Chapter 7
Valuation of Technology-Based Companies: The Case of Activision Blizzard

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ABSTRACT
The cash flows of technology-based companies show high degrees of uncertainty. As traditional valuation methods can hardly capture these characteristics, they are insufficient for valuing these kinds of companies. On the contrary, real options theory can quantify the value associated with management flexibility, growth opportunities, and synergies. This chapter assesses the corporate value of a technology-based company. By gathering information from historical cash flows and using Monte Carlo simulations, the chapter generates future returns paths and primarily uses them for valuations by discounted cash flow methods. The generated volatility is subsequently used to value the measurement carried out by real options theory. The value obtained under the real options binomial approach is about 40% higher than the one obtained by the discounted cash flow method. This difference can be attributed to the value associated with uncertainty and flexibility.

INTRODUCTION
The value that investors attribute to a company is essentially based on their expectations of the company’s future cash flows. The valuation of a particular technology-based company (TBC) is essential for justifying future investments in the company. Given it has specific characteristics that are not considered by discounted cash flow (DCF) methods, the valuation needs to be addressed by more advanced approaches, such as real options theory (ROT). DCF valuation methods hardly contemplate the unpredictability and creativity of today’s business strategies. Market
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players demand real-time feedback and constant development commitment. Therefore, some of these technological companies aim to diversify strategies in order to respond adequately to market needs (Eisenhardt, 1989).

The uncertainties and opportunities in the technology sector are often misspecified in traditional valuation methods. Because of the high volatility associated with these markets, the valuation becomes a complex and potentially nerve-wracking endeavour. A small mistake can lead to a large loss. Considering the complexity of forecasting highly volatile market conditions and strategies, TBCs are much more likely to face inherent difficulties in accurately predicting firm value. This uncertainty should not be treated as objective risk, that is, as a series of coin tosses where the probabilities are objectively known (Levin, 2006).

Rather than being just a source of risk, flexibility can add positive value when in line with the strategy, and may represent an acquisition of future value to the company. The DCF method does not consider this added value. Therefore, what should be the right valuation method when the company generates cash flows with high levels of volatility? Should the flexibility associated with management capacity be considered to be a source of value?

The methods presented in this chapter provide investors with means to value technology companies that act in unstable markets and have volatile revenues. These companies can also use these methods internally to value projects and compare their relative values for capital budgeting purposes. Therefore, this chapter can be viewed as a contribution to find empirical evidence of the usefulness of real options valuation methodologies (adapted from Kellog & Charnes, 2000).

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TBCs, such as pharmaceutical firms and hardware and software developers, differ greatly from more stable business in other markets. These companies are commonly characterized by ongoing losses, little or no revenue, labor intensive R&D work as a primary function and an inability to obtain commercial loans. Financing for such companies is hard because cash is quickly depleted by the costs with R&D. Therefore, the resulting financial profile renders inadequate traditional valuation approaches. Consequently, TBCs inherently require sophisticated approaches for determining their value and need a valuation paradigm that overcomes the limitations of traditional valuation approaches. Some authors suggest that paradigm should involve correlations arising between market capitalization, book value, total invested capital, long-term cash flows, and phase of product development (Robin & Malak, 2010).

The revenue-multiplier approach (RMA) offers a value based on market-driven multiples, applied to the company’s revenue level. For example, regression studies done by O’Neill (2004) indicated that the operating ratios capture much of the hotels value. The traditional multiplier approach consists in dividing company’s market capitalization by its income statement lines. Afterwards, a set of market multiples are applied to a given company’s financial results in order to obtain value’s indications (Meitner, 2006). Under the traditional multiplier approach, the RMA is often considered unreliable.

However, some practitioners rely on this approach for valuing TBCs, since the other market value approaches using other income statement line items often generate negative values. Likewise, Khan (2010) states the RMA is advocate by many venture capitalists who consider the following circumstances for using it: a) high R&D expenditures b) early-stage companies, c) no earnings record, and (d) proprietary technology (Robin & Malak, 2010).

Since often obtaining negative results from the traditional discounted cash-flow approach due to recurring losses, some authors used the modified discounted cash-flow (MDCF). Both DCF approaches attempt to determine the lump sum (present value) of future cash flows. The