The University of Northampton

Northampton Business School

Department: NBS Business, Accounting and Finance

Research Proposal:

**Testing the link between valuation multiples and underlying value drivers in US retail industry**

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# **INTRODUCTION**

## Background

One of the fundamental principles of corporate finance is the creation of value.

According to Koller (2010) and other relevant literature value is driven by generated cash flows discounted at a cost of capital. Cash flow, in turn, is driven by expected returns on invested capital and revenue growth.

Figure 1: Creation of value (Koller, R. et al., 2010)



In accordance with the above figure, companies which:

* have higher growth rates,
* are generating higher return on invested capital,
* have lower cost of capital (i.e. lower risk and uncertainty associated with these cash flows),

will in consequence have higher value in comparison to other companies.

The same logic applies to valuation multiples - every multiple, whether it is of earnings, revenues, or book value, is a function of the same above stated drivers (Damodaran, 2011).

## Enterprise value multiples

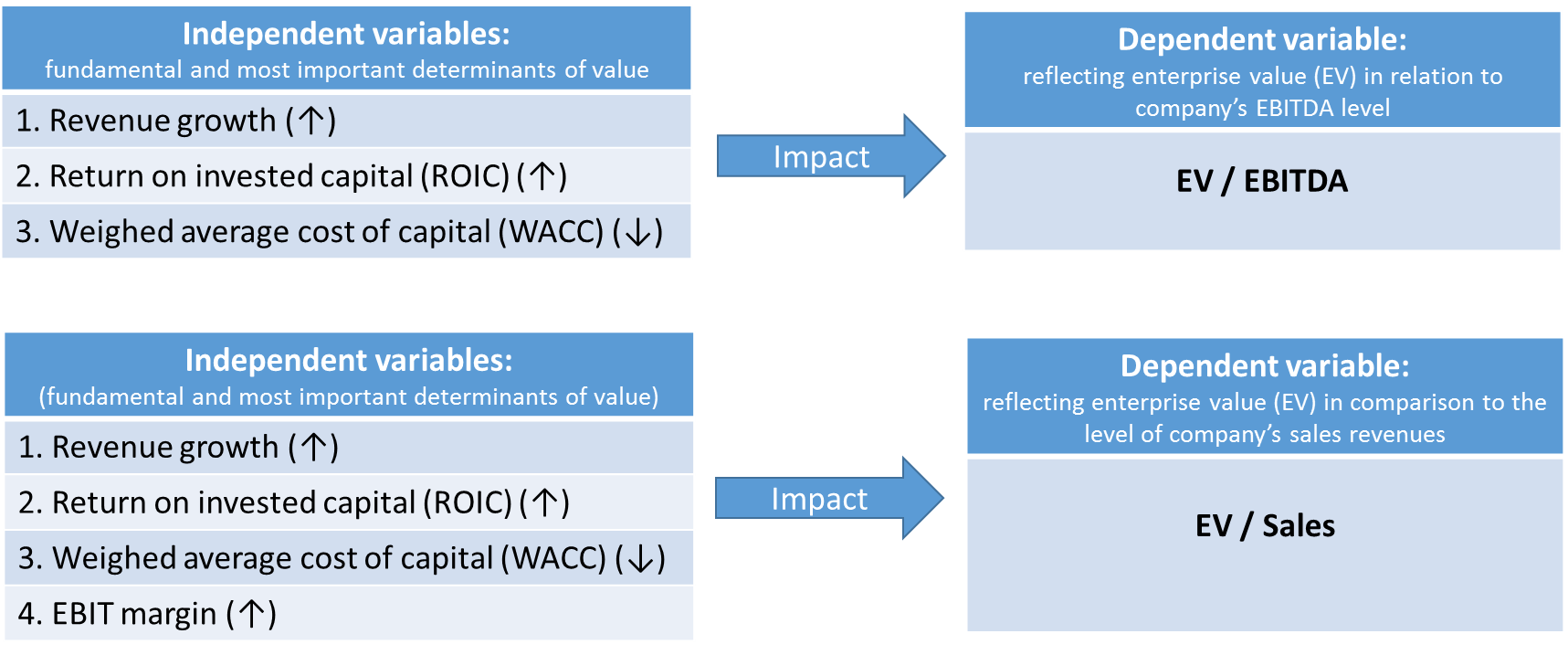
Valuation multiples are a key component of any enterprise valuation analysis and are used regularly by investors, stock market analysts and certified appraisers. They are often applied in conjunction with the most fundamental DCF valuation method to estimate company / stock value.

Most common enterprise value (EV) multiples are **EV/Sales** and **EV/EBITDA** (note: please see definitions in Chapter 3).

All things equal, higher-performing businesses deserve higher valuation multiples. For prudent investment decisions it is essential to understand key value drivers and their impact on the enterprise value (UBS Warburg, 2001).

Based on the relevant literature and theory the researcher sums up most important drivers of the two key enterprise valuation multiples in the below Figure 1.

Figure 2: Impact of underlying drivers on enterprise valuation multiples (chart made by the researcher)



Note: Symbol ↑ means that the increase in independent variable should result in an increase of the dependent variable and vice-versa for the symbol ↓.

## Problem statement

The practitioners and academics are interested in the accuracy of the estimates provided by multiples valuation method (Chullen, A. et al 2015).

On the other hand, there is a gap between the widespread usage of multiples in valuation practice and the amount of relevant statistical research related to multiples and their underlying drivers (Schreiner, A. 2007).

Hence, the researcher intends to further investigate the theory outlined above, i.e. test on concrete population the link between valuation multiples and underlying key value drivers and draw conclusions thereon.

## Targeted industry and sample

The above analysis shall be carried out based on the sample of 30 biggest US retailers, i.e. the analysis shall be limited to one industry.

Furthermore, to assure even greater comparison of the selected industry peers, the sample shall not include online retailers, distributors, auto-part retailers, building supply retailers, etc. but shall only pertain to the core segment of general and specialized retail (Wal-Mart, Costco, Walgreens, Kroger, Target, Macy’s, Best Buy, etc.). Only the stock traded companies shall be included in the sample.

## Research aim, objectives and questions

**Research aim**

The aim of the research is to research and test the link between valuation multiples and underlying key value drivers in US retail sector and draw conclusions thereon.

**Research questions**

1. What are the characteristics of independent variables, i.e. drivers of enterprise valuation multiples, in US retail sector?
2. What are the characteristics of dependent variables, i.e. enterprise valuation multiples EV/Sales and EV/EBITDA, in US retail sector?
3. How strong is the correlation between enterprise valuation multiples EV/Sales and EV/EBITDA and underlying value drivers in US retail sector?
4. In what manner do value drivers impact valuation multiples EV/Sales and EV/EBITDA?
5. Is such impact statistically significant?
6. What findings and recommendations can be drawn from the analysis for future application and usage of valuation multiples of US retailers?

**Research objectives**

1. To investigate the characteristics of underlying drivers of valuation multiples in US retail sector.
2. To investigate the characteristics of enterprise valuation multiples EV/Sales and EV/EBITDA in US retail sector.
3. To assess the correlation between these valuation multiples and underlying value drivers.
4. To identify the manner in which these value drivers impact valuation multiples EV/Sales and EV/EBITDA.
5. To critically evaluate the findings and make recommendations regarding further application and usage of valuation multiples in US retail sector.

## Importance of the research

Valuation multiples are widely used by numerous investors and stock market analysts, and key strategic investment decisions are made based on that. Hence, it is important to investigate the matter further, to be able to better understand what drives the multiples and are they as such an accurate and reliable valuation tool.

Furthermore, although theory is established for a long time and literature clearly identifies key value drivers and the direction of impact, not enough applied research has been done in this respect (Liu, J. et al., 2010).

The researcher believes that this research project will contribute to the academic knowledge and shall shed additional light on the subject. This might in turn impact the way users of the valuation multiples view the matter and their rationale in investment decision-making.

# **LITERATURE REVIEW**

## General facts regarding multiples

Valuation multiples are a key component of enterprise value analysis and their successful use depends upon a clear understanding of the factors that drive them (Global Valuation Group, 2003).

Generally, the most widely accepted method of valuation is discounted cash flow method. However, a careful multiples analysis—comparing a company’s multiples versus those of comparable companies—can be useful in making such forecasts and result in more reliable and accurate estimates. (Koller, R. et al., 2010).

By using multiples one can:

* verify the conclusion of DCF valuation,
* compare various targeted companies and make investing decisions accordingly,
* explain mismatches between a company’s performance and that of its competitors and potentially identify mispriced securities and capitalize upon identified differences,
* come to a conclusion about strategic positioning of a company and identify potentials for improving company’s value in comparison to that of the competition.

**EV/EBITDA** and **EV/Sales** are most widely used enterprise value multiples.

**Price-to-earnings ratio (P/E)** is also very commonly applied, however the downside of P/E ratio is that it is predominantly useful only for equity stakeholders as is distorted by different capital structure of compared companies, different accounting policies and gains and losses from non-core activities. Due to comparability issues, this ratio shall not be investigated in this research.

## Functioning of multiples

Various renowned authors (Damodaran, Pratt, Koller, Abrams, etc.) argue that the most important drivers of enterprise value multiples are:

* the company’s growth rate (↑),
* its return on invested capital (↑),
* the cost of capital (↓) and
* in case of EV/Sales multiple also the EBIT margin (↑).

The above means that firms with higher growth rates, higher return on invested capital, less risk, and higher EBIT margin should trade at higher multiples than other firms.

Damodaran argues that a multiple regression can be a useful tool to explain a dependent variable (such as EV/EBITDA) by using independent variables (such as growth, risk, etc.), as regression offers two advantages over subjective approaches:

* the regression output provides a measure of how strong the relationship is;
* Regression can allow for more than one variable and even for cross effects across these variables to be calculated.

## Advantages and disadvantages of using multiples

The main reason for the wide usage of multiples are:

* Their simplicity, as the enterprise value can be calculated using just one figure.
* The potential for comparison with other companies / other industries / over time (Global Valuation Group, 2003).
* The calculation less time consuming than performing company specific projections and discounted CF valuations (Palepu, K. and Healy, M. 2008).
* Multiples focus on key statistics used also by other investors - since investors in aggregate move markets, the most commonly used statistics and multiples will have the most impact (Suozo, P. et al. 2001).

However, when using multiples for analysis and strategic decision-making one has to be careful. Namely, multiple is a relatively robust tool, where a lot of information is compressed into one number. Based on this, it cannot be studied alone – instead, underlying drivers of company’s performance have to be taken into consideration as well. Solely relying on multiples should not be a shortcut to valuation (Chullen, A. et al, 2015).

# **VARIABLES DEFINITION**

Table 1: Definition of independent variables in this research

|  |  |  |
| --- | --- | --- |
| **Independent variable** | **Definition** | **Source** |
| **Revenue growth** | Growth of annual revenues, in % | The researcher shall calculate the revenue growth rate for each company for the period of last three years. |
| **Return on invested capital (ROIC)** | ROIC = (Net income – dividend) / (Total equity + Long term debt)  (Palepu, K. and Healy M., 2008) | The researcher shall either calculate the current ROIC from the financial statement of companies or use available market data. |
| **Weighted average cost of capital (WACC)** | Weighted average cost of capital (WACC) is the rate of return that investors expect to earn from investing in the company and therefore the appropriate discount rate for the free cash flow. It is also a measure of risk.  WACC = Re x (E/V) + Rd x (1-Tc) x (D/V)  *Re – cost of equity*  *Rd – cost of debt*  *E/V – equity / total value*  *D/V – debt / total value*  *(1-Tc) – tax adjustment for interest expenses*  (Pratt, S. and Grabowski, R., 2010) | The researcher shall obtain current WACC for each company from available financial databases. |
| **EBIT margin** | EBIT margin = Earnings before interest and taxes / net sales revenues  (Palepu, K. and Healy M., 2008) | The researcher shall either calculate the current EBIT margin from the financial statement of companies or use available market data. |

Table 2: Definition of dependent variables in this research

|  |  |  |
| --- | --- | --- |
| **Dependent variable** | **Definition** | **Source** |
| **EV / Sales** | EV / Sales = Enterprise market value / Net sales revenues | The researcher shall obtain current EV / Sales multiples from available market statistics. |
| **EV / EBITDA** | EV / EBITDA = Enterprise market value / Earnings before interest, taxes, depreciation and amortization  EBITDA is the most widely used proxy for company’s cash flow from operating activities. | The researcher shall obtain current EV / Sales multiples from available market statistics. |

As shown in Figure 2 of this document, the researcher shall:

* first test the impact of the above independent variables on dependent variable EV / Sales;
* then test the impact of the above independent variables on dependent variable EV / EBITDA.

# **RESEARCH DESIGN AND METHODOLOGY**

The project shall follow the “research onion” concept with a goal of putting together adequate research framework and executing the project in a proper academic manner.

## Research philosophy

Three most common research philosophies are: positivism, interpretivism and pragmatism. For this project “positivism” shall be the selected research philosophy due to the following reasons (Saunders et al., 2009):

* The researcher’s view shall be objective and independent of social actors.
* The project will relate to observable phenomena which provides credible data and facts.
* Project shall combine logical deduction with precise empirical observations.
* Focus of the research project shall be on exploring causality (impact of independent variables on dependent variables).
* Research shall be undertaken in a value-free way, the researcher will be independent of the data and shall maintain objective stance.
* Data collection shall be highly structured, with large enough sample and obtained data shall be quantitative / measurable.

“Interpretivism” is ruled out because the researcher shall not be part of the researched population, the conclusions will not be subjective and qualitative input data shall be not used. “Pragmatism” is also ruled out because there shall be no mixture of objective / subjective views, no application of multiple method designs as well as no mixture of quantitative / qualitative data.

## Research approach

Literature recognizes two types of approaches (Yin, 2003):

- deductive approach,

- inductive approach.

Deductive approach (also know as „top-down“ approach) tests an existing theory / hypothesis on a specific data set resulting in confirmation (or not) of the existing theory. On the other hand an inductive approach (also known as „bottom-up“ approach) examines particular environment in order to try to generalize conclusions and potentially formulate a new theory (Web centre for social research methods, 2006).

A deductive approach shall be applied in the project whereby the researcher shall examine and test the validity an existing finance theory (i.e. dependency of valuation multiples **EV/Sales** and **EV/EBITDA** upon underlying value drivers: **growth rate, ROIC, EBIT margin, and WACC**) to a particular context (**biggest US retailes**).

## Research design

The research design represents a general plan and sets an outline of how the research questions shall be answered. Three categories in this respect are (Saunders et al., 2009):

* exploratory studies,
* descriptive studies,
* explanatory studies.

In this project the researcher has a clear picture of the nature of the problem. Research variables and problems are not ambigous. Furthermore, this project shall not merely describe the phenomena studied, but shall investigate a particular thesis by exploring causal relationships between known variables.

Hence, this research project is categorized as explanatory.

## Research strategy

Case study method shall be employed in this research project, based on the following relevant reasons according to Yin (2003):

* empirical investigation shall be done within a real life context,
* multiple data sources shall be used,
* ‘how’ question shall be addressed ,
* the researcher will not have control over the studied events / phenomena.

Case study will be executed using quantitive approach. Cross-sectional data shall be gathered, pertaining to independent and dependent research variables of selected companies, stemming from the same point in time, in order to achieve data comparability (Creswell, 2009).

## Data collection method

For the purposes of this research project secondary data will be gathered from various sources. This is necesarry in order to gather the required array of independent and dependent variables that shall be subject of the research.

Main data sources shall relate to:

* Various reknown online financial data research platforms.
* Annual reports of companies that are part of a sample.
* Damodaran’s online database containing the annual updates for US and global companies on both corporate finance and valuation metrics.
* If needed, rating agencies Moody’s, Standard & Poors and Fitch online company data bases.

Data comparability and accuracy shall be ensured.

## Sampling method

Non-probability, convenience sampling shall be applied – gathering the required data for 30 biggest US retailers (segment of general and specialized retail).

The researcher shall apply this technique due to resource constraints in terms of time and accessibility, i.e. it would be significantly harder to obtain comparable and reliable data for smaller and non-traded retail companies.

## Accessibility issues

Based on preliminary searchings of the required data already made by the researcher, the researcher estimates that there should be no accesibility issues regarding data gathering (given that the project sample pertains to biggest US retailers where there is a substantial amount of the available data).

## Data analysis plan

The acquired data will be analysed thoroughly in SPSS by descriptive and inferential statistics. Correlation and regression analysis will among others be applied to examine the relationship between independent and dependent variables. Various presentation tools shall be used to further highlight the issue. Results will be critically assessed and conclusions / recommendations drawn upon.

# **ETHICAL ISSUES / CONSIDERATIONS**

No ethical issues shall arise as a result of the research project. Data will be collected from publically available sources and no disclosure issues shall arise in this respect.

The researcher shall adhere to highest ethical standards during the research project. The project shall represent an original work of the researcher and shall be free from plagiarism.

# **PROVISIONAL WORK SCHEDULE (TIMETABLE)**

Below is indicative time table for the execution of the research project.

It should be noted that already up to this point the researcher has dedicated significant time and effort to study the research topic and construct the methodology accordingly. The candidate has also initiated preliminary data collection. Based on this the researcher believes that there should be no issues with complying to the below timeline.

Figure 3: Gantt chart for the research project



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