vigilant and the situation may well need assessing frequently.



1: Some market failures cause private financial markets to break down

Introduction

Markets are usually pretty good at getting goods, services, capital and labour from those that produce them to those that want them. However, they sometimes break down, and for good economic reasons. Economists call these departures from the simplest textbook stories 'market failure', and – provided they are more serious than the costs of government failure – they are often used as a justification for public intervention of some kind.

In this section, we discuss why market failures might arise in the provision of finance to the creative industries and assess to what extent these can justify publicly-backed investment funds.

We discuss the two most important kinds of market failure: that arising from the fact that a lot of creative output is increasingly 'non-excludable'; and the breakdown of financial markets when borrowers know more about their product than do lenders.

Non-excludability and the appropriation of returns

When an independent film maker or new singer-songwriter has a good idea, they won't always be inclined to keep it to themselves. Whether for creativity's sake or to make money, they will usually make it available to all in the form of a film or new song, often made accessible these days to a wider audience through the digital media.

The problem with good ideas however is that they are often easily copied. Unless I stop you from doing so, my use of my idea rarely precludes you from using it too, especially if it is made widely available. In the economic jargon, such ideas are said to be 'non-excludable': unlike, say, bananas. If I eat a banana, I prevent you from eating it too. By contrast, if I download and watch a young filmmaker's new film, there is nothing to stop millions of others from doing the same thing at the same time.

And, if I am so inclined, I can make my own version of that idea, with a few judicious changes. The intent need not be malicious: ideas can often be subconsciously reproduced, or highly complementary, often to the benefit of society as a whole.

The technical argument can be summarised as follows. When the main output of the creative process is information, and this information is at least partly non-excludable, so that one person cannot prevent another from using it, then the returns to creating that information cannot be kept by the originator of the idea. In such a situation, the incentive to create is reduced and the provision of new creative ideas may be lower than is best for society. Arrow (1962) summarizes the question nicely: how can a creative idea yield revenues on a market if valuation requires disclosure of the idea and if the idea can be appropriated at no cost? Obviously, from the investor's point of view, there is no point financing a project in which the returns cannot be appropriated.

Digitalization, as with the printing press and photography before it, threatens the excludability of a whole range of creative products. And so finance may be increasingly hard to come by in a world in which non-excludability is thought to be spreading.

The classic solution to the problem of non-excludability is the creation of property rights to create technical and legal barriers that prevent you from using my idea. The whole raft of copyright and intellectual property legislation has evolved precisely to protect the interests of the producer of a non-excludable product, and we discuss further the pros and cons of IP protection in section 7. But an implication may be that financiers end up focussing on those products they think are most likely to get copyright protection possibly at the expense of other socially useful, but less easily protected, creative ideas.



That said the case for intervention is not open and shut. In the real world excludability is a matter of degree. And even without copyright protection, the fact remains that most creative products are multi-dimensional whose worth is subjectively assessed and requires interpretation.

So long as consumers place a value on having to interpret things, then producers should be able to extract some value even from products that can be easily copied. And so long as investors realise this, some finance will be forthcoming. Even if a new song can be immediately copied and circulated for free, that may have positive knock-on effects onto concert sales, or the value of TV appearances, which are naturally excludable by-products of the fact that the non-excludable idea has to be interpreted.

Moreover, 'art for art's sake' preferences might mean that creative individuals will continue to post their work for mass consumption, irrespective of pecuniary rewards. And also, copying an idea is rarely costless, either in financial or emotional terms, which will mitigate, if not entirely eliminate, the problem.

Nevertheless, it seems highly likely that non-excludability is an increasingly important feature of the output of small independent creative content producers in particular. And this specific form of market failure may well lead to a level of finance provision that is lower than would be socially optimal.

Asymmetric information and the breakdown of capital markets

Markets also fail when one party to a transaction knows more about it than the other. In the jargon, this is known as 'asymmetric information'.

Asymmetric information can give rise to two phenomena that severely inhibit the ability of markets to allocate resources efficiently. The first, known as 'adverse selection', refers to the situation where 'bad risks drive out good'.

In the case of small creative producers, if an investor offers to make a loan at an interest rate that reflects the average probability across the market that a project will succeed, then that interest rate might look quite attractive to someone with a very risky project to finance, but unattractive to someone who is confident that their project will pay off.

From the investor's point of view, this is an unfortunate situation if she can't tell which the good and bad risks are. All she will know is that she is more likely to be approached by the bad ones and will at the very least charge a high rate of interest. In extremis, she may withdraw from lending funds altogether. The private capital market will have broken down completely.

'Moral hazard', the second consequence of asymmetric information, refers to the situation where the investor fears that the mere act of lending alters the behaviour of the borrower in a malign way. Once the funds have arrived in the bank account, it might be that the borrower does not put as much effort into the project as the lender would like.

Moral hazard is a pervasive issue for insurance companies where, for example, the fear is that insuring yourself against burglary, say, makes you less likely to protect your home as carefully as if you were not insured.

Of course, the extent to which either adverse selection or moral hazard is a major issue in the creative industries is unclear. But it appears to be the case that investors feel happier investing in tangible output, where they can keep tabs on progress more easily¹.

¹ An idea we take further in subsequent sections is that, rather than asymmetric information, the biggest problem facing the creative industries is that, to quote William Goldman (1983), "Nobody knows anything". Both producer and investor may face equal amounts of extreme uncertainty, but the distribution of profit outcomes may be so wide, skewed and ill-defined, that standard methods of asset allocation and risk management become redundant. See section 2 and De Vany and Walls (2004) for more details.



The importance of collateral

Asymmetric information explains why investors often ask for collateral before making a loan. Getting someone to invest their own money in a project is a good way of aligning their incentives with the lender's. The collateral will often come from the borrower's own financial resources, but the lender will also establish a claim over the fixed capital employed in production. So when a manufacturer goes bust, the receiver will sell any outstanding inventory or machinery to recompense the creditors.

But small producers of less tangible creative output may face difficulties in providing collateral. The bulk of a creative producer's 'output' will often come in the form of an intangible artistic product, which cannot often be stored. Even where this is subsequently distributed in physical form – as in the case of film or music – the value embedded in these physical products is not easily appropriable.

As a result, it is often more difficult for small producers in the creative sector to come up with collateral, when the bulk of the value of their product is vested in an intangible asset, the financial returns to which may be very difficult to assess.

The upshot is that external finance can be a lot more expensive than internal finance for such producers². The need for collateral can drive a large wedge between the creative producer's own cost of capital or private rate of return and that required by an external investor. Because of this, unless the creative artist is independently wealthy or profitable, a lot fewer creative projects may get off the ground than would be socially optimal.

There has been relatively little research into how big a problem this is for the creative industries in practice. But Hall (2005) highlights a number of studies that confirm that inventors face a higher external cost of capital than internal. These generally observe that the share price of firms with high R&D costs tends to react more favourably to the announcement of new share or bond issues than that of more traditional firms. The implication is that it is good news when firms overcome the asymmetric information problem.

Industrial innovators and creative industries are not identical, but they share many of the same financing issues due to asymmetric information. By implication therefore, we can infer that this may well be an issue for the UK creative sector.

In addition there is plenty of survey and anecdotal evidence that small firms in general, and creative firms by extension³, face a much higher cost of capital overall than larger competitors. And the mere existence of a large venture capital industry is indirect confirmation of this fact.

² Note that creative sector SMEs appear to make much greater proportionate use of internal finance than SMEs in other sectors with large numbers of SME. See for instance "SME music businesses: business growth and access to finance", Department of Culture, Media and Sport (2006). : <http://www.culture.gov.uk/NR/rdonlyres/76D31D34-6F7D-4-A8B-8C27-01B898D829D2/0/MusicBusinessSurvey.pdf>

³ Note that some studies conclude that SMEs are disproportionately more important in the creative industries. See for instance, "Comparative Analysis of the UK's Creative Industries", Frontier Economics (2006) http://headshift.com/dcms/mt/archives/blog_36/Full%20Frontier%20Report%20-%20Annex%20A.pdf



2: Other market failures give rise to extreme uncertainty

Introduction

Another barrier to finance for small creative producers might be that returns to such projects are much more uncertain and hence difficult to assess than for other, more traditional, 'tangible' industries.

There are various features of the economics of the creative industries that could explain why uncertainty about future prospects may be greater than in other industries. From the investor point of view, much of the financial investment decision centres on how best to deal with the unusually large risks endemic to creative industries.

It is important to note that the causality here is from market failure to extreme uncertainty, and not the other way around, though extreme uncertainty will exacerbate some of the market failures, most obviously information asymmetries.

In this section, we highlight the special economics of cultural production; explain why these features can give rise to 'increasing returns'; how increasing returns can imply 'multiple equilibria' and 'indeterminacy'; and how indeterminacy might explain the pattern of uncertainty we observe.

The economics of creative industries are special

Arguably the cultural industries share 'special' microeconomic features that make them distinctive and predispose them towards market failure. The most important of these are:

1) Creative output is information

Films, books, video games, sculpture are all ultimately forms of information. That is to say, they are consumed 'mentally' and we value them for the imaginative or expressive value they impart⁴. Information goods are special in that they have no natural 'scale'. As De Vany (2006) puts it, 'information can be multiplied' at very little cost. There are few physical constraints on information production and we have to reconsider our notions of 'capacity' when analysing these industries. All these features predispose information production towards increasing returns.

2) Creative output is experiential.

By their very nature, the demand for information goods is only fully revealed during the course of experiencing them. It is hard to predict therefore what the natural scale of the market for a movie or a book or a new video game might be until consumers have experienced it. These are not service industries where consumption and production happen simultaneously; nor are they traditional manufacturing industries that can perhaps more straightforwardly adapt to fluctuations in demand by varying inventories. The experience of the thing is everything and communication of that experience via networks – word of mouth – becomes vital in boosting demand. Again, this means the natural scale of production is not well defined *ex ante*.

3) Creative output is non rival

My experience of a movie, book or video game is unlikely to interfere with your experience of it. The same is not true of bananas, widgets or cars. The non-rival nature of cultural consumption gives it so-called 'public goods' features and typically private markets find it difficult to price public goods. Non-rivalry also means that there is no natural scale to production of cultural goods, because demand

⁴ See also the concept of 'expressive value' as described in "Staying Ahead: The economic performance of the UK's creative industries", The Work Foundation (2007)



is in principle infinitely scaleable and consumption of one unit does not reduce the total supply available.

Non-rivalry should not be confused with excludability – the other feature of public goods whose importance in relation to the appropriation of returns was discussed in the previous section. Many creative content products generally are excludable thanks to intellectual property legislation. I, as a producer, can control who has access to my product, unlike, say, cultural goods and services such as public monuments, or national defence or street lighting, which are all pure public goods. Indeed much of the structure of existing creative industries has evolved precisely to impose some form of excludability on their products, whether in the hard form of copyright protection or the softer forms of product differentiation. That said, the onward march of digitalization poses an omnipresent threat to traditional methods of implementing excludability.

4) Creative output is indivisible

The output of creative industries comes in discrete lumps. It is not possible to sell half a film or book, or promote half an idea, or generally to subdivide the gross output of creative content producers into smaller chunks. That is not the case with a lot of traditional physical product. The main upshot is that creative output often requires a high level of up-front investment to produce the whole product before it can be marketed or sold. This will often mean there are high 'sunk costs' associated with completing a creative project.

Sunk costs are once-and-for-all up-front expenditures that may not be recoverable, and do not recur during the production process. For example, making a film involves high sunk costs: paying scriptwriters, finding locations, hiring production staff, general research are all up-front costs that have to be sunk before the project gets off the ground, and may never be recovered if it does not go ahead.

The implications for costs

These core features of creative products give rise to a cost structure for these industries that was once just a textbook curiosity. The experiential and non-rivalrous nature of information production means that marginal costs - the cost of supplying an extra unit of information - are often close to zero; while indivisibility often gives rise to high sunk costs in these industries.

What does this mean? Take film production for example. Making a film is incredibly expensive – the up-front or sunk cost will be very large, as will be fixed costs⁵. However, it is only once it has been made that it will be possible to gauge how successful it might be (experiential). And because so much depends on unpredictable network effects and word of mouth, it will be difficult to extrapolate from just a few test screenings how profitable it is likely to be. Yet, should the movie take off, producing extra copies of the movie will be minimal (low marginal costs), and more or less any amount of demand can be supplied cheaply.

Of course, other cultural industries may differ in the specifics, but the same is broadly true of books and new digital media. Pictorial art and sculpture may appear different at first – given that each piece is likely to be unique. But in practice, access to a highly demanded work of art can be expanded almost infinitely through extended gallery runs, loans and even high-quality digital reproduction.

For a detailed description of the microeconomic implications of high fixed-low marginal cost industries, see Varian (2001). But the basics are pretty straightforward.

The importance of product differentiation and competition for monopoly

Such industries will tend to be characterised by high levels of product differentiation and price discrimination⁶. The underlying economic

⁵ Sunk costs are the up-front, irreversible costs associated with getting a project off the ground. They are generally one-off and are only recovered if the project is successful. Fixed costs are costs that recur but do not vary with the scale of production. So rent payments might be a good example. The presence of fixed costs mean that average costs will tend to fall for a while as output rises.



reason is that industries with this type of cost structure and technology will often display significant market power; with price generally well above marginal cost. But this will not necessarily mean that competition is low – rather competition will take the form of ever more imaginative ways of differentiating one product from another – hardback and soft cover titles, ‘collector’s edition’ games, ‘director’s cut’ movies etc.

In addition, new technology means that companies increasingly can personalize goods for their customers. If price discrimination is ultimately about extracting the maximum consumer surplus⁷ from individuals, then the internet through its mass customization devices, such as Amazon’s personalized suggestions page, can aid that process much more effectively than before.

Increasing returns, indeterminacy and ‘nobody knows’

The special microeconomic characteristics of the creative content sectors mean that there are likely to be large economies of scale on both the supply and demand side in these industries. These ‘natural monopolies’ with large fixed costs and low marginal costs may not harm consumer welfare as much as at first thought however. Brynjolfsson et al (2007) show that competition may yet thrive in these naturally monopolistic industries because of, amongst other things, competition to acquire that monopoly in the first place and pressure from producers of goods complementary to your own to keep prices low.

More importantly, from the point of view of this discussion, cultural goods industries are likely to demonstrate large demand side economies of scale. These are sometimes called ‘network externalities’ and refer to the situation in which average revenue or demand increases with the scale of production. The classic case is the telephone: there is no point in one person having a telephone; not much more of a point 10 people having a telephone. But there comes a threshold, say 1000, at which the telephone takes hold – there is positive feedback and network growth effects kick in.

The same kind of effect may well be operating in the field of movies, of books, of video games and other experiential software, though in a subtly different way. Strictly speaking, I may not need you to go and see a movie to be able to go and see it myself. But I may well rely on information about your experience of a movie in order to be able to judge whether I should go and see it myself. Word-of-mouth, reviews and advertising will be crucial factors in my decision to go and see a movie. And because that information is easily multiplied through networks and supply of that information can be increased at near zero marginal cost, the ultimate scale of that movie may well be indeterminate.

As De Vany (2005) puts it: “Movies that have many viewers will grow more rapidly than movies that have few viewers”. This is a pithy description of the phenomenon known as ‘increasing returns’ and hopefully the discussion above has set out the basic microeconomic reasons for its potential prevalence in information production industries like the creative sectors.

Very low marginal costs of production on the supply side can combine with network effects on the demand side to make the financial success of creative content highly uncertain - the content has no natural scale. An excellent example of this are the ‘social network’ sites which have become popular recently. Many such sites have been started over the last few years, but most have disappeared into relative obscurity. Facebook however has grown from a student bedroom operation to a company that is rumoured to be worth as much as \$10 billion in just 3 years.

Though this is an extreme example, the basic principle applies to many other products of the creative industries. Economists would describe this as a *prima facie* example of ‘multiple equilibria’ and indeterminacy. Whereas for a normal product, textbook economics

⁶ ‘Product differentiation’ refers to the situation where firms compete not over price but over the nature or quality of their product. So a soap powder manufacturer may claim that one version of his product is better for colours than for whites, rather than reduce his price in order to increase demand or his market share. Effectively, the producer is trying continuously to create little ‘monopoly’ markets in which he can set the highest price and extract the most value. A related concept is ‘price discrimination’, where in the perfect situation, the monopolist can charge each customer an individual price for the good that is the maximum she is willing to pay for it.

⁷ The consumer surplus is the difference between the price consumers are willing to pay for a good or service and the actual price they pay. As such, it is a measure of consumers’ welfare from consuming the product.



would predict a single relatively predictable price and quantity at which supply meets demand, for many of the goods creative industries produce such predictions are much more difficult. Some commentators such as De Vany have gone so far as to characterize the situation as one in which ‘nobody knows anything’.

This type of uncertainty means that it is very difficult to fund creative projects with debt finance as debt finance will only be available where there is a high degree of confidence that sufficient cash flow will be generated to cover interest and principal repayment. The equity market is better equipped to fund such risky projects, but as we shall see there are further complications to consider that makes even equity funding difficult to secure for small, undiversified firms.

Indeterminacy, uncertainty and the power law

Indeterminacy and extreme uncertainty are very closely linked. A number of academic studies have concluded that the distribution of sales, profits and returns in the creative industries looks very odd indeed. In fact, they often appear to follow a ‘power law’ distribution.

The intuition behind the power law distribution is probably best described by the so-called “80-20” rule. This crops up in many walks of life, but was first applied to the distribution of income, where the economist Vilfredo Pareto noted that 20% of the population earned around 80% of the income. Since then, the regularity of this unequal distribution has been noted in many other spheres of activity, most recently in surveys of internet traffic. For instance, the top 5% of internet blog sites account for around 50% of total blog traffic⁸.

Power law distributions look very different to the normal, or bell curve, distributions that are more familiar. They crop up when rare events are enormously important. So if a relatively small number of creative projects earn a very large proportion of the returns in that industry, then the vast majority, by definition, will generate insufficient returns. The point here is that the size of returns to investment in the creative content sectors may well follow a power law distribution. In that case, the standard approaches to risk management, which generally assume normal-like, or so-called Gaussian, distributions may not apply.

Diversification in the presence of the power law

In section 7 we describe the principle of diversification in some detail. So here we limit ourselves to setting the scene for what is one of the more important arguments in this document.

Diversification is the key principle for best-practice fund management. By spreading your available funds over a number of investments you reduce this risk of a catastrophic loss on your portfolio.

The point about the power law distribution of returns is that the bulk of profits are located in a relatively small number of investments in the right-hand tail, unlike the case where returns are distributed like a bell curve. Intuitively therefore, if returns follow a power law distribution you will have to create a very large portfolio of investments in order to be confident of capturing some of the relatively few big returners.

In the real world, this pattern of returns shows up as a relatively low average return on portfolios of creative projects, most of which are too small to capture the whole of the power law distribution. De Vany (2006) notes that the mean turn on Hollywood movies is in

8 Many other studies have confirmed the prevalence of the power law across a variety of industries, but particularly creative industries. Examples include Brynjolffson, Hu and Simester (2007) who look at the distribution of sales in a multi-distribution channel retail company. Anderson (2004) gives many examples of the sales of internet-based firms, such as Amazon, Netflix and Rhapsody. Also, De Vany and Walls (1996) is the seminal work on the movie industry, and finds that returns to movie investment are well described by the so-called Pareto distribution, a member of the power law family, and one, depending on its exact parameterization, that can have very odd properties indeed. Giles (2005) takes the same approach with the music industry and finds that hit and misses are similarly distributed there and also finds strong evidence of increasing returns.



the region of 4-5%, with a huge variance. 78% of movies lost money and 35% of profitable investments make 80% of the total profit. The danger is that with a small portfolio you stand a good chance of over sampling that 78%.

'Wild uncertainty' as a financial constraint

The power law is the basis for the 'wild uncertainty' that De Vany (2006) says characterises the movie business and, by implication, other creative industries as well. The hypothesis here is that 'wild uncertainty' also affects financing prospects for the creative industries, since it is very difficult to manage portfolio risk properly in its presence. Since the bulk of (relatively small) portfolios of creative projects will not replicate the overall distribution, but tend to congregate towards the centre, the idiosyncratic risk associated with financial investment in the creative industries will not be effectively diversified and, as a result, financial investment will be too low.⁹

So here is the argument in short. The special economics of the creative industries tends to encourage increasing returns. Increasing returns imply multiple equilibria and indeterminacy. Indeterminacy is the theoretical basis for wild uncertainty. And wild uncertainty explains why there is so little independent financial investment in the creative industries.

In the next sections, we investigate first to what extent these features explain how the creative industries are organised today. And then we move onto investigate how the advent of new technologies may alter that optimal industrial structure and open up opportunities for new types of investment funding vehicle. Along the way, we will also argue that 'wild uncertainty' is probably too extreme a description of the risk management problem facing investors in the creative industries, and that there may well be perfectly good ways of managing risks that follow a power law, especially taking into account new technology. Moreover, that new technology may well be changing the nature of concentration in the creative industries and opening the way for funding of the long tail¹⁰.

⁹ For more detail on this 'diversification' issue, see section 7.

¹⁰ The 'long tail' is the extreme right-hand part of the power law distribution. In layman's terms it contains all those small creative projects that individually do not return much but when added up can generate large revenues. We discuss the theory of the long tail in section 8.



3: Industrial organization in the creative industries: the 20th century solution to 'wild uncertainty'

Introduction

We have seen how the special economics of creative industries can give rise to indeterminacy and extreme uncertainty of outcomes from the investor's point of view. In this section, we argue that the current observed structure of many creative industries is a consequence of the problems of extreme uncertainty in a situation where the costs of distributing cultural goods are high.

Many creative industries are characterised by a 'producer-gatekeeper' relationship, where the gatekeeper performs many functions, but among these is the 'risk-pooling' role of bringing together a large number of creative producers, thereby spreading the risk of individual projects in an efficient manner.

In addition, the creative industries appear to have evolved endogenously a variety of contracts between producers and gatekeepers that have the hallmarks of so-called 'real options'.

We explain what we mean by this in more detail in section 5 of this document, but these contracts turn out to be close to what the textbooks describe as being the optimal way of dealing with risky industries with high sunk costs. Specifically, according to Caves (2006), where the optimal solution to a high uncertainty project would be a real option-type contract, a number of gatekeepers seem to have developed these in the real world – though they may not recognise them as such.

The world may be changing however, and an industrial organization that might have been appropriate for much of the 20th century may not be so moving forward. In particular, while the producer-gatekeeper relationship might have been an optimal risk-dispersion device in a world where the channels for distributing content were limited, that may not be the case from now on. In subsequent sections, we look into how the advent of the internet may be opening the world up to producers in 'the long tail', currently excluded from acquiring finance by the gatekeeper system¹¹.

The role of the gatekeeper

The definitive work on the industrial organization of the arts and entertainments industries is Caves (2006). Much of what follows in this section is a highly abbreviated discussion of his analysis, and the reader is strongly recommended to go to the original source for more information about this diverse and extremely important subject.

We add to his work the suggestion that the 'optimal endogenous evolution' of these industries may well be about to take a new direction in the digitalized environment of today, and that this will have important implications for the type of finance creative producers will attract in the future.

Caves argues that the organization of the creative industries revolves around a series of contracts between creative artist and other 'humdrum' parties, either within or without a firm. The form that these contracts take reflects the deep microeconomic characteristics of cultural information goods that we have outlined in previous sections.

Typically, artists with an idea to sell first present that idea to a 'gatekeeper'. The gatekeepers are the big movie distribution companies, or book publishers or artists galleries or record labels or multimedia conglomerates. They specialise in all aspects of production, distribution and exhibition, and digitalization may well have deeply affected all these functions.

¹¹ For arguments along similar lines, see Bates and Rivers (2007) and Higson, Rivers and Deboo (2007).



The gatekeeper performs a number of roles, but chief amongst these are:

- acting as agent for selected artists
- bringing artists together with other artists in order to exploit synergies and improve products
- manufacturing, promoting, marketing and distributing the artists' products, and also retaining the right to abandon
- managing and financing portfolios of artists, thereby spreading the risk associated with individual creative projects

The gatekeepers have spread risks pretty well to date

Of course, the fourth of these is the most relevant to our concern. The gatekeeper evolved as a method of spreading risks in an environment where distribution of content is of paramount importance to its commercial success and the channels for distribution are both limited and controllable.

Though important in most industries, it is relatively unusual for distribution to assume such critical importance compared to the design and manufacture of the goods. For example, with TV sets, consumers are primarily concerned with the brand of the TV they are buying rather than the particular retailer that they buy it from. In such industries, it is typically the manufacturing companies which have evolved into globally recognised brands, with the distribution being carried out on relatively thin profit margins on a local scale.

Given 'art for art's sake' preferences and a chronic over-supply of willing producers, then the supply price of creative individuals has always been an unreliable guide to the likely success or quality of a project. Wild uncertainty has always characterised these industries, so there has been a powerful incentive to centralize the various information-gathering functions within the context of a vertically-integrated gatekeeper firm.

In many ways the gatekeeper can be seen as simply a portfolio of risky creative projects, in much the same way that a pharmaceutical company is a portfolio of risky drug research projects. For investors looking to get access to the returns on cultural products at relatively low risk, investment in the shares of the big media companies has been an efficient indirect method of doing so¹².

The effect of this has been to delegate to gatekeepers enormous powers of screening, selection and distribution – powers that they are still keen to protect through tougher IP legislation and enforcement. And a by-product has been that a relatively narrow range of producers – those selected by the gatekeepers - have been provided with access to capital markets.

Asymmetric information, the high costs of gathering it and 'wild uncertainty' all militated against an alternative model in which investors directly owned large portfolios of investments in independent creative producers. But the world may be changing, and we will come onto the potential implications of that shortly.

Creative investment as a 'real option'

We have outlined in section 2 how and why returns to investment in new creative projects can be very uncertain. But the risk associated with investment in the creative industries does not simply reflect this end-of-period uncertainty.

The fact that many investments are irreversible means that the up-front costs – which can be very high - cannot easily be recovered. Economists call such costs 'sunk costs', and industries with high sunk costs and low marginal (variable) costs have interesting and non-standard properties, some of which may help to explain the high uncertainty referred to above and were discussed in section 2. The key

¹² See also the two Centre for Creative Business papers (2007) referenced in the bibliography.



factor is irreversibility, which combines with high uncertainty to set a pretty high 'hurdle rate' for investors in the creative industries.

Another important factor of creative content production, together with uncertainty and irreversibility, is that creative projects can take a long time to deliver returns. As a result, information arrives during the course of the project's lifetime that influences the decision whether to invest further or not. An obvious example is film where, after release, box office information arrives gradually that can inform investors whether finance for further distribution will be profitable or not.

This time dimension renders the investment decision inherently dynamic. The commitment to a creative producer is not a once-and-for-all commitment like the commitment to a manufacturer might be. More likely, the investment will come in the form of a sequence of decisions, each of which is influenced by the previous one.

These three factors – uncertainty, irreversibility and sequencing – mean that the finance decision can be modelled as what is called a 'real option'. Specifically, this real option often takes the form of a call option. With a call option, the investor pays a relatively small amount of money up front (the 'call premium') to give him the right, but not the obligation to buy an investment, say a particular share at a fixed price (the 'strike price') by some defined point (the 'expiration date') in the future. If by the time of the expiration date, the market price of the share is higher than the strike price, the investor will exercise his option to buy the share at the strike price, potentially making a substantial profit. Obviously, if the market price is lower than the strike price, he will let the option lapse, thus losing his initial premium, but at least avoiding being saddled with an underperforming share. The option provides downside protection to the investor - he knows that the worst that can happen is that he loses his relatively modest initial premium. The flexibility offered by this option has considerable value in an uncertain world.

The analogous case in the creative industries is where a supplier of finance, typically a distribution-oriented gatekeeper, provides initial funding to commission a script, demo recording, pilot show etc. This initial investment is analogous to the call premium paid by the financial investor. The gatekeeper will typically require a contract that gives him the right to continue the project on favourable terms (equivalent to the strike price), if the feedback from the initial work is positive. In the real world, for large projects such as a major film, there may be several stages of incremental investment and feedback assessment, before the whole project gets the final go-ahead.

The gatekeeper managed an optimal portfolio – in the past?

So gatekeepers are not just portfolios of individually risky creative projects but also portfolios of *options* on individually risky projects. In many ways, they have proved themselves to be the best way of diversifying idiosyncratic risk in the creative content industries where the economics are so special.

The question is whether fundamental change in the nature of our economies – notably the fall in the cost of storing and processing information – will challenge their function as optimal risk spreaders. In particular, might there be a role for more direct investment by investors in option-like instruments that replicate the risk-spreading features of the gatekeepers, but perhaps spread the net wider still – to smaller producers traditionally shut out of the gatekeeper's world.

We turn to this question in section 5 and in doing so first resurrect our friend the power-law distribution and then enter the new world of the 'long tail'. But before that in the next section we outline in a bit more detail the structure of the gatekeeper industries as they currently stand, and focus on their role in the UK as compared with the rest of the world.



4: From theory to practice: the structure of creative industries

The importance of distribution

The structure of the film, music, TV and games industries differs according to the various idiosyncrasies of the markets they serve. They have all been impacted by digitalization to different degrees. But these industries still share common features.

As we have seen, many of the creative industries are characterised by:

- Significant initial sunk costs of production but very low marginal costs of production. That is to say, the cost of making a film, TV series, computer game or album can be significant, but once it has been produced, the cost of creating additional copies or allowing more people to experience the good tends to zero.
- High levels of uncertainty as to whether a particular production will be financially successful or not

In these circumstances we would expect a product's distribution strategy to be particularly important. If the marginal cost of supplying your product to an additional user is zero, then maximising your paying audience becomes imperative to recouping your initial sunk fixed costs and making a good profit. Over the last 20 years or so, the market for films, music, games and some TV content has become global, giving firms with strong distribution in each of the major markets a significant competitive advantage over those with a more parochial reach.

Although the returns achievable from a given production may be highly uncertain, statistical theory tells us that the average return from a diverse portfolio of such productions can become relatively stable and predictable.

Given the two factors above, microeconomic theory would predict that the creative industries would come to be dominated by large distribution-oriented companies which had sufficient scale to invest in a large number of projects simultaneously and whose distribution muscle could ensure that successful productions could be fully exploited on a global scale.

The logic of vertical integration

There would appear to be a strong rationale for such companies to be vertically integrated, that is for them to control the production of content as well as its distribution. Vertically-integrated companies that own and control attractive content will be at a major advantage to competitors, as in most cases it is the content that differentiates the product in the eyes of consumers. Even large content producers are likely to face several challenges. Given the highly uncertain nature of potential returns from individual projects, content companies with limited resources to invest in a sizeable production portfolio are likely to face highly uncertain cash flows, which as explained elsewhere, is likely to make attracting funding difficult. Large content producers who do not control the distribution of their product on the other hand are likely to be at a disadvantage relative to the vertically-integrated distribution oriented companies, unless they are able to generate particularly compelling content.

For this reason, we might expect the creative industries to be dominated by large vertically-integrated, international distribution-oriented companies. This is to a large extent what we find in practice. The music industry is dominated by four major labels: Sony, Warner, Universal (Vivendi) and EMI. TV in the UK is dominated by BBC, ITV, Sky and Virgin Media. The games industry is dominated internationally by Sony and Nintendo. The UK film industry is dominated by a handful or so of major studios and satellite cable stations.

Large, vertically-integrated media companies may be efficient at distributing product, however they are often stifling places for those with



creative talent to flourish. Corporate bureaucracies with their need for consensus management are not necessarily good at taking the kind of artistic risks which lead to interesting new creative directions.

Therefore many creative artists prefer to work for themselves or as part of much smaller and more focussed production houses. But even where content production takes place "in-house", some of the same difficulties with arriving at efficient agreements between those in the firm focussing on content creation and the rest of the firm will exist. Unified ownership solves some of the problems (whilst exacerbating others) and a vertically-integrated firm remains a coalition of individuals with differing motivations and interests.

The structure of the UK's creative industries

The UK has traditionally been seen as a centre of excellence for the production of film, TV, music and games. These have grown to be important sectors within the economy. However, the position of the UK industry is by no means assured. The UK has been largely unsuccessful at establishing large, globally relevant distribution businesses within these sectors. The main exceptions are the publicly-funded BBC and EMI, the smallest of the record majors. EMI itself has been the subject of several years of takeover speculation, culminating in an offer by private equity and securitization specialists Terra Firma in July 2007.

In contrast, other major western economies have at least one major media distribution company. In the US Warner, Disney, Viacom, CBS, Microsoft, Yahoo and Google are all major players. France has Vivendi, Germany has Bertelsmann, Japan has Sony and Nintendo, Australia has News Corp. Ironically one possible explanation for the UK's difficulties in establishing a major global creative content distributor may be the English language. English maybe the most important international language, but the English-speaking market is dominated by the US. To succeed on a global scale in English one has to have a strong presence in the US and the cultural differences between the US and UK have made it difficult for British media companies to thrive there. Continental and Asian media companies, like their counterparts in the investment banking industry have always had a domestic market to fall back on, which the English-speaking US companies have found it more difficult to tackle.

An additional major factor has been the competition policy of successive UK Governments. This has been dominated by concerns over domestic competition and promotion of regional economies. Faced with a market just 20% the size of the US market, the UK government has, in industries as diverse as TV, electricity, water and transport encouraged the creation of internationally subscale local companies, which have either been swallowed up by larger foreign players or only belatedly been allowed to merge into more sizeable players.

Another factor has been the dominance of shareholder value thinking in the UK capital markets since the late 1980s. Whereas Bernard Arnaud was able to tap into the cash flows of a water utility to finance his acquisition spree culminating in Vivendi Universal, UK companies were under tremendous shareholder pressure to focus on core competences. From a purely financial perspective, this probably made sense as the logical place to invest in an English-speaking media company is the US, however from a nationalistic perspective it has left UK production companies in a highly vulnerable position.

In contrast to its weakness in distribution the UK has had many talented and successful creative content producers. Typically these are small to medium-sized companies ranging from a single person to a couple of hundred employees. It is these firms which have found it most difficult to raise finance. To a large extent they tend to have relied on commissioned work from the gatekeepers. As lower-cost countries as diverse as Estonia and India have improved the quality of their creative content production capabilities, the position of many UK firms in the sector looks vulnerable. In the following sections we examine the structural microeconomic reasons why this has been the case.

For these smaller firms, the digital revolution which is taking place offers both threats and opportunities. It opens up the possibility of



them accessing customers directly – bypassing the gatekeeper distribution companies, which have typically used their market strength to extract favourable deals from smaller content suppliers.¹³ On the other hand, if the profitability of the distribution companies is undermined by digitalization, this threatens the main source of revenue that the content producers currently rely on. We turn next to a more detailed discussion of these issues.

¹³ Economists would describe this as another market failure. The gatekeepers exert so-called 'monopsonistic pricing power' which can force the price of creative content too low and therefore under supplied.



5: Financing the long tail

Introduction

The explosion in processing power associated with the information technology revolution is changing our world in fundamental ways. Amongst the most important of these is that the cost of accessing or storing information has fallen exponentially and, as a result, activities that were informationally too costly in the recent past are fast becoming economically viable.

Specifically, it is now much more feasible for firms to screen their customers to provide them individually with the goods or services they want and are most willing to pay for. The economic jargon terms this 'product differentiation' and it is closely related to the concept of 'price discrimination'.

Remember that creative industries are characterised by high sunk costs, low marginal costs and average costs that fall with the scale of production. Industries that display these characteristics are sometimes called 'natural monopolies'. And it turns out that perfect price discrimination – where firms can charge each individual customer the maximum she is willing to pay – is the monopolistic producer's holy grail.

Some of these ideas have been popularised in a concept known as 'the long tail', created by Wired magazine's Chris Anderson, though he builds on ideas whose academic genesis lie in the research program led by Erik Brynjolfsson of MIT.

We explain the concept of the long tail in more detail below, and show how it is closely related to the concepts of indeterminacy and extreme uncertainty already introduced elsewhere in this document.

The story starts with the power law. The basic insight is that, while it remains the case that a small number of creative products earn the greatest proportion of profits, the fall in the cost of information processing means that those in 'the long tail' of the power-law distribution need not be ignored any longer. Or at least, not in the way that the old producer-gatekeeper relationship dictated they probably would be. Basically, the sum of profits that can be earned from 'misses' in the long tail can outweigh those earned by the 'hits'.

Indeed, by differentiating products ever more finely, and by price discriminating, firms can reach out to many more customers and earn a much larger proportion of their revenues from these previously ignored sources. Over time, industrial concentration should fall and, from the point of view of the investor, the potential for direct diversification increases. In principle, that means that more small creative projects should begin to get access to finance.

Introducing the long tail

The by-line that adorns Chris Anderson's description of the long tail reads: "Forget squeezing millions from a few mega hits at the top of the charts. The future of entertainment is in the millions of niche markets at the shallow end of the bit stream" (Anderson, 2004).

This neatly sums up the choice available to firms that wasn't available to them a few years ago. The cost of storing information is now so low that on-line stores now have virtually unlimited shelf space, yet they can also monitor who is buying what from which shelf in ever finer detail.

Anderson reports that customers routinely access products that would never be stocked by ordinary physical stores for whom shelf space is costly and therefore need a certain number of expected sales to make holding the inventory worthwhile.

Rhapsody, the on-line music retailer, carries around 19 times as many titles as Wal-Mart's stock of 39,000 (Anderson, 2004). What is



more, it is finding that the bulk of these titles are being accessed at least once a year. A similar thing is true of on-line DVD and book sellers – Amazon being the most notable example.

The argument is that the combination of near-zero storage costs and access to much larger markets is revealing things about previously unsatisfied consumer demand. In other words, this is a not-too-thinly veiled attack on the gatekeeper system, arguing that the 20th century economics that spawned them may not be relevant in the new low-cost information world, and that demand for variety is much greater than the gatekeepers can afford to provide. In another pithy slogan, Anderson writes: “If the 20th century entertainment industry was about hits, the 21st will be equally about misses” (Anderson, 2004).

The power law and the long tail

Elsewhere, when we introduced the power law distribution, we described the intuition with reference to the 80-20 rule, which says that 80% of the good stuff is generated by or accrues to 20% of the participants. The 80-20 rule abounds in 20th century gatekeeper economics – 20% or less of movies, books, CDs earn 80% or more of gatekeeper revenues. As a result, much marketing and promotion effort goes in to selecting those products that will appeal to a mass audience and low-demand items fall by the wayside.

By contrast, in the new world of the long tail it turns out that every one of Rhapsody's top 400,000 tracks is sampled at least once a month, and when these sales are aggregated the net effect on sales can be large. Anderson (2004) reports that more than half of Amazon's book sales come from outside its top 130,000 titles, and 130,000 is the total book inventory held by the average Barnes and Noble.

This does not mean that the power law has been abolished – it remains the case that hits are heavily concentrated. Rather, from the on-line retailer's point of view, there is now a huge incentive to stock everything (so long as it is costless to do so) on the assumption that someone will look at it.

The long tail for producers and investors

Of course, this is all fabulous for online retailers – they can afford to build huge inventories, the marginal revenue from which justifies its existence in the zero information cost world. However, does this affect creative content producers and investors?

At first sight, there appears to be an anomaly here. Although retailers can build a new business model by aggregating the returns from lots of long-tail producers, it remains the case that the returns to individual producers at this end of the distribution remain very low so long as demand for their product is very low (one click a month, say). It is not clear, therefore, that production incentives rise at all in the new world.

But that does not mean that there are no implications for producers. Even if ‘art for art's sake’ preferences mean that their supply of creative products does not diminish, producers do now have the opportunity to price discriminate. It may be that the entire consumer surplus can be extracted from that one click a month, and this may be enough to keep more producers profitable than was the case in the gatekeeper world.

Moreover, from the investor point of view the long tail offers further opportunities for diversification. It remains the case that ‘nobody knows’ which film/book/song will be the really big money spinner, but rather than invest in a relatively narrow range of projects, as represented by the shares in a gatekeeper company, it may in future make sense to create much broader portfolios of long-tail creative content producers directly, or invest in the shares of on-line self-distributors.



In either case, it is likely that the new world may well see an increase in the supply of finance to a broad range of small independent creative producers.



6: Diversification and the management of extreme risk

Introduction

One line of argument we have pursued in this document is that the microeconomics of the creative industries make them extremely risky investments. Unlike the stocks and shares of the FTSE-100 say, the returns on which can be (approximately) modeled as coming from a normal distribution, the returns to investment in individual films, authors, artists and other creators are highly non-normal. Generally speaking, there are a large number of creative projects that return very little in financial (though not necessarily artistic) terms and very few 'blockbusters'.

However, in theory this type of highly-skewed, idiosyncratic risk need not be a problem for investors. The principle of 'diversification' holds – crudely – that the risk of holding a large portfolio of risky investments is smaller than the sum of the risks of holding each investment individually. In other words, it is the formalization of the age-old adage 'don't put all your eggs in one basket' and essentially relies on the law of large numbers.

In this section we discuss how the principle of diversification applies to investments in the creative industries and focus on the impact of extreme risk. The real-world manifestations of the diversification principle are the large gatekeeper organizations – which as we have noted earlier can be thought of as large portfolios of individually risky (options on) projects – and on a smaller scale the various venture capital and small publicly-backed funds that raise the bulk of speculative finance for smaller creative projects.

The pursuit of diversification benefits has in recent years manifested itself as an upsurge in interest in so-called 'alternative investments'. Hedge funds, private equity investors and 'funds of funds' have all been engaged in a quest for what are known as 'uncorrelated assets'. These reduce the risk inherent in most traditional portfolios, and the recent interest shown by hedge funds in film investments is a good example of this vibrant new dynamic in financial markets.

Diversification and the reduction of risk – the only free lunch in economics

Pension funds, insurance companies, hedge funds and venture capital investors invest our savings in a wide range of risky projects. Of course, they do so indirectly – by investing in the stocks and bonds of companies – but a key principle is that they maintain well-diversified portfolios. In other words, they invest across a wide range of assets because, by doing so, they reduce the risks of suffering a major financial loss.

They can do this because of a mathematical quirk of the law of large numbers. One measure of riskiness is the so-called 'variance' of returns. If a project has an expected return of 10% and standard deviation (the square root of variance) of 20% then, assuming returns follow a normal distribution, returns will lie within -10% and 30% 2/3 of the time.

A project with the same expected return but a standard deviation of 5% would have returns that lie between 5% and 15% 2/3 of the time. The second project is held to be less risky than the first.

The mathematical quirk is this. Let us say we have two projects with identical expected returns and variance and we put half our money in each of them, what would happen to the variance of our half-and-half portfolio? It turns out that the answer depends on how the returns on each project tend to move relative to one another. Say they are entirely independent or 'uncorrelated', then it turns out that the variance of our portfolio would be half the variance of the projects. By contrast, if the returns on each moved one-for-one with each other, then the variance of the portfolio would be exactly the same as the variance of the projects.



The result generalizes. In general, the variance of a portfolio will be lower than the variance of its constituent assets, so long as the returns on these assets are not perfectly correlated with each other. And the diversification gains grow the larger the number of assets in the portfolio.

The market price of individual securities reflects their ability to aid this process. Good 'diversifiers' are stocks or bonds whose returns tend not to move too closely with the universe of stocks and bonds (the 'market'). In the jargon, they have low correlation with the rest of the market. And good diversifiers tend to cost more - they have high prices and low expected returns – for the understandable reason that they are in high demand.

There has been an upsurge of interest in recent years from investment institutions in so-called 'alternative investments'. The main attraction of these is their lack of correlation with other more traditional investments: they are good diversifiers. As box 2 explains cultural output, such as film, could benefit from this interest, although market conditions have deteriorated sharply in recent weeks.

Box 1: Hedge funds and the film industry

Alternative forms of finance for the film industry have been growing rapidly – at least until the recent turmoil in international financial markets. Hedge funds have been increasingly important sources of finance for both traditional studios and new independent film producers.

A recent Merrill Lynch report (2006) suggests that all six of the major Hollywood studios regularly turn to hedge fund and private equity money, having raised approximately \$2½ billion in annual commitments from these sources. Specialist companies with hedge fund backing include Relativity Media, which has contracted to make 37 pictures for Sony and Universal, having raised \$1.3 billion from two Deutsche bank hedge funds; while Legendary pictures, backed by a number of hedge funds, struck a multi-year deal with Warner Brothers in June 2005 to invest around \$500 million in 25 movies. Dune entertainment – a subsidiary of Dune Capital has entered a similar \$325 million deal with 20th Century Fox.

Even Tom Cruise, after being released by Viacom, managed to raise \$100 million for his new independent production company largely from hedge funds and private equity investors.

Rather than investing in individual pictures, a number of funds have entered into so-called 'slate deals', which are nothing other than the real-world equivalent of the diversification arguments described in the main text. These deals entitle investors to a share of profits from a portfolio of films – which usually number around 25-30. The Merrill Lynch report suggests there are significant diversification benefits to be had from slate deals - though their historical sample is small.

That said risks remain high. The mean return to these investments remains around 4-5%, and there is more than a hint that investment poured in during the good times partly because 'movies are cool'. Moreover, the climate for investment has deteriorated dramatically in recent weeks as investors globally have shied away from risky investments in general. Whether this proves to be a blip or something more permanent remains to be seen.

Small independent producers are benefiting too from alternative investors – though not nearly to the same extent. For example, the former Pathe financial director, together with three film finance experts, established Aramid capital in the UK with around £150-200 million of backing, specifically to provide independent film producers with bridge finance to help cover the sunk costs of production. Many projects remain 'angel' type, with rich individuals choosing to bank roll individual projects, but the example of Aramid suggests that portfolios of independent films may be the next step, with option like investments perhaps to follow.



Diversification and creative content projects

The issue with the creative content industries is that uncertainty about the profitability of individual projects appears to be very high. Rather than being drawn from a normal distribution, returns to creative content projects appear to come from much more highly-skewed distributions such as the power law family of distributions.

In principle this ought not to affect the diversification principle, since that does not depend on returns being drawn from any particular distribution. The one rider to this is that it does depend on the mean and variance being definable, and that is not always the case for the more extreme versions of the Pareto distribution for instance.

But in practice effective diversification depends on being able to construct a suitably large portfolio, and for reasons discussed elsewhere, the industry has done this most effectively by having gatekeepers manage a large number of projects. Unless she can create a large enough portfolio, the investor runs a significant risk that her sample of investments will capture the middle of the distribution rather than the positive tail – in other words that it will be dominated by sub-par returns or even duds.

In the past, traditional investors have not been inclined to investigate the possibility of investing in individual projects to any great scale, largely because the industrial structure encourages them to invest indirectly but efficiently in the stock of gatekeeper enterprises. As noted earlier, these have been relatively effective diversifiers of project risk, in that the volatility of stocks in the media sector of the stock exchange has not been particularly high.

Historically, smaller projects have attracted some finance from venture capital funds specializing in the creative content sectors. Again, these firms tend to be specialists, with more than the usual amount of expertise about the creative sector and their risk-return trade off appears to be relatively attractive. Even smaller projects tend to be dependent on debt-finance, usually intermediated through banks. Then again, as Hall (2005) points out, and as we report in section 3, it is unlikely that either venture capital or banks fully supplies the latent demand for funds, for all the market failure reasons outlined earlier.

Why hasn't the alternative industrial-finance model evolved?

Of course – 'it didn't have to be like this'. The textbooks would say that an alternative financing model, whereby individual projects are financed as part of a well-diversified portfolio held by reasonably knowledgeable institutional investors, might well have developed instead, and may well do so in a world of rapidly falling information processing costs.

But there are many reasons why that model did not evolve. The most obvious is the required specialised knowledge of the sectors that is needed if investors are to make informed investment decisions, given the distinctive economics of the creative content industries discussed in this paper. In many ways, the optimal solution to the asymmetric information and extreme uncertainty problems was the evolution of the producer-gatekeeper system that characterizes so much of the industry today. Final investors, without close knowledge of the industry, could then invest indirectly and safely.

But recall also that the special economics of cultural goods production encouraged the evolution of contracts between producers and gatekeepers that had the characteristics of options. Indeed, we argued that the gatekeeper institutions can be thought of as portfolios of options.

The options approach

Options are of course the ideal solution to the extreme uncertainty issue, in that they allow the investor exposure to the upside



from creative content investment, managed in a risk-efficient manner. They are 'contingent-claims' instruments that go some way towards creating the perfect 'complete markets environment of the textbooks in which all idiosyncratic risk, however it is distributed, is diversified away. They also deal with some of the informational issues, since investing in an option on a project requires less research into the project itself than investing in the stock would.

And in principle it should be possible to reproduce in a fund of options the exposure to creative upside that the gatekeeper firms achieve. The typical artist-producer contract has many of the features of what is called a simple call option. Again, the technical details are unimportant but the intuition is that an alternative funding model would be one in which funds invest in portfolios of call options on small producers' returns.

The key point is that the textbooks would say that a liquid derivatives markets in principle ought to deal with the high uncertainty endemic to creative content projects being a barrier to acquiring finance. Of course, in practice we know that, no matter how desirable in principle, these markets do not exist (yet) and there may be very good reasons for that.

Why the options market is missing

There are a number of reasons why the investment model described above does not exist. The first is that it may just be too complicated: creative industries are not the only ones in which this relatively sophisticated form of industrial finance is not available. The supply of skilled practitioners and level of financial knowledge required to make it a large, viable and liquid market may not be there.

The second is our old friend asymmetric information. It may be that the creative industries are just not known well enough by investors and that they are overly suspicious of small independents asking for finance.

The third is a more technical point. If our earlier description of the distribution of returns is correct and this distribution is highly non-normal, then it can become devilishly difficult to price an option correctly. Indeed, in extreme circumstances, the mean and variance of these distributions may not exist; in which case pricing an option using standard methods becomes near impossible.

Fourth and possibly most important is the fact that we are dealing with human investors and not rational automatons here. A key finding of the science of behavioural finance, which studies the psychology of investing (Kahneman and Tversky (1973), is that investors systematically overestimate the probability of very likely events and underestimate the probability of very rare ones. Hence there is large momentum in the pattern of investment and a widespread feeling that 'it won't happen to me'. And as a result, it may be that investors particularly discriminate against investments with return distributions that are characteristic of the creative industries.

On the one hand there is glamour and social approbation involved in investing in the creative content sectors, but on the other there are huge risks involved. An outcome in which investment from the traditional institutions is either patchy or indirect, where the ground is largely covered by those in the know in the gatekeeper industry, may not be all that surprising. The down side of that of course is that some smaller projects that do not have access to the gatekeepers may fall by the wayside – unless new technology changes the game entirely.

So what?

The textbook market for spreading risk may be missing, but there are probably good reasons for that. However, new technology will probably change the equilibrium we observe now. The world is evolving according to the digital code, and twenty years from now the forms of finance available to small independent creative producers will probably be very different. In section 7 we start to examine why.



Box 2: Conversations with a hedge fund

This investor makes serious investments in art and films, both for his fund and on a personal basis. As a proportion of the fund's total assets these investment remain small, but the commitment is serious. He was keen to remain anonymous at this stage (fearing that he would be asked to get involved with the establishment of an arts fund of some kind).

When asked about why he made these investments, his first answers veered towards the 'art for art's sake'. They reflected personal interest plus a sense that there were socially and personally beneficial.

He then pointed out that 'there was a good future for these investments long term' because they are good diversifiers. This is a fund that specialises in playing different bits of the government yield curve, and yet they have also recently been diversifying into other more exotic instruments, such as weather derivatives and longevity bonds.

He regarded film in particular as 'a good diversifier' though reckoned that hedge funds 'had got a bit carried away' last year. And the current situation in credit markets means that 'there won't be much more of that in the near future'.

He reckoned that creative content investment could easily become part of the 'alternative investments universe' but did not feel that having a government guarantee would make a difference, and could actively discourage some professional investors – unless they felt there was a subsidy there to exploit.

When asked about the problems of extreme uncertainty, he did not appear to think that this was a major issue at first. He also found it hard to believe the De Vany argument that film returns were unpredictable: 'what about the sequels?' he asked.

But when confronted with the return statistics mentioned that 'this was interesting and didn't necessarily accord with his priors'.

But that said, he felt it would not be an insurmountable problem, so long as 'the proper risk management systems were in place' and 'the risk-budget allocated was not too large'. Essentially, he was saying that he felt most funds could cope with unusual distributions, though the monitoring and stress-testing associated with these investments might have to be carefully done.

He warmed to the options ideas, but argued that these would probably evolve naturally 'once the vanilla market was deep enough' – meaning that investors should concentrate on straightforward investments at first, leaving the market to develop the derivatives as and when they liked.

He also felt the P2P idea (see box 5) was a good one, though there would be a natural disconnect between the size of firms taking one investment approach from the other.

We feel there may be mileage in conducting a wider survey of investment professionals, including those already invested in the creative industries, in order to gain a broader understanding of the motivations of the investors involved.



7: Issues relating to intellectual property – opening Pandora’s Box

Introduction

The world is changing from a world of scarcity to a world of abundance. If nanotechnology can be made to realize its theoretical promise, then the world of abundance may in time come to characterize all markets. However, the digital revolution has brought us close to that situation already with many of the products of the creative industries, most prominently music.

Intellectual property and the price mechanism

In a capitalist economy the price mechanism serves two vital purposes;

- It incentivizes producers to supply appropriate quantities of each good;
- It allocates available supply to those willing to pay the most.

Setting aside issues of income and wealth distribution, this generally achieves an economically efficient supply and distribution for normal goods where one person’s consumption of a unit denies it to others. However, for many of the products of the creative industries, exemplified by music, this is not the case: they are what economists term non-rival goods. These result in a fundamental disconnect between these two functions of the price mechanism.

For non-rival goods the appropriate price from the perspective of demand allocation is the marginal cost of production, which tends towards zero. However, pricing the goods at zero may not provide a strong incentive for producers to supply the good. Though, as demonstrated by the Open Source movement in software, this is not always the case.¹

Those in the creative industries and in western governments, where intellectual property is a large and successful part of the economy, have placed great emphasis on the need to incentivise production by adopting a legal system giving creators of intellectual property copyrights and patent protection.

IP and its effects on economic welfare

The impact on overall economic welfare of artificially restricting supply in this way is typically ignored. The scale of this “market failure” is not trivial. In theory the economic welfare lost can be assessed as the maximum each consumer would be prepared to pay to consume the non-rival good, were suppliers able and willing to operate a system of perfect price discrimination.

In the case of goods with an essentially zero marginal cost of production, it would not be unreasonable to speculate that this value would be a multiple of the total revenues currently earned by the industry. In many developing countries western copyrights are regularly flouted and music, software and video are widely pirated. To the UK economy this is a significant loss of export earnings, though from the perspective of global human welfare, it has enhanced the lives of many of the world’s poorest people.

The threat and opportunity of digitalization

Digitalization has led to the ability of both suppliers and consumers to make high fidelity copies at a cost tending to zero. The music industry

¹ See also box 3 which details other counter-arguments.



which, given the small file size of songs, has been the first to experience this trend has responded by trying to impede copying by embedding so-called digital rights management (DRM) into its output.

Given the ease with which digitized output can be copied – at current rates of progress it should be possible to copy and store a 10,000 song music collection on a £10 memory module within a 2 or 3 years - this looks like no more than a valiant postponement of the inevitable recasting of the business model of the entire industry.

The more forward-looking companies such as EMI have tacitly recognized as much and have made their catalogue available on a DRM free basis.

Contracts are also changing. For instance, Robbie Williams' ground breaking agreement, attempts to divide up efficiently and explicitly the appearance, promotion and merchandising fees that are likely to emerge as the main ways that gatekeeper record companies will be able to monetize the value of the artists that they promote.

Box 3: Boldrin and Levine against intellectual property

These two academics, MIT-trained and now teaching at Washington University, St Louis, have developed a research programme that makes a strong intellectual case against copyright and patent laws.

The thrust of their argument is this. Intellectual copyright has costs and benefits. The oft-stated main benefit is that non-excludable ideas or information will be undersupplied by the private market if the originators of those ideas cannot appropriate the returns.

On the other hand, by granting the developer of an idea a monopoly over its use and development, you introduce all the costs of monopoly into the world of ideas.

Boldrin and Levine argue that the costs far outweigh the benefits and that intellectual monopoly is not necessary to protect innovation and creativity. The basis of their argument is that 'creators of new goods are not so different from producers of old ones: they both want to be compensated for their efforts'.

But the idea has grown up that innovators are somehow special and must be protected through patent law. In fact, they argue, there are many other ways that innovators are rewarded and in most cases these other ways are much less costly than the bestowing of monopoly rights.

A key point they make is that patent and copyright confers control over not just an idea but also over copies of that idea. They question why a producer should have control over how a purchaser of an idea or creation uses it. Since markets work best in the presence of well-defined property rights, they argue that the property rights of innovators and of those who have legitimately acquired a copy of the innovative idea should be equally protected.

They ask what a world without intellectual property right would look like. Would it be 'a sad cold world, empty of new music and marvellous new inventions'? They argue not. The idea of copyright itself is relatively new – dating back to the late 18th century – they point out that neither the jet engine nor the internet were invented through the securing of monopoly rights, and make a convincing case that the granting of a patent to James Watt on the steam engine, hampered its development as compared to the period after the patent had lapsed.

They argue that intellectual property is about granting a monopoly for you to control the use of my copy of that idea, and that this is highly unusual. We do not do the same for producers of coffee or cars; nor do we disallow consumers of coffee or cars from competing with the original producers by reselling their coffee or cars.

This is just an introduction to some potentially very important ideas, and there is a fuller list of the original (and freely available!) literature contained in the bibliography. Suffice it to say that Boldrin and Levine make a strong argument that the abolition of intellectual property in the new digitalized world may well enhance welfare enormously, without discouraging innovation and production. In other words, 'Napster was right'!



An intriguing metaphor

In the words of John Perry Barlow “we are switching from an economy of nouns to an economy of verbs”. Most of the old media industry is still focused on selling us things, trying to replace sales of CDs with sales of DRM crippled MP3s.

Pandora is an example of a firm that sees an almost unlimited abundance of music available in the future, and therefore expects the vital question will change from “what music do I want to own?” to “what music do I want to listen to now?” Consumers may well tire of the time needed to maintain and select from their ever larger digital collections and the value added will come from being able to deliver a stream of whatever music the individual consumer feels like listening to at the time.

Several potential solutions have been put forward recently. Many people have suggested that music production should be financed by some sort of tax collected by the government or media channels and distributed to artists according to some measure of usage. Such a scheme would face severe problems, but given the massive level of consumer surplus now being wasted, and the alternative of criminalizing millions of young people, it may be something worthy of careful consideration.

Imposing new taxes is likely to be politically difficult, so a more likely scenario is that artists will seek to monetize their work by exploiting their fame through live performances, merchandising, TV appearances and the like. This is already how most successful musicians earn their living, with the proceeds from CD sales largely accruing to the record companies. In many cases therefore, free distribution and copying might actually raise their revenues by increasing consumption of excludable complements like live concerts.

In future, to the extent that musicians need record companies to help promote and manage them they are likely to have to agree a contract to allow the record company to share these revenues. This may prove difficult as the main asset being created will be the artist's fame and contracts seeking to monetize such fame may prove difficult to enforce.

Of course, the changing industrial structure will have implications for investors and financiers too. Increasingly, these will be looking to ‘long tail’ investments, as well as building portfolios that aim to capture the returns associated with the implications of the power law in the new economy.

The changes and uncertainty associated with the move to new business models are likely to make funding for companies who have not got a clear strategy of how to deal with the new environment difficult. However, as the box containing the case study for Last.fm shows, those who fully grasp the nature of the changing environment may reap substantial rewards.



Box 4: Case Study - Last.fm

Last.fm was founded in 2002 by four young men from Austria and Germany living in London. The site was a personalized internet radio and music community site where dynamic play lists were created using user profiles. Last.fm worked closely with Audioscobbler, a company set up by a Southampton University student which provided the technology to record what music registered users were playing on their PCs.

Along with Pandora, Last.fm has positioned itself as the leading provider of personalized internet radio services. Whereas Pandora relies upon a panel of experts to analyze the similarity between songs and artists creating its "Musical Genome Project" on which to base the play list selections it serves to consumers, Last.fm is more in tune with the ethos of Web 2.0 in that it relies upon listeners to create the associations data base on which play lists are based. In 2004 Last.fm received its first external finance from a British investment banker and angel investor. In 2005 the two companies formally merged. In 2006 the company received a second round of funding from Stefan Glaenger, Joi Ito and Reid Hoffman. As co-founders of Ricardo.de, Neoteny Co, LinkedIn respectively, these three represented the classic "smart money" investors that add credibility to a young firm. In 2006, the firm received its first VC funding from European VC firm Index Ventures. By 2007 the firm was rumoured to be in buyout discussions with Viacom but was eventually bought by CBS for £140m in May 2007.

The Last.fm story illustrates many facets of the UK's creative content businesses in the new era.

The importance of immigrants and foreigners living in London

Immigrants have traditionally played an important part in starting innovative new businesses both in the UK and the US. In the Silicon Valley it is estimated that around 40% of new net businesses have been founded by Chinese and Indian immigrants. Possible reasons for this might be:

- (a) immigrants are a self selecting group of self starters and risk takers;
- (b) they are less likely to have an established position in society or expectations of a professional career to fall back upon;
- (c) they benefit from the network effect of a community of fellow countrymen and women living in the UK;
- (d) The UK education system is geared towards turning out professionals, corporate executives and bureaucrats rather than entrepreneurs.

Angel finance is available in the UK; however investors are typically interested in situations which have the potential to make significant returns. The personal time and effort involved are not justified by potential returns of the sort offered by quoted equities.

Groups with a really strong idea are not looking for just any financial backer. "Smart money" is far more valuable than mere funding as the right early backer brings expertise, contacts and most important of all credibility. In this context, a government-sponsored fund may actually have a stigma attached to it, given the government's record of investing in worthy but financially unsuccessful projects and general perception that the public sector is several years "behind the curve".

Successful UK start ups have a tendency to sell out to major corporate buyers (usually from overseas) - Skype selling to eBay being another notable example.



8: Conclusions and next steps

This document contains a discursive overview of some of the most important economic concepts affecting the financing of small creative firms.

We have tried to present all our arguments verbally and in as non-technical language as possible. We started by outlining how pervasive market failures arise from the deep microeconomic characteristics of the output of creative producers. Amongst the most important are the non-excludable natures of the information goods these industries produce and asymmetric information.

We then noted that there are good microeconomic reasons to believe that the creative industries are particularly prone to the phenomena known as increasing returns and 'wild uncertainty'. And we postulated that the widespread producer-gatekeeper industrial structure that we observe today, together with the option-like structure of contracts that it embodies, were 'naturally selected' as the best way to deal with the problems thrown up by extreme uncertainty in a period where gathering and producing information was much more costly than it is now.

We see however that digitalization has changed the world in which these firms operate dramatically. The cost of storing information on-line is now virtually zero, and the theory of the long tail argues that firms that were previously producing 'misses' and therefore ignored by the gatekeepers or independent financiers may well be profitable in the new world, so long as they form part of a large enough portfolio.

In addition, investors on the lookout for 'alternative investments' that act as 'good diversifiers' might meet this increased demand for finance in the future.

All of this leads us to the provisional conclusion that, other than in the case of the smallest firms (for which we tentatively propose investigating a P2P loans project, see box 5 at the end of this document), it may well be worth watching how the private sector deals with the changing environment for the next few years. That does not mean doing nothing however: monitoring, encouragement and communication of these ideas to otherwise financially-constrained producers could be a very valuable contribution in itself.

But these conclusions are very preliminary and there is more work to be done. Any one of the sections outlined here could be 'taken to the data' more rigorously. And there would undoubtedly be benefits to conducting a more comprehensive survey of hedge funds, private equity and fund of funds investors to ascertain their attitude to these new types of investment.



Box 5: A modest proposal - P2P loans for the creative industries

Introduction

As we have discussed, small creative industry firms in the UK, face a particularly challenging environment when raising the additional capital to grow or to invest in projects with highly uncertain paybacks. Banks will typically be reluctant to lend on an unsecured basis without some pretty robust cashflow projections. Equity providers in the form of VC funds or angel investors on the other hand have disproportionate transaction costs in assessing and monitoring very small businesses and are likely to be concerned about the asymmetric information and moral hazard issues outlined in section 1.

During the last couple of years a new concept for providing small loans has emerged which could be worth exploring for the creative industries sector.

The details

The idea behind P2P loans is that individuals post their loan requirements to a web site and individuals with surplus cash to invest assess their "story" and offer to put forward cash at a particular interest rate towards this loan. Typically lenders will spread their risk by dividing their loan offers into small amounts and investing in many borrowers. Lenders will subscribe how much they want to make available into their Prosper (see below) account and then allocate it to lenders they deem a good risk. There are also facilities for automatic investments.

Lenders are relying primarily on social pressure and the desire of borrowers not to damage their credit rating to secure repayment. The borrower sets out his/her needs and plans and the maximum rate of interest he/she is willing to offer. Potential borrowers specify the amount they are willing to lend and the minimum interest they are prepared to accept. If the loan is fully subscribed, then the "clearing" level of interest is calculated and the funds are forwarded by Prosper who also collects and redistributes interest and repayments.

To date default rates have been relatively low so that lenders have generally received competitive net returns across their invest portfolio whilst borrowers have received better rates of interest and lack of prepayment expenses than available from other lenders.

The history

The concept was pioneered in the US by Prosper Marketplace, Inc. a 2006 start-up started by the founder of E-Loans and backed by some high profile VC funding including Benchmark Capital (who made a name for themselves by making a \$5 billion profit on a \$7m investment in EBay). The concept has recently been copied in the UK by Zopa, another net start up founded by former Egg executives and again counting Benchmark Capital among key VC funders.

Both Prosper and Zopa are primarily targeting individual borrowers especially those wishing to consolidate high cost credit card debt. However, they have also begun to attract borrowers seeking debt finance for small business start-ups or expansion though not so far on a non-recourse basis.

The businesses being financed often have a social dimension such as care homes and the like. A potential attraction of the model for the creative industries is to attract investment interest from those interested in sponsoring some favoured art form perhaps in their local area, but to do so on a commercial rather than "hand out" basis. This could be very much in line with NESTA's stated aim of trying to wean the UK arts away from the grants and subsidies model to a more commercial approach.

The potential benefits

We believe that this concept could be an interesting one to investigate as a novel source of finance for small creative businesses. Several issues and difficulties would need careful consideration, but it has the potential to be an imaginative and creative WEB 2.0 part solution to some of the financing problems faced by smaller companies in the creative industries sector.

In particular, one of the key issues faced by financiers of small businesses is the relatively high transaction costs associated with analyzing and monitoring small scale investments. The P2P model seeks to get around this by allowing individual investors to make very small loans to any particular borrower (as low as \$50) which can be made on the basis of far less due diligence than a VC or unsecured bank investor would require. The P2P model harnesses the power of social networks to make intelligent investment decisions and peer group pressure to reduce the moral hazard lenders face.



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