SITE SELECTION, STORE FORMAT, CUSTOMER NUMBER, SALES AND THEIR CONTEXT IN THE RETAIL BUSINESS

Adrienn KURUCZ

Szent István University, Doctoral School of Management and Business Administration
H-2103 Gödöllő, Páter Károly u. 1.

ABSTRACT

After the credit rating agencies downgraded Hungary's credit rating in November 2011 and January 2012 there were many unfavourable effects on the country and its real estate/property market. The efficiency of the commercial property market is furthermore affected by some of the government's provisions, such as the 'plaza stop' or the 'special tax/solidarity tax' imposed on retail chains. As a result of the above listed actions it is highly possible that the developers will completely freeze their commercial investments in the coming years. A current important question is: in which direction will the Hungarian commercial property market and retail market develop?
(Keywords: retail, business, customer number, sales, format)

INTRODUCTION

I had four objectives in this work. Firstly, to prove that there is a high correlation between site selection, store format, customer number and turnover in the retail business. Secondly, to demonstrate empirically that small and large format stores might have different behaviours from the customer number and net sales point of view. Thirdly, to illustrate that retailers can make mistakes in sales forecasting, choosing store location and format, when they only analyse past trends instead of utilizing analyzed and weighted own management information data as well. Finally, the adage „location, location, location" is especially applicable to retail real estate development.

MATERIAL AND METHODS

In the first instance I investigated both the Hungarian and International macro-economic and microeconomic literature relating to commercial property's site selection and customer behaviour when choosing shop, which I analyzed with reference to personal knowledge. Besides emphasizing the theoretical disciplines of the topic, I collected and analyzed market data for the different store formats. In addition to this, I used extensive personal experience and knowledge – ten years in the retail property industry – to strengthen to my research.

Store size: hypermarket, supermarket or discount store?
'The hypermarket in the late nineties was a novelty not only in Hungary but also in Central Europe. However, the world has changed since then, along with trade and consumer habits, expectations. Today the trend shifts towards smaller stores, the

emphasis is on the convenience of shopping together with the online and other shopping options. Thus it is worth re-evaluating the hypermarket format. Global trend show that more and more people prefer to buy locally. Three or four times a month people visit the large stores but if there is a well-equipped store in their area they do their shopping there during the week.' (*Gray*, 2011 1 p.)

The same assertion is confirmed by *G. Tóth* (2011), who said that although retail sales decreased steadily since 2006, a growing tendency is shown that customers buy in stores closer to their home.

'During the crisis, 70% of consumers switched to cheaper food. It is a contradiction that – despite increasing price sensitivity – more and more customers shop in the local supermarkets, instead of buying food for 20% less in the hypermarkets on the outskirts of the city. As a result of the high gasoline prices the consumers buy locally, more frequently and spend less per visit. A few years ago the market was completely transformed by the large expansion of hypermarkets, but since then the number of large shops - producing 30% of the total turnover of daily consumer goods - remained unchanged' (*G. Tóth*, 2011 58 p.)

Figure 1

Store format share on return from daily consumer goods (2000-2020)
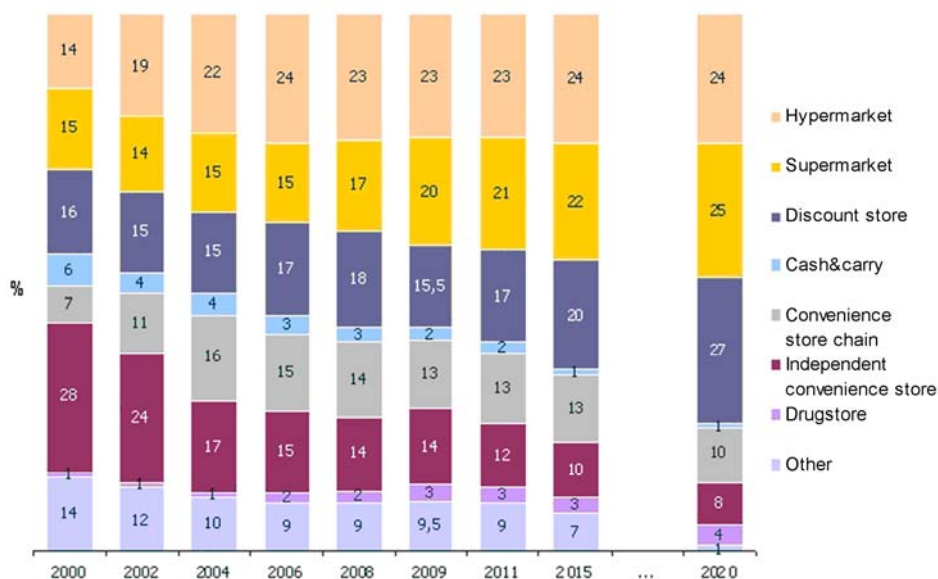
Source: *GFK - Világgazdaság Online*, 2010

'No growth is expected next year in the current 23% market share of hypermarkets and in ten years this trade channel will only own 24% of market positions – stated Gfk Hungaria based on their survey of trends in trade September 2010. However supermarkets are predicted to continually increase their market share. Many retail chains in this category have expansionary policies and therefore the market share of

supermarkets may increase to 21% in 2011 while 22% in 2015 and even up to 25% in 2020. According to analysts the independent small shops' share from daily shopping items would moderate from 13% to 10% in the coming decade. This tendency would then force even more of the owners of these smaller stores to become part of a joint sourcing venture.' (*GFK - Világgazdaság Online*, 2010)

I agree with the first diagram's figures concerning supermarkets (*Figure 1*), however I would not state that the remaining prognosis is acceptable according to the current state of the market. In my opinion, the discount stores will not achieve a 27% market share by 2020, as this now seems unreasonably high. It is of course explained by the 'plaza stop' legislation (2011) and the market growth. Given that online trading is in the 'Other' category, I do not agree with its decrease, as this form of trading is one of the fastest growing shopping channels.

The 'plazastop' legislation

The Hungarian Parliament voted into law the so-called 'Plazastop' legislation on the 28th of November 2011. Act CLXVI of 2011 on the modification of the established 2012 budget – modification of the Act LXXVIII of 1997 on the formation and protection of the built environment.

This legislation forbids the development of retail units bigger than 300 square metres between 1 January 2012 and the end of 2014. The law reasons that *'the submitted policy is important because in Hungary the trade concentration increased significantly in a short period of time. 69% of retail sales are dominated by the large and medium size enterprises, which represent only 1% of the total number of commercial enterprises. About 99% private, micro and small enterprises receive only 31% of the total market share. This trend would have been difficult to reverse, but could be mitigated by the proposed legislation'.* (*index.hu*, 2011)

In the domestic retail sector the two German „hard discounts", Lidl's and Aldi's expansion are the most striking change. Located closer to residential areas, typically selling less goods at a very low price – the hard discounts' expansion was significant. The two companies have equally gained market share not only from the domestic retail chains – CBA, Coop, Real –but also from the super- and hyper markets. The 'plazastop' law can put on a hold – for a while - the growth of Lidl and Aldi. The multinational retail chains are not opposed to the idea of the 'plazastop' law as the industry's crisis taxes have already stopped their development (*Trade Magazin*, 2011b).

Customer behaviour aspects for store choice

'Inthe domestic food retail situation it has not yet been clarified whether we belong to the Nordic or the Southern model. In the Nordic model the small stores role is only complementary, whereas in the Southern model it is significant. Based on the customer groups and purchase frequency (daily, weekly or monthly big) we belong to a different model. The current concentration of the Nordic model's significant level is not reached but we exceed the Southern model complementary level. The state of the art domestic services development is moving towards the Nordic model. It is also possible that the transition between the two models will be maintained for a longer period of time in Hungary '(*Földi*, 2008a 1-2 p.).

The frequency of shopping

Households usually perform two kinds of shopping. One is to replace the products they have run out of (daily shopping), or to perform 'big shopping' (to pile up their stocks for a longer period of time). Very often the shopping is done in different locations. Daily shopping is influenced by convenience (the distance of the shop) whereas weekly and monthly big shopping locations are chosen by the prices and variety of their goods. In case of larger shopping it is most likely that customers spend more time in the store, are willing to travel further. Additionally, the whole family is there and the spending budget is flexible (*Földi*, 2008b 2 p.).

Models of customer behaviours

The decision to purchase is a multi-stage process. Customers not only choose products but before that they also choose the store and this can influence their decision. Sudden impulse purchase can be influenced by many factors. The store choice can be appropriate for the customer, for the shopping or can be special. The choice of location may precede or follow the brand choice. There are two major trends in the choice of location. In the case of task-oriented buying, the cheapest source of supply is chosen; in that of the experiential purchase, prestige-consuming and high-quality product selling stores are on the list (*Törőcsik*, 1998).

Marketing science distinguishes several models of consumer behaviour regarding food shopping. The principal ones are (*Lehota*, 2001):

1. PILGRIM model: food acceptation is dependent on perception. Food perception is a function of three factors: physiological effects of the food, perception of sensory attributes, and influences from the environment.
2. STEPHERD food consumer and buying behavioural model is the further developed version of the PILGRIM model.
3. In GUNERT's food-oriented life-style model shopping motivations, consumption situations, and ways of purchases are displayed.

Commercial unit choice models

In the store selection and purchasing the following factors are relevant:

- The shop's image
- Retail ads
- Location of the store
- Size of the store
- The placement of products on the shelves
- Location of the goods in the shop
- The business atmosphere and interior design

Without being fully complete the three major models are (*Földi*, 2008a):

1. SCIPIONE presents in his model the elements related to store choice and refers to distance as a time factor, and also highlights customers' lack of time, need for convenience.
2. In the ASSAEL model the household, the customer characteristics (demographic characteristics, roles, lifestyle, personality, economic conditions)

leads to the shopping needs. These determine the importance of the store characteristics, such as the general price level, the depth of range, comfort, features of the sales staff as well as exterior and interior store design. The store image is at the meeting point of customer needs and trader strategies. The closer to the need the image is, the more favourable the consumers' attitude is to the shop, and the more likely they are to purchase there.

3. SHETH-MITTAL-NEWSMANN store choice model analyses the accessibility (nearest, no significant extra distance), prices (good prices, competitive prices, significant discount, better price) and special offer assessments as influencing factors.

Store choice theories, models

According to *Káposzta* (2007) the location selection is based on micro-, macro- and geography economics. He states that the theory of choice of location investigates the behaviour of market players and from their decisions we can generalize the spatiality of economic activities. According to *Káposzta* (2007) site development theories have five successive phases. The five phase development well depicts that there are a large number of numerical, measurable economic factors, which are the fundaments of complex, specific location deployment decisions. This means that during the rational decision making process 'the decision maker has a set of criteria, expectations with which compares all the possible decision options, considers consequences and chooses the optimal solution' (*Káposzta*, 2007 36 p.).

The development of various site theories were collected by *Karhusz* (2003) as shown in *Table 1*.

Table 1

Development of site theories

Time	Representers	Trend	Factors
First third of XIX. century	Thünen	Spatial distribution of agriculture	to minimize production and transportation costs
1900–1920	Weber, Predöhl, Palander	industrial location theories	to minimize production, major production costs
1930-1940	Lösch, Hotelling	monopolistic competition	consumption - maximize revenue
1950-1970	Isard, Greenhut, Smith	regional production functions	production, consumption, infrastructure - mathematical optimization models
1970-	Stöhr, Malecki, Scott	complex, interdependent deployment decisions	innovation, skilled labor, high-tech industries

Source: *Karhusz*, 2003 1 p.

Site selection is one of the most typical strategic corporate decisions, because the advantages or disadvantages can affect the company's financial results for a long time. Accordingly, the economic, technical and political merits of deployment decisions have increased in importance.

Porter (1996) has also surveyed site choices. According to his study, the long-term competitive advantage of companies that made the company's productivity depends on both the macro and the micro-environment influences.

According to *Karhusz* (2003) the choice of location is influenced by two factors:

1. Hard site selection factors: approached from the logic of economics, as they are easily quantifiable:
   - economic stability
   - economic policy and industrial policy efforts
   - volume of trade relations
   - regional trade agreements
   - market size
   - foreign exchange rates and production costs
   - tax rates
   - state aid and subsidies
   - geographical environment
   - development of an artificial environment (infrastructure)
   - acquisition and recording market relative to location
   - the quantity and quality of the workforce in the region
   - local taxes and subsidies
2. Soft installation factors: difficult to quantify them, but their importance is equal to the weight of hard factors:
   - - policy stability
   - - legal framework
   - - characteristics of corporate finance
   - - potential site's image
   - - established companies
   - - regional innovation milieu
   - - quality of life for employees

According to *Sikos* (2009) the US chain stores began to search site selection options in the early 1900s. Their studies mainly concentrated on the pedestrian traffic volume and composition. Around 1930 the food chain stores dealt with site selection in greater depth, in order to determine the commercial units' market area and market share. 'The third phase of site selection research was after World War II, when the big shopping centre constructions started.' *Sikos* (2009, 3 p.)

Based on *Hoover and Giarratani's* (1999) study the appropriate choice of location depends on the following four factors:

1. local supply
2. local demand
3. supply delivered
4. local demand beyond the regional demand.

There are two different tactics to select from when choosing the site location. One of them builds on the fulfilment of unmet needs and is confident that the market rewards the satisfaction of needs. While the other tactic builds on the competition and expects to be proven stronger. This option benefits shops which have a good customer base, but are not considered capable enough to take advantage of opportunities. Often we find that after a short period of time the more aggressive party remains in the competition (*Radnóti*, 1993).

'The site selection of a retail chain unit is an important strategic decision as the location can be advantageous for the commercial unit, the convenient site accessibility is an important factor for the customers. The site can determine and influence the catchment area and the number of consumers. The location in terms of the enterprise is a micro-economic concept, which is important to be emphasised because after the political system collapse in Hungary a great number of retail units closed down due to their wrong chose of location' (*Mészáros*, 2007 42 p.).

Sikos and Hoffmann (2004) states that in general most retail companies operating in Hungary have developed their units well, but almost every chain probably has a randomly chosen location. The explanation to this is that the income-producing ability of each chain unit varies. While the companies do not expect scientific accuracy, they expect to avoid the largest errors if they use their research own results in their site selection. However, even this is no guarantee of success because it is necessary to use the proper site-choice models. The unpredictable behaviour of competitors is also non-negligible, so ultimately it is still likely to affect the evaluation of results.

Sikos (2009) states that the retail companies have identified two major requirements when choosing a location:

1. the sales potential of a particular location, prediction regarding the long-term success of the store
2. long term strategic plans, which identify the locations on a given geographic area, which provide optimum share from the market potential, minimize the risk of decreased sales and guarantee a maximum revenue in a certain period of time.

Distinction should be made in the strategy if:

- the company wants to increase its market share in an area where already present,
- open up new areas to do business
- thinking about buying another company

The site-selection strategy should be developed before starting the individual site analysis.

Sikos and Hoffmann (2004, 145 p.) claims that companies already present in a certain area should study and analyse the followings before further openings:

- 'determination of the target (future store type, size, product variety, design, services)
- analysis of economic conditions (employment characteristics, expected developmental processes)
- population, demographic analysis
- examination of environmental conditions (all the factors that can affect the business)
- competition assessment
- evaluation of competitors
- consumer habits

- the company's own market participation
- evaluate the performance of self business
- evaluation of self owned retail facilities and locations (1-9. points)
- determine non-covered areas
- monitoring of the competitors' site selection
- strategic business plan definition of site selection
- future assessment of the business state within the given area
- the project investment needs, earnings, return on investment
- written report on the basic data and the conclusions'

Those companies who plan to enter into a new market area should consider analysing points 1-7., 12 and 15. In case the of property acquisition, it is suggested to consider all 16 points, with major emphasis on the equipment of facilities as well as financial and management agreements.

It is important to clarify that the site selection and evaluation of research on store performance are two separate areas. In the first scenario, the task is to define the ideal location of the store, whereas in the second one the job is to evaluate the already operating stores performance, which is basically the extension of the site selection research.

Saturation of the trade market

Market saturation is an ideal and, thus, undesirable situation, which almost never exists and means different things for the various traders. This would be a condition in which (on a given area) just as many facilities operate in relation to how many consumers there are who can be properly served and the return is adequate for the investors or traders as well. However, in a certain area often too much or too little commercial units operate.

When there are not many stores in a given area, it means that the nearby commercial units are overcrowded and therefore the service level is inadequate, but on the other hand the investments pay back quickly. Investors and traders see good prospects and, of course, are looking for new opportunities to establish businesses. In a short time there will be too many commercial units, only this time consumers can effortlessly choose from the easy to access stores. In densely populated areas customers have the option to visit more units of a multi-store chain. These shops are spacious, comfortable to shop in, but traders and investors are likely dissatisfied with the return on investments. Every trader knows that when a commercial facility's capacity is in excess of the area, the performance starts to decrease. This is manifested in the decrease of sales per shop floor space and in increased costs. Due to the increase in operating costs the prices are increased (if this is possible because of the competition), otherwise the profit will be reduced.

As much as we try to be careful when selecting new sites, the market assessment is always affected by uncertainties, which most of the time are:

1. population change
2. changes in purchasing power
3. consumer expectations of service changes
4. changes in range

5. shopping behaviour change
6. climate change of the facilities
7. changes in investment opportunities.

These confounding factors may affect the business in the long-or short-term. The short-term problems are easier to handle with the closure of unprofitable stores, or as the population increases. The long term oversupply can only be handled by innovation. This may include, for example, the reduction of operating costs or more complex fulfilment of customer requirements. The reason during the 1930s crisis was the quantity of stores, excess of supply goods and long-term demand imbalance.

The long-term imbalance is not only a result of a major crisis, it may be caused by the prosperity, the economic recovery. In such cases, the solution can be the diversification of stores if they start to sell a wider range of goods. Such initiatives can always challenge the status quo and result in a new trade hierarchy. The unbalanced conditions usually last for a long time, although saturation, the perfect balance, only lasts for a moment. The constant aim of retail units' site selection is to maintain this perfect balance.

Case study
The research database is aggregated from Tesco's own records. It is a partial database, which contains 71 stores, small (app. 300 m² sales area) and large (app. 3 000 m² sales area) formats as well.

The stores in the database are aged from 1-7 years, including both profit and loss making units. The database contains information regarding both formats (size) with respect to the number of customers and sales information for a full year of operation. The year under review is a complete year of operation, which made it possible to except data representing the current situation.

Primary data:

x1 = net sales area (m²)
x2 = store age (years)
x3 = number of customers (number of transactions) (per capita/year)
x4 = sales (net sales) (HUF/year)
x5 = competitive agglomeration (m²)
x6 = number of people in the surrounding area (per capita)

The multiple linear regression models
The parameters of the multiple linear regression models were determined by using SPSS 19.00 software.

The models were run in both methods, in value and percentage of the dependent and independent variables:

1. ENTER: All independent variables are simultaneously included in the model, and their combined impact is analysed.
2. FORWARD: Begins by including the variable most highly correlated to the dependent variable in the model. Then including the next most correlated variable with F-test, allowing for the first explanatory variable in the model, and keep adding explanatory variables until no further variables are significant.

RESULT AND DISCUSSION

Customer number evolution coherence and difference by store size

Customer number evolution is a key factor in the store revenue and profitability. It was assumed that there are several factors involved and therefore I have analysed them. In the study I have separated the small and large formats.

Dependent variable: Customer Number (per capita/year) (x3) (*Table 2*).

Independent variables:

- Net sales area (m²) (x1)
- Store Age (years) (x2)
- Competitive agglomeration (m²) (x5)
- Catchment area population (per capita) (x6)

The empirical significance level of the ANOVA test shows that the prescribed linear regression relationship can be considered reliable. The model itself has sufficient explanatory power ($p < 0.05$). The above written four independent variables explain the customer number evolution. In case of the small format the explanatory power is 41.8% and in case of the large format the explanatory power is 71.7%.

After running the SPSS program ENTER version with regards to the small format only the competitive agglomeration (x5) had remained significant, while in case of the large stores the store age (x2) and net sales area (x1).

Small format:

$$y = 132\ 701 + 31 * x5 \tag{1}$$

Large format:

$$y = 3\ 207 * x1 + 67\ 054 * x2 - 9\ 043\ 051 \tag{2}$$

If the commercial units' net sales area in the catchment area would increase with 1 m². In case of the small formats this would indicate potentially 31 extra customers per year annualized on the store own customer number (all issued receipts). In relation to the large format stores it is important to highlight that the net sales area has a greater impact on the customer number than the age of the store. However, the importance of both independent variables remained significant. If the net sales area were increased with 1 m² in the large format stores, that would raise the number of customers presumably with 3 207 (number of transactions, number of issued receipts). Each additional year of operation is expected to increase the annual number of customers (number of transactions) with 67 054 in the case of hypermarkets.

The FORWARD version of the model indicated the following results (*Table 3*). Dependent variable same as previous version: Number of customers (per capita/year) (x3)

The combined explanatory power of the model is 40.4% in case of the small stores, whereas 71.2% for the large stores. In both formats two indicators were added to the calculation. Primarily, the competitive agglomeration (x5) was added into the model of the small format and, as a second step, the age of the store (x2). It should be noted that the database contained small format stores operating only a few years since their development had just started.

Table 2

Customer number evolution – ENTER version

Format and Model			Sum of Squares	df	Mean Square	F	Sig.
Small format	1	Regression	200972708977.597	4	50243177244.399	3.769	.018[a]
		Error	279912870056.288	21	13329184288.395		
		SUM	480885579033.885	25			
Large format	1	Regression	2957742492550.930	4	739435623137.733	25.325	.000[b]
		Error	1167903438696.310	40	29197585967.408		
		SUM	4125645931247.240	44			

Model Summary

Format and Model		R	R Square	Adjusted R Square	Std. Error of the Estimate
Small format	1	.646[a]	.418	.307	115452.08655
Large format	1	.847[b]	.717	.689	170873.01123

Coefficients[a]

Format and Model			Unstandardized Coefficients		Std. Coeff.	t	Sig.	Collinearity Statistics	
			B	Beta	Beta			Tol.	VIF
Small format	1	(Constant)	132700.827	162474.890		.817	.423		
		x1 - Net sales area (m²)	204.167	635.933	.059	.321	.751	.828	1.208
		x2 - Store Age (year)	44825.146	25014.046	.343	1.792	.088	.757	1.321
		x5 - Competitive agglomeration (m²)	30.810	11.872	.776	2.595	.017	.310	3.223
		x6 - Catchment area population (per capita)	-1.226	2.094	-.174	-.585	.565	.314	3.180
Large format	1	(Constant)	-9043051.170	1477516.063		-6.120	.000		
		x1 - Net sales area (m²)	3206.811	503.637	.599	6.367	.000	.800	1.250
		x2 - Store Age (year)	67054.148	14160.673	.430	4.735	.000	.858	1.166
		x5 - Competitive agglomeration (m²)	-.324	2.500	-.102	-.130	.898	.011	87.967
		x6 - Catchment area population (per capita)	.167	.768	.170	.217	.829	.011	86.963

a: Predictors SF/LF: (Constant), Predicted Value for X; ((Net sales area (m2) (x1), Store Age (years) (x2), Competitive agglomeration (m2) (x5), Catchment area population (per capita) (x6); b: Dependent Variable X; Customer Number (per capita/year) (x3).

The beta values of the model indicated that the competitive agglomeration (x5) weighs approximately twice as much as the age of the store (x2). The above suggests that in the case of the small format stores competition has a very important role. In the large format stores the independent variables did not have significant importance in the evolution of customer numbers.

Table 3

Customer number – FORWARD version

Format and Model		R	R Square	Adjusted R Square	Std. Error of the Estimate
Small format	1	.523[a]	.274	.244	120619.94125
	2	.635[b]	.404	.352	111663.50028
Large format	1	.735[c]	.541	.530	209879.92135
	2	.844[d]	.712	.699	168053.47515

Coefficients[a]

Format and Model			Unstandardized Coefficients		Std. Coeff.	t	Sig.	Collinearity Statistics	
			B	Std. Error	Beta			Tol.	VIF
Small format	1	(Constant)	297464.542	39973.777		7.441	.000		
		x5 – Competitive agglomeration (m²)	20.786	6.909	.523	3.009	.006	1.000	1.000
	2	(Constant)	163235.284	70496.175		2.316	.030		
		x5 - Competitive agglomeration (m²)	25.663	6.757	.646	3.798	.001	.896	1.116
		x2 – Store age (year)	49742.613	22235.688	.381	2.237	.035	.896	1.116
Large format	1	(Constant)	-10946273.872	1641640.187		-6.668	.000		
		x1- Net sales area (m²)	3938.886	553.407	.735	7.118	.000	1.000	1.000
	2	(Constant)	-9367073.170	1351793.951		-6.929	.000		
		x2 – Store age (year)	67037.680	13389.343	.430	5.007	.000	.928	1.078
		x1- Net sales area (m²)	3320.206	460.026	.620	7.217	.000	.928	1.078

a: Predictors SF: (Constant), Predicted Value for X; Competitive agglomeration (m²) (x5); b: Predictors SF: (Constant), Predicted Value for X; Competitive agglomeration (m²) (x5), Store Age (years) (x2); c: Predictors LF: (Constant), Predicted Value for X; ((Net sales area (m²) (x1); d: Predictors LF: (Constant), Predicted Value for X; ((Net sales area (m²) (x1), Store Age (years) (x2).

Presumably the reason is because with the hypermarkets market – especially in the countryside – there is less competition (fewer hypermarkets are present) than in case of the small formats. Next to the net sales area (x1) the age of the store (x2) was added to the model in case of the large stores. It had less effect on the dependent variable than the net sales area. This suggests that the targeted customers are purposely going to the shops with large floor space, while when choosing between small stores the store size is irrelevant.

Small format:

$$y = 163.235 + 26 * x5 + 49.743 * x2 \tag{3}$$

Large format:

$$y = 3.320 * x1 + 67.038 * x2 - 9.367.073 \tag{4}$$

Table 4 compares the results of the above models.

Table 4

Small and large store comparison – Number of customers (transaction/year)

Dependent variable (x3) - Number of customers (transaction/year)			
Independent variables: x1, x2, x5, x6			
SPSS - ENTER (variables at the same time)			
Small Format - significant		Large format - significant	
x5 Competitive agglomeration		x1 Net sales are	
		x2 Store age	
CHANGE effect			
plus 1 m² commercial area in the catchment area = + 31 person (receipt)	x5 competitive agglomeration		
	x1 Net sales area	plus 1 m² sales are = + 3.207 transaction (receipt)	
	x2 Store age	plus 1 year operation = + 67.054 customers (transaction/basket)	
SPSS - FORWARD (variables step-by-step)			
Small Format		Large Format	
1. x5 competitive agglomeration		1. x2 Store age	
2. x2 Store age		2. x1 Net sales area	

Coherence and difference of net sales by format size

With respect to store revenue and profitability, not only is the customer number decisive, but also the net sales development. It was assumed that several factors are involved and so I analysed it - keeping the different formats separate.

Dependent variable: Net revenue (net sales revenue) (HUF/year) (x4) (*Table 5*)

Independent variables:

- Store age (year) (x2)
- Customer number (per capita/year) (x3)
- Competitive agglomeration (m²) (x5)
- Catchment area population (per capita) (x6)

From the significance level it is presumed that the prescribed linear regression relationship can be considered reliable. The above written four independent variables explain the sales evolution. In case of the small format the explanatory power is 76.2% and in case of the large format the explanatory power is 77.1%.

The SPSS program ENTER version resulted that all four independent variables remained significant for small formats, and for large format only the customer number (x3).

Small format:

$$y = 70\ 349\ 274 + 719 * x3 + 2\ 473 * x6 - 16\ 719 * x5 + 38\ 665\ 441 * x2 \quad (5)$$

Large format:

$$y = 970\ 629\ 578 + 1\ 525 * x3 \quad (6)$$

Table 5

Net sales evolution – ENTER version

Format		Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
Small format		1	.873[a]	.762	.717	65577590.10259
Large format		1	.878[b]	.771	.748	305765450.28214

ANOVA[c]

Format and Model			Sum of Squares	df	Mean Square	F	Sig.
Small format	1	Regression	$2{,}89740 * 10^{17}$	4	$7.24349 * 10^{16}$	16.844	.000[a]
		Residual	$9.03088 * 10^{16}$	21	$4.30042 * 10^{15}$		
		Total	$3.80048 * 10^{17}$	25			
Large format	1	Regression	$1.25634 * 10^{19}$	4	$3.14086 * 10^{18}$	33.595	.000[b]
		Residual	$3.73970 * 10^{18}$	40	$9.34925 * 10^{16}$		
		Total	$1.63031 * 10^{19}$	44			

Coefficients[a]

Format and Model			Unstandardized Coefficients		Std. Coeff.	t	Sig.	Collinearity Statistics	
			B	Beta	Beta			Tol.	VIF
Small format	1	(Constant)	70349273.688	48874693.601		1.439	.165		
		x3 – Number of customers (per capita/year)	718.934	123.646	.809	5.814	.000	.585	1.710
		x6 - Number of people in the surrounding area (per capita)	2472.718	1187.024	.394	2.083	.050	.316	3.166
		x5 – Competitive agglomeration (m²)	-16718.792	7663.679	-.473	-2.182	.041	.240	4.163
		x2 – Store age (year)	38665440.540	14434095.292	.333	2.679	.014	.733	1.364
Large format	1	(Constant)	970629578.314	124948835.290		7.768	.000		
		x3 - Number of customers (per capita/year)	1525.431	199.390	.767	7.651	.000	.570	1.754
		x6 - Number of people in the surrounding area (per capita)	110.583	1364.279	.057	.081	.936	.012	85.592
		x5 - Competitive agglomeration (m²)	-356.120	4426.479	-.057	-.080	.936	.012	86.109
		x2 - Store age (year)	51686140.878	30626407.511	.167	1.688	.099	.587	1.703

a: Predictors: (Constant), Predicted Value for X; Store age (year) (x2), Customer number (per capita/year) (x3), Competitive agglomeration (m2) (x5), Catchment area population (per capita) (x6); b: Dependent Variable X; Net revenue (net sales revenue) (HUF/year) (x4)

According to the Beta values the net sales revenue is impacted the most by the customer number (x3) in both formats. The small format stores net sales revenue is affected half as much by the number of people living in the catchment area (x6), the age of the store (x2), the competitive agglomeration (the later had a negative impact

on the dependent variable) than the number of customers (issued transaction receipts). One more customer (one more basket) per year would additionally increase the net sales revenue of the small stores by HUF 719. In the case of the large stores the net sales revenue would increase with HUF 1 525. In the case of small format stores an extra operating year could generate HUF 38.665.441 net sales revenue per year. With respect to the small stores, if the number of residents would increase by 1 in the catchment area, that would result in an additional HUF 2 473 net sales revenue. However, if the commercial catchment area increased by 1 m², that would result in HUF 16.719 annualized net sales revenue loss.

The followings were identified in the FORWARD version of the model (*Table 6*).

Small format:

$$y = 170.968.344 + 612 * x3 + 45.528.690 * x2 \tag{7}$$

Large format:

$$y = 1.024.297.234 + 1.724 * x3 \tag{8}$$

Table 6

Net sales revenue – FORWARD version

Model Summary							
Format		**Model**	**R**	**R Square**	**Adjusted R Square**	**Std. Error of the Estimate**	
Small format		1	.753a	.567	.549	82785668.23469	
		2	.839b	.703	.678	70008916.63757	
Large Format		1	.867a	.752	.746	306480347.24755	
Coefficientsc							
Format and Model			**Unstandardized Coefficients**		**Std. Coeff.**	**t**	**Sig.**	**Collinearity Statistics**	
			B	**Beta**	**Beta**			**Tol.**	**VIF**
Small format	1	(Constant)	170968347.286	49806029.690		3.433	.002		
		x3 – Number of customers (per capita/year)	669.527	119.381	.753	5.608	.000	1.000	1.000
	2	(Constant)	96019355.154	48020838.160		2.000	.057		
		x3 – Number of customers (per capita/year)	612.208	102.485	.689	5.974	.000	.970	1.031
		x2 - Store age (year)	43528690.833	13395376.982	.375	3.250	.004	.970	1.031
Large format	1	(Constant)	1024297233.814	120087036.361		8.530	.000		
		x3 – Number of customers (per capita/year)	1724.141	150.889	.867	11.427	.000	1.000	1.000

a: Predictors SF: (Constant), Customer number (per capita/year) (x3); b: Predictors SF: (Constant), Customer number (per capita/year) (x3), Store age (year) (x2), a: Predictors LF: (Constant), Customer number (per capita/year) (x3).

The model combined explanatory power is 70.3% of the small format, compared to 75.2% for large format.

In the case of the small format, the number of customers (x3) was put first into the model and then, second, the age of the store (x2). The number of customer variables is more articulate than the age of the store. Only the customer number (x3) had significant importance in the evolution of net sales in case of the large format.

The summary of results can be reviewed in *Table 7*.

Table 7

Small and large format comparison – Net sales revenue (HUF/year)

Dependent variable (x4) – Net sales (HUF/year)		
Independent variables: x2, x3, x5, x6		
SPSS - ENTER (variables at the same time)		
SMALL FORMAT – significant		**Large format - significant**
x3 Customer number (per capita/year)		x3 Customer number (per capita/year)
x6 Catchment area population (per capita)		
x5 Competitive agglomeration		
x2 Store age		
CHANGE effect		
Plus 1 customer (transaction) = + 719 HUF/year	x3 Customer number (per capita/year)	plus 1 customer (transaction) = + 1 525 HUF/year
Plus 1 customer = + 2.473 HUF/year	x6 Catchment area population (per capita)	
Plus 1 m² commercial area in the catchment area = - 16.719 HUF	x5 Competitive agglomeration	
Plus 1 year operation = + 38 665 441 HUF	x2 Store age	
SPSS - FORWARD (variables step-by-step)		
SMALL FORMAT		**LARGE FORMAT**
x3 Customer number (per capita/year)		x3 Customer number (per capita/year)
x2 Store age		

CONCLUSIONS

I have analysed the various factors having impact on the number of customers and net sales revenue with regards to the retail units of Tesco. Database figures were collected from the company's own management information system. I have proven – considering the impact of the same independent variables on the dependent variables – that there are differences between the two store formats, and that the

weight ratio of the independent variables' impact on the dependent variable is different (based on the regression parameters).

Whereas the customer number is significantly affected only by the store's catchment competition in the small formats, the large format stores are impacted by the size of the net sales area and the age of the store.

Review of net sales figures – when the independent variables are added step-by-step into the model – indicated that the four independent variables explain in 77,1% the coming changes in the net sales in case of the small format and in 76,2% in the case of the large format. In both cases the most significant independent variable is the customer number. The small format stores' performance is also impacted by the age of the store, whereas the large format is only affected by the number of customers.

The presented results of the introduced modelling show that it is worthwhile and important to weight the different variables distinctively when choosing the adequate size and location of the future commercial unit.

REFERENCES

Földi K. (2008a): Different store selection in daily and weekly/monthly shopping in food retailing. (In Hung.) XII. Magyar és Világ tudomány napja Konferencia Budapest. 16. p. [Online] <URL: http://elib.kkf.hu/okt_publ/szf_26_08.pdf> [08.09.2010]

Földi K. (2008b): Relevance of factors affecting store selection on horizontal competition among food retailers. (In Hung.) Szolnoki Tudományos Közlemények 13. Szolnok. 13 p. [Online] <URL: http://www.szolnok.mtesz.hu/ sztk/ kulonszamok/2008/cikkek/foldi-katalin.pdf >[08.09.2010]

G. Tóth I. (2011): Store chains' competition awaiting for Customer. (In Hung.) In.: HVG 33. 35. 57-58. p.

GfK – Világgazdaság Online (2010): Discounters outperform the hypermarkets. (In Hung.) [Online] <URL: http://www.vg.hu/vallalatok/kereskedelem/a-diszkontok-lekorozik-a-hipermarketeket-326922> [08.09. 2010]

Gray G. (2011): "The VAT-increase is a slap on the customers' face" – interview with the leader of the Hungarian Tesco. (In Hung.) [Online] <URL: http://vallalkozoi.negyed.hu/vnegyed/20111223-gerry-gray-a-magyarorszagi-tesco-vezerigazgatoja-interju.html> [28.11.2011]

Hoover E.M., Giarratani F. (1999): Individual Location Decisions. In: An Introduction to Regional Economics. West Virginia University. Regional Research Institute. [Online] <URL: http://www.rri.wvu.edu/WebBook/ Giarratani/chaptertwo.htm> [28.11.2011]

index.hu (2011): Plaza stop is coming next year. [Online] <URL: http://index.hu/gazdasag/2011/ingatlan/plazastop_jon_jovore/> [10.11.2011]

Káposzta J. (Ed.) (2007): Regional Economics. (In Hung.) Debrecen. Debreceni Egyetem Agrár- és Műszaki Tudományok Centruma Agrárgazdasági és Vidékfejlesztési Kar. 268 p.

Karhusz P. (2003): The theoretical framework of site selecion. (In Hung.) 12 p. [Online] <URL: http://www.bgf.hu/pszk/szervezetiegysegeink/oktatasiszervezetiegysegek/kozgazdinttanszo/tantargyak/regionalisgazdasagtan> [08.09.2010]

Lehota J. (2001): Food marketing. (In Hung.) Budapest. Műszaki Könyvkiadó. 327 p.

Porter M.E. (1996): Competitive Advantage, Agglomeration Economies, and Regional Policy. In: International Regional Science Review. 19. 1-2. 85-94 p.

Radnóti É. (1993): Commercial competition and the optimal choice of business premises. (In Hung.) In: Kereskedelmi Szemle. 34. 6. 15-18 p.

Sikos T. (2009): GIS – Site selection. (In Hung.) lecture notes 26 p. [Online] <URL: http://www.mrtt.hu/konferenciak/terinformatika/sikos.pdf> [10.12.2011]

Sikos T., Hoffmann I. (2004): The new cathedrals of consumption. (In Hung.) Budapest. MTA Társadalomkutató Központ. 380 p.

Törőcsik M. (1998): Trade Marketing. (In Hung.) Budapest. KJK-KERSZÖV Jogi és Üzleti Kiadó. 262 p.

Trade Magazin (2011b): Plaza stop: the construction permit can be in the pocket of the store chains. (In Hung.) [Online] <URL: http://www.trademagazin.hu/piaci-hirek/plazastop-az-aruhazlancok-zsebeben-mar-ott-lehet-az-epitesi-engedely.html> [22.11.2011]

Corresponding author:

Adrienn KURUCZ
H-1135 Budapest, Szent László utca 28-30. D ép. III. 26.,
Tel: + 36 30 235 20 61
e-mail: adriennkurucz@hotmail.com