Real Options Theory, Flexibility and the Media Industry
A conceptual outline for potential application areas

by Marcus Dimpfel, Frank Habann and René Algesheimer,
University of St. Gallen, Switzerland

Introduction
Since a few years, media companies are operating in the environment of digital convergence. In this context they are confronted with a new competitive landscape, which is characterised by increased complexity and accelerated dynamics (Bettis/Hitt (1995), pp. 11-12). Furthermore, it is argued that, in this setting, flexibility and the management of flexibility are of enormous importance and often perceived as a critical success factor (Kaluza/Becker/Bischof (1998), p. 15). It was also in the recent past when the research domain of real options theory (ROT) gained increased importance (Stark (2000), p. 313). Although known for a long time in finance (Kester (1984); McDonald/Siegel (1986)), ROT roused the attention of more and more researchers from other business disciplines such as strategy (Amram/Kulatilaka (1999a); Amram/Kulatilaka (1999b)) or marketing (Hommel/Ludwig (1999); Kühn/Fuhrer (2001)). In ROT, researchers and practitioners together are trying to seize and measure managerial flexibility, wherein we define the latter as, “(...) the ability to change or react with little penalty in time, effort, cost or performance” (Upton, 1994, p. 73).

The objectives of our conceptual paper originate from the two developments described above. The first objective is to outline the different forms, in which ROT can enhance the flexibility management of media companies. The paper’s sequence is consistent with these objectives and divided into three parts. In the first section, we will introduce the foundation of the article by elucidating ROT with respect to its basic concept, categories, and antecedents of relevance. In the second section, we will answer our two research questions by applying the previously created knowledge to the media industry. The third section closes our analysis with the paper’s conclusion and an extensive discussion concerning future research opportunities.

Abstract
This conceptual paper is based on two propositions: 1.) An efficient flexibility management is a critical success factor for media companies. 2.) The concept of real options theory (ROT) aims at improving a company’s flexibility management. As a consequence, it is analysed how ROT can contribute to the flexibility management in media companies. In this context, two research issues are investigated. First, it is shown that real options as substantiations of flexibility are of great importance for media companies. In doing so, it is outlined that options which focus on a company’s fixed costs management and options which aim at improving a company’s sales situation are of high relevance for all segments in the media industry. Contrarily, options which focus on a company’s variable costs are only relevant for media companies engaged in the print segment. Second, it is illustrated how ROT can contribute to the reactive and proactive management of flexibility in media companies.

Marcus Dimpfel
(marcus.dimpfel@unisg.ch)
is Research Assistant at the University St. Gallen, Switzerland. His research focuses on the strategic and financial management of media companies, particularly with respect to the challenges of new media, the convergence of the media and communications industries and the application of real options theory to this environmental context. Furthermore, he is interested in corporate valuation and value based management.

Frank Habann
(frank.habann@unisg.ch)
is a Project Manager and full-time lecturer at the University of St. Gallen. His research focuses on management in the media industries, media economics, strategic and innovation management and strategic marketing.

René Algesheimer
(rene.algesheimer@unisg.ch)
is Research Assistant at the University St. Gallen. His major research interest concerns the field of marketing, empirical consumer behavior, and communication management in general.
Foundation: real options theory

With respect to ROT as the theoretical foundation of our paper, initially we will outline the concept’s underlying logic. Subsequently, we focus on the different types of real options and analyse the determinants that drive the relevance of real options for an investment context.

Concept

Almost all non-financial investments offer management to some extent the flexibility to adapt its decisions in response to new information. Using the analogy with options on financial assets, such flexibility is often called a real option (Huchzermeier/Loch, 1999, p. 1). In the following, we therefore understand ROT as the application of the principles and valuation techniques of financial options onto non-financial investments.

The problem with traditional evaluation techniques such as the traditional Net Present Value (NPV) rule, is that they understand investment projects as now or never decisions. As a consequence they do not recognise and value flexibility (Dixit/Pindyck, 1995, p. 106). Hence, volatility per se is perceived negatively. Therefore these methods use risk penalties in the form of higher adjusted discount rates (Perlitz/Peske/Schrank, 1999, p. 267). As a result, the traditional NPV approach has a built-in bias for those projects for which the risks are predictable and the nature of the venture will not change during life (Dahlberg/Porter, 2000, p. 34). In contrast, ROT recognises the value of flexibility. Therefore uncertainty is not perceived negatively, but positively. Nevertheless, the concept of ROT is closely related to the traditional NPV method as both approaches are discounted cashflow approaches that discount a project’s entire cash flows with the market cost of capital. In fact, the traditional NPV method is a special case of the ROT approach, in which flexibility is assumed to be zero. In this context, it is often argued that ROT calculates an expanded (strategic) NPV, which consists of a project’s traditional (passive) NPV and a project’s option value (Trigeorgis (1995), p. 2). The latter labels the cumulated value of all project inherent real options, whereas the number and forms of incorporated real options can vary widely. As a benefit, non-financial projects with a high real option value have asymmetric payoff structures, in which the downside potential is limited while the upside potential is not (Triantis/Hodder, 2000, p. 549). Based on the above mentioned analogy, it is argued that the principles and pricing models for financial options can also be applied to real options. The value of a real option is thereby influenced by levers that are corresponding to the value drivers of a financial option: time period until investment opportunity disappears, uncertainty of expected cash

![Figure 1: Value drivers of a financial and real option](image-url)
flows, present value of expected cash flows, value lost over duration of option, risk-free interest rate, and present value of fixed costs (Teisberg, 1995, p. 40).

Generally, ROT can assist managerial decision making in an instrumental and a conceptual manner.

With respect to the instrumental manner, on one hand, ROT can help management as a superior investment evaluation technique by quantitatively measuring the flexibility to adapt its investment strategy in accordance with new information. Besides this so called reactive flexibility, ROT can also assist as a tool for improving a company’s proactive flexibility management. This denotes a company’s ability to proactively use existing managerial room in order to strengthen its competitive position. The underlying premise refers to the fact that the value of a non-financial investment project can be increased by actively influencing the project’s different value drivers. More precisely, it’s a project’s option value component that can be influenced. As a result, the use of ROT is an indispensable basis (Jägle, 1999, pp. 281-282). Proactive flexibility management arises from the circumstance that real business situations usually feature only a limited number of players interacting with each other. Each of these can influence a real option’s value levers. In contrast, financial options are acquired in a deep and transparent market, so that nobody has the market power to influence a financial option’s value drivers (Leslie/Michaels, 1997, pp. 12-14). Concerning the instrumental contribution of ROT, it is often argued that the assumptions of the valuation methods for financial options do not hold in “real” markets. Admittedly, with respect to the analytical models like the Black/Scholes-Model (Black/Scholes 1973), this seems to be true for the majority of non-financial investment projects (Copeland/Antikarov, 2001, p. 106). Yet, it can be shown that when applying ROT in the form of numerical models like the Binomial Model (Cox/Ross/Rubinstein 1979), the necessary assumptions are not stronger than those of traditional NPV (Copeland/Antikarov, 2001, p. 95). Both require a traded asset, which has a risk structure similar to that of the focal investment (Brealey/Myers, 1996, p. 609). ROT values the inherent real option through comparison with the market value that a financial option on the same underlying asset would have. In contrast, the traditional NPV rule focuses on the traded asset in order to find the adequate discount rate. It implicitly values the investment by assessing the market value of the traded assets. Moreover, with respect to one of the most critical issues in real options valuation, the identification of the “twin security” necessary for constructing the replication portfolio, Copeland/Antikarov (2001) suggest that traditional NPV and ROT be combined. More specifically, they recommend the use of traditional present value of the project itself, without flexibility, as the underlying risky asset. The reason for doing this is, “…the assumption that the present value of the cash flows of the project without flexibility (i.e., the traditional NPV) is the best unbiased estimate of the market value of the project were it a traded asset” (p. 94). In addition, Copeland/Antikarov also provide the reader with, Monte-Carlo-Simulation based guidelines on how to estimate the volatility of such an “underlying” asset (pp. 244-298). As a consequence, decision makers can apply ROT as a heuristic decision method to all those business situations in which they would normally use the traditional NPV rule.

In a broader and more conceptual manner, ROT can help management as a new way of strategic thinking and decision making. Particularly, it supports managers in expanding their mental models with the consequence of a differentiated attitude towards uncertainty, its specification, its solution and its suggestibility (Pritsch/Schäffer, 2001, S. 26). ROT can also assist managers in enhancing their problem understanding by qualitatively and quantitatively highlighting the causal dependencies of their investment strategies. In addition, the use of ROT conceptually highlights the necessity of media companies to use their resources to proactively create options. Finally, the concept enhances the understanding and communication of a chosen investment strategy by providing an adequate language through the use of option pricing terminology.

Categories of real options

Real options refer to different forms of flexibility (Kulatilaka, 1995b, pp. 99-104). In most cases, they are classified according to Trigeorgis (1995). While we also build on his “classical” typology, we go one step further by dividing the nine types of real options into three categories. The motivation for this is twofold. First, people, especially those not familiar with the concept of ROT, have problems in seeing the big picture the different forms of real options provide. Second, management usually tackles business problems in terms of sales and costs issues. In order to connect ROT to this traditional management thinking, we categorise the different forms of flexibility in accordance with their primary management purpose. As a consequence, the different categories refer to real options that particularly aim at improving a company’s fixed costs management, a company’s variable costs management, and a company’s sales situation.

Real options that aim at enhancing a company’s fixed costs management allow a firm to tie its resource allocation to the solution of project-related risk. They are associated with a point in time before the actual investment is undertaken (i.e., completed). They can be divided into options to wait and options to stage investments. Options to wait allow a company to postpone the actual investment decision as the potential investment opportunity sustains for a certain period. During this time period
new information can arise and reduce the project-related uncertainty. This might change the economic feasibility of an investment project. Waiting options result from the timely acquisition of licences, patents or other rights, which exclude competitors temporarily or permanently from the focal investment opportunity. Options to wait can be understood as call options. Options to stage investments refer to the fact that most investments don’t necessarily have to be financed by a single up-front outlay, but can be financed by a sequence of smaller amounts. Companies have the possibility to refrain from further investment, if the costs for the next investment stage exceed the value of the continuing project. As a consequence options to stage investments can be interpreted as compound options (options on options). In this regard, each partial amount corresponds to the exercise price for acquiring the sequential option.

Under the category of real options focusing on a company’s variable costs management, we subsume options, which allow a company to reduce its economic activity due to a negative development of economic conditions as well as input switching options, which allow a company to produce the same good with alternative input factors. The latter type of real options consists of a combination of a call and a put option. Concerning the reduction of economic activity, depending on its magnitude, we distinguish between options to contract the produced and distributed volume, options to shut down and restart production, as well as options to abandon the project completely. The mentioned options can be interpreted as put options.

With respect to real options which aim at improving a company’s sales situation, we differentiate options focusing on sales increase of an existing project and options creating future sales through qualitatively innovative projects. Under the first subcategory, we subsume expansion options and output-switching options. Expansion options empower a company to increase its economic activity, (i.e., to expand production or distribution), depending on a positive development of the relevant economic parameter. They can be described as call options. Output-switching options allow a company to produce alternative products with the same input factors and can be interpreted as combinations of call and put options. In contrast to the described types of real options, growth options refer to a time frame after the investment phase and to qualitatively innovative products. Growth options are of enormous strategic importance, because a project might not appear profitable as a stand-alone project, but may enable profitable future investments. Therefore, the main value of growth options is not related to the project’s own cash flow, but to those of potential future projects. Growth options can be interpreted as (compound) call options.

Relevance of real options

In our paper, the relevance of real options, is interpreted as management’s ex ante perception of the ratio between the expanded NPV and the traditional NPV. In this case, the relevance of action flexibility is high if the relevant decision makers estimate the investment to have a relatively (to the traditional NPV) high option value component and therefore think that the disregard of the inherent flexibility could lead to grave misinvestments.

The starting point of our analysis concerning the relevance of the different real options is the knowledge that an investment decision is trivial in two cases only (Meise 1998, pp. 6-11). Firstly, if the decision maker is perfectly informed about all relevant data. Here, the decision can be reduced to the simple calculation of the best alternative. Supplementary changes are not necessary. Secondly, the investment decision is trouble-free if the focal decision is completely reversible, meaning that the decision can be revised without any costs. In these two scenarios flexibility is of no specific use and can be neglected. The relevance of flexibility for an investment is determined by the combination of the degree of uncertainty and of irreversibility. As a result, we substantiate these abstract determinants and analyse their implications for the relevance of the above described different categories of real options.
Uncertainty

The overall decision making uncertainty is driven by the cumulated impact of different forms of uncertainty. In this paper, we consider the uncertainties concerning consumers’ preferences and needs, actions of competitors and technological development to be most important (Micalizzi/Trigeorgis, 1999, pp. 2-5).

Uncertainties with respect to consumers are highly relevant in all business areas as it is the primary goal of every company to interact with and sell its goods to their consumers. In this context, it has to be mentioned that, depending on the considered goods, companies as well as consumers have measures (e.g., screening or signaling activities) in order to reduce information asymmetry based uncertainty. Within screening (Stiglitz, 1974, pp. 28-44), in which the less informed exchange party takes the initiative for reducing information asymmetry, one can distinguish between two versions. First, the activity of examination refers to a detailed analysis of the relevant variables through the less informed party although not all goods are equally accessible for such an inquiry. Second, the activity of self selection, where the better informed party classifies itself and reveals the desired information. Signalling (Spence, 1973, p. 357) also refers to information transfers from the better to the less informed party, but this time, the initiative comes from the better informed exchange party. As a consequence, the amount of consumer related uncertainty is highest in those industries, where consumer preferences and needs are statically very heterogeneous, dynamically very volatile, and where the produced goods give companies (and consumers) none or only limited room for reducing the uncertainties through the measures of screening and signaling. Uncertainties concerning competitors result from the fact that strategic or tactical moves, like aggressive price competition, introduction of innovative products, and/or mergers or acquisition, can have a huge effect on the market demand for a company’s product, especially in oligopolistic industries. The uncertainty concerning the further development of existing technology and the occurrence of new technologies is closely related to the competitive uncertainty as combinations of different technological factors can lead to a loss in competitive advantage. In this context, it has to be mentioned that especially the process of technological innovation is, by definition, uncertain. Therefore, one challenge for companies is the optimal timing of investment decisions within the innovation process.

Irreversibility

The degree of an investment project’s irreversibility is mainly triggered by the amount and character of its fixed costs and thereby determined by two forces, its operating risk and the reselling possibilities of the invested resources.

The operating risk refers to the part of the variability of an investment’s profitability, which results from its operating structure and is, above all, driven by its ratio of fixed to variable costs (Micalizzi/Trigeorgis, 1999, p. 2). In this regard, it is widely accepted that investment structures with a high degree of fixed costs, all other things equal, are rigid and difficult to modify if the relevant economic conditions change. In this context, the impact that sales volatility has on an investment’s operating result is called its operating leverage.

The second force driving an investment’s irreversibility, is the degree to which the invested resources can be sold efficiently. Overall, this degree is determined by three forces: the speci-
ficiency of an investment, the efficiency of the second hand markets for the invested resources, and possible regulatory issues (Pindyck, 1991, pp. 1110-1111). Here, we understand specificity as the degree up to which resources are specifically designed or located for a particular use or user (Masten, 1986, p. 494). The degree of specificity is measured by the amount of quasi-rent, which labels the difference between the return of the invested resources in the considered disposition and the return of the best utilisation opportunity outside the focal disposition (Klein/Crawford/Alchian, p. 298). Furthermore, we differentiate between different forms of specificity, namely industry specificity and firm specificity. An example of industry specific investments are steel producing facilities that can only be used to produce steel. Although the equipment in general could be sold to other steel companies, especially in competitive industries, the investment costs are mostly considered to be irreversible as the value of the equipment will be about the same to all companies. As a consequence, there will be little to gain by selling the resources. Firm specificity refers to those investments which are only of use to a specific company, (e.g., human capital investments or knowledge transfer in trainings). Firm specific investments can’t be reversed by selling them to competitors. Another important driver for an investment’s degree of resellability is the level of efficiency of the second hand markets for the involved resources. In this context, the problem area of adverse selection is of especially great importance. Akerlof (1970) points out that, in markets with heterogenous quality characteristics, in which the true quality of a good can’t be assessed by the buyer before the conclusion of the contract (quality uncertainty), non-specific goods, like office equipment, cars, or computers can only be sold well below their investment costs. As mentioned before, regulation is another reason for irreversibility. In this context, capital control mechanisms can prohibit selling foreign direct investments or working law regulations can make human capital investments (temporary) irreversible (Folta 2002). Furthermore, even public opinion can sometimes cause investments to be irreversible, (e.g., if a company wants to sell its pollution control equipment).

Implications

Against the backdrop of the above outlined understanding of the determinants of uncertainty and irreversibility, we now derive the implications for the relevances of the different categories of real options.

The relevance of real options for the management of a company’s fixed costs and real options focusing on a company’s sales situation is positively correlated with an investment’s uncertainty and irreversibility. The importance of the flexibility to postpone the start of a project or even stop the project before its completion is greatest if the decision-making uncertainty is high and the investment requires a substantial amount of non-recoverable fixed costs. However, in case the company has decided to complete such a project, real options that focus on a company’s sales situation are of enormous relevance. In this circumstance, it is of great advantage to have the flexibility to react to a positive development of the relevant economic parameters by overcompensating the high amount of fixed costs through additional sales. The latter can take place either through an existing project or new projects.

In contrast, the relevance of real options for the management of a company’s variable costs is positively correlated with an investment’s uncertainty, but negatively correlated with its irreversibility in the above described sense. This is due to the fact that options for reducing the economic activity or modifying the input parameters are only valuable in situations, in which the proportion of variable costs is substantial. Another argument is that the option to abandon a project, as the extreme form of reduction, is positively correlated to the resellability of the invested resources.

Real options in the media industry

In this section we will answer our two research questions. First, we will analyse which categories of real options are relevant for media companies. Next, we will discuss the different forms in which ROT can contribute to the management of flexibility in the media industry.
Relevance of real options in the media industry

Corresponding to the previous section, we will analyse the general relevance of real options in the media industry by assessing its uncertainty and irreversibility. We will then outline the resulting implications.

Uncertainty

In line with the above described differentiation, we will focus on the parameter values of uncertainties concerning consumers’ preferences and needs, competitive environment and technological development.

The uncertainty concerning consumer preferences and needs in the media industry is very high. This is partially due to the fact that media users are composed of a wide range of socio-demographic segments with widely heterogeneous tastes. In addition, preferences change rapidly. Media formats that used to attract audiences just a couple of months before, aren’t working any more (e.g., Reality TV-formats). Uncertainty is also triggered by the lack of objective quality criteria for media content. Furthermore, in some media segments (e.g., advertising based broadcasting), there is not even a direct relationship between the media company and the consumer (Zerdick et al., 1999, p. 55). Rather, it is an indirect and anonymous mediated relationship measured through audience research institutions. As a consequence, the affected companies can’t utilise the measures of signaling and screening.

In summary, the level of uncertainty in the media industry is currently very high and will increase even further in the future.
In general, companies in the media industry have a very high operating risk. This is due to the fact that a very large proportion of a media company's total costs are for infrastructure, content purchasing, production investments, and marketing expenditures. All these costs are normally fixed. They occur during the production of the "first-copy", whereas the (variable) costs for output dependent reproduction and distribution of the "first-copy" are relatively low. Yet, we have to mention that the magnitude of the "first-copy-effect" differs among the media industry's different segments. For example, variable costs have no relevance in advertising financed broadcasting, but are important in the print segment concerning the production, storage, and especially the distribution of books, magazines, and newspapers.

The reselling potential of the resources invested are usually low in all of the media industry's different segments. In general, all resources are only of use in this specific industry. Furthermore, because of the intensive competition, they can't be sold profitably to other media companies. It is unlikely that content formats which haven't been successful for one company, will be profitable and of interest for another. In addition, content is often sold in company specific bundles. Another important reason for the low reselling potential of media products is the lack of objective quality criteria, which leads to an especially strong form of the adverse selection problem. Furthermore, until its completion, the production costs of a company's own content are even more specific. The value of the "raw material" of the invested intangible resources, brought in by "creatives," can't be sold at all until the completion of a product and later on are also very firm-specific. Marketing expenditures are another classic example of firm-specific investments as they can't be reversed by selling them to competitors. Moreover, the prevailing share of human capital investments in the media industry, in combination with labour law regulations, further enhances the degree of irreversibility.

As a consequence, we can state that investments in the media industry are typically highly irreversible.

Implications

In sum, media industry investments are characterised by a high level of uncertainty, and, with the exception of the print segment, by a high degree of irreversibility in the above defined sense.

We can therefore conclude that the relevance of real options for the management of a company's fixed costs and sales situation seem to be especially high in most of the media industry's segments. Contrarily, the relevance of real options for the management of a company's variable costs seems to be high only in the print segment. Due to the high relevance of ROT in the media industry, it seems reasonable to deepen our analysis to assess how ROT can enhance a media company's flexibility management.

Real options theory
and the management of flexibility
in the media industry

As ROT's conceptual contribution is not industry specific, we will focus on illustrating its instrumental use for flexibility management in the media industry. For the same reason, we will further narrow our analysis with respect to the unit of analysis. ROT can contribute to an instrumental flexibility management on an intraorganisational as well as interorganisational level (e.g., analysing alliances or joint ventures on the basis of ROT). However, although interorganisational issues are also of importance for media companies, their application is not media specific. As a consequence, we confine our analysis to intraorganisational investment issues. In this context, we differentiate between reactive and proactive flexibility management.

Reactive flexibility management

With respect to reactive flexibility management, we illustrate how real options may empower media companies to flexibly respond to changes in their environment. In this context, we use the categorisation of different real options presented before.
Examples for options to wait in the media industry can be found in licences or other rights. They often give a media company the flexibility to postpone the start of production of formats depending on the development of consumer preferences or relevant actions of competitors. Licences are especially important with respect to movie sequels (Teichner, 1992).

In the media industry, options to stage investments can be found in three different areas. Firstly, in all different segments of the media industry, as well as in other industries, options to stage investments refer to the creation of tangible and intangible infrastructure. Examples of the assets necessary for producing media creative products include: studios, printing plants, frequencies, or creative and technical personnel. Secondly, they refer to the development process of a single media product or the first part of a series of related media products. In this context, a media company can stage the development process of a new print magazine into phases (e.g., basic market research, focused market research, development of concept, and production of pilot issue) and can stop the project precocious at different stages. Thirdly, they concern the production of media program series. An industry specific example of this can be found in the acquisition and production of prime time television program series. This is due to the fact that not all episodes of a telecast have to be acquired or produced at once. Rather, most broadcasting companies have the flexibility to decide on a seasonal basis (or for an even shorter period of time) whether to continue with a program series project or to cancel it.

Variable costs options

As stated before, variable costs options are, above all, relevant in the print segment. As a consequence, examples of variable costs options solely focus on the print segment. Options to contract can be important when choosing between printing plants with a different construction-to-maintenance cost mix (Trigeorgis, 1995, p. 7). It might be preferable to build a plant with lower initial construction and higher maintenance expenditures. This would allow media companies to cut down maintenance costs if market conditions turn out to be unfavourable. Options to shut down and restart the reproduction of the “First-Copy” can be found in book publishing. Publishers can stop and “re-start” reproduction with a new edition if the demand situation has improved and the already produced units have been sold. In the media industry, the option to abandon, which aims at saving outstanding variable costs, is particularly important with respect to the newspaper segment. In this business area, the variable production and especially distribution costs are highest.

The option to switch input factors can refer to printing machines, which can be operated with different sorts of papers. This type of option would give media companies the flexibility to switch to cheaper or higher grades of paper based on market economic conditions.

Sales options

Besides the typical application areas of idle capacity in printing, content production, or frequency, examples for the option to expand production and distribution can also be found in specific media formats. Some TV formats give broadcasting companies the flexibility to easily expand production and distribution (e.g., most talkshow or latenight-formats). They make it relatively easy to switch from the production of a weekly episode to the production of a daily episode. Output-switching options are also very important in the media industry. They allow broadcasting companies to shift the timeslot (daytime, day, week or month) or in the case of “channel families” to alter the channel for a specific format. In both cases, the program, as the company’s primary product, is modified with respect to consumers’ preferences, in order to attempt to attract more consumers, and, as a result, to generate higher levels of future advertising revenue.

Another very important form of real options for media companies is growth options, which in contrast to the before described types refer to qualitatively innovative projects. Growth options in the media industry can refer to future sales from projects in the same media segment or future sales from cross media projects. An example for growth options in the same media segment can be found in spin-offs of TV formats. Characters, actors or moderators are assigned to a new TV program because they have been widely accepted by viewers in a previous project. The original TV program could be interpreted and valued as a cross-media growth option if the music section of a multimedia company decides to leverage the established TV program brand by producing a corresponding soundtrack or if the company decides to use its content as the primary basis for its online activities. Above all, growth options are most important for the New Media segment. Most of the current investments in New Media infrastructure or formats are not made in order to generate profits as a stand alone project, but to create or secure growth options for potential future markets. One example of this type of investment can be found in the creation of a peer-to-peer music platform. This platform can later be of use for sales of other content categories such as videos or books. Another manifestation of growth options is evident in the e-book investment strategies of publishing houses. Although it is uncertain if the market will develop or which standards will be the prevailing ones in the future, publishing companies long ago began modifying their author contracts, processing their content to various e-book formats, and creating the necessary infrastructure for a comple-
mentary online service. Similar investment strategies can also be found in the Interactive TV strategies of software companies.

Proactive flexibility management

In the following, we illustrate the instrumental use of ROT as a proactive flexibility management approach through real option’s different value levers. With respect to the present value of a project’s expected cash-flows, a means to increase the option value is an efficient life-cycle management (e.g., the extension of a project’s product line). In the media context, an example can be found in the great number of complementary media products regarding the Harry Potter book series. An additional measure could be the proactive generation of sequential business opportunities through the application of business ideas to potential future products. Another very important lever for media companies in the convergent environment is the reduction in value lost over time by waiting to exercise the real option. In financial terms, this is the cost of waiting until after the payment of a dividend (which lowers the stock value and therefore the option payoff). Discouraging competitors from exercising their options should therefore reduce the value lost to competitors. Here, a good measure would be to set (de facto) standards (McGahan/Vadasz/Yoffie, 1997, pp. 239-254). For media companies, these issues become more and more important, because especially in the context of digital convergence, first-mover advantages are often significant and “dividends” are correspondingly high. Examples can be found in media companies’ attempts to lock in consumers to specific online offerings or standards in Pay-TV. Considering a desired reduction in present value of the exercise costs, media companies should focus on leveraging economies of scale and scope. In this connection, a publishing company could use the same technology platform to launch websites for the company’s different magazines. Concerning the prolongation of the time period until the investment opportunity disappears, the proactive management of a project’s flexibility includes the prolongation of licensing rights, the timely filing of a patent, or preserving a technological head start by investing in innovations. An example from the media industry is prolonging the rights for the work of a musician or author in order to save the company’s option to utilise them in its back-catalogue (e.g., for a “best of album”).

Finally, sensitivity analyses can help management to identify the levers with the greatest impact on the option value. These levers can later on serve as a measure in the financial dimension of a media project’s balanced scorecard and therefore further improve a media company’s value based management.

Conclusion and discussion

Starting from the assumption that flexibility and its management are critical success factors for media companies, we have addressed our first research question by demonstrating that real options are indeed of great importance to the media industry. In this context, we have shown that “Fixed costs-options” and “Sales-options” are of high relevance for the whole media industry, while “Variable costs-options” are only of relevance for media companies engaged in the print segment. We have also answered our second research question by illustrating how ROT can contribute to the reactive and proactive management of flexibility in media companies.

However, despite our results and the fact that innovative research concepts (e.g., the combination of fuzzy numbers sets and ROT) (Carlsson et al. 2001) and rapid progress in the supporting software tools have made ROT much more user-friendly and practice-oriented, the short term implementation of ROT in the media industry seems to be questionable. This is due to the fact that besides the “normal,” already high implementation barriers, the use of ROT in the media industry might have to overcome additional obstacles. Specifically, compared to firms of equal size in other industries, capital market orientation and the role of corporate finance overall, are still relatively weak in the media industry. A possible explanation might include the fact, that (Ex-) CEOs like Middelhoff or Messier have a strong marketing background and emphasis. Therefore they might have a lower affinity to corporate finance, respectively ROT, than those top executives with a finance or business engineering background. In addition, especially in Europe, media companies are often not listed, but held privately by powerful family networks.

In order to foster the discussion about possible use of ROT in the media industry, future research should not exclusively concentrate on further developing option pricing models, but should also focus on empirical research regarding ROT. For the latter, we suggest researchers pursue two complementary research streams. Firstly, empirical research should focus on actual investment decisions. More specifically, we recommend empirical assessments to determine if media managers, as often stated, intuitively take into account a project’s real options and therefore often act consistent with ROT. Again, we recommend two possible approaches for doing so. On the one hand, future empirical research should analyse media managers’ investment process (ex-ante perspective). In doing so, we recommend the transfer of this paper’s tentative theoretical results into a latent variable model predicting managers’ assessment of the relevances of the different real options as well as its antecedents. ROT and neo-institutional economics should provide enough substance for the operationalisation, necessary for possible methods like LISREL or PLS. Additionally, empirical research should analyse the manifestation of decisions’ consequences in the
form of actual market data (ex-post perspective). In this context, researchers can build on existing research questions and operationalisations from corresponding research in other industries. Finally, research should focus on publishing articles or case studies of best practices concerning the actual implementation of ROT in media companies or comparable industries.

Endnotes
1 In our understanding, the term digital convergence denotes the evolutionary process of the coalescence of the formerly separate industries media, information technology and telecommunication. See Zerdick et al., 1999, p. 199.
3 For an overview of the different categories of option pricing models see Cox/Ross/Rubinstein (1979) and Black/Scholes (1973).
4 However, we do not refer to multiple interaction options as a distinctive type. Furthermore, we subdivide options to alter operating scale and switching options.
7 See for example Folta (2002).
8 See for example Bughin (2001).

References


