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Country's Development as a Determinant of Early-Stage Entrepreneurial Activity

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Our study is built on the dependence of early-stage entrepreneurial activity on GDP per capita, GDP real growth rate, unemployment rate, inflation rate, investments and public debt of different countries. We divide the early-stage entrepreneurial activity into necessity-driven and improvement-driven opportunistic entrepreneurial activity. To establish the dependencies we have conducted the regression analyses. Our three main findings are: (a) early-stage entrepreneurial activity does depend on our predictors; (b) necessity-driven entrepreneurial activity is negatively correlated to country's development; and (c) improvement-driven opportunistic entrepreneurial activity is positively correlated to country's development.

Keywords: entrepreneurship, early-stage entrepreneurial activity, economic development indicators

1 Introduction

Country's development has been a key aim of every country and therefore an interesting topic for researchers in the field of entrepreneurship and macroeconomics for quite some time. Entrepreneurial activity is an important part of country's development. We also believe that country's development, in turn, has effect on the development of early-stage entrepreneurial activity of its residents. In our research we distinguish between the necessity-driven early-stage entrepreneurial activity and improvement-driven opportunistic early-stage entrepreneurial activity. We have used six indicators of economic development for the selected countries: the GDP *per capita*, the GDP real growth rate, the unemployment rate, the inflation rate, investments and public debt. We tested our hypotheses if and to what extend necessity-driven entrepreneurial activity and improvement-driven opportunistic entrepreneurial activity is effected by those six predictors.

Based on our results we have concluded that the early-stage entrepreneurial activity does depend on our predictors. Results of our research also indicate that GDP *per capita* and the unemployment rate have the highest and not always positive correlations. We suggest at the end that entrepreneurial activity plays an important role especially in the long term and not as much in the short term.

The structure of the contribution is based on six parts where the introduction is followed by the theoretical background on country's development and entrepreneurship. This is followed by description of the methodology used for the contribution and discussion of the results of our study with conclusions.

2 Entrepreneurship and country's economic development

The importance of entrepreneurship has been recognized by economics since the beginning of the 18th century, at the microeconomic as well as at the macroeconomic levels (Minniti, Lévesque, 2008). Since then it has been increasingly gaining respect from the research com-

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munity as a field of scholarly study as well as a practical application worldwide (Ma and Tan, 2006). Both the causes and consequences of entrepreneurship are a matter of extensive scientific debate as well as of great policy importance (Verheul *et al.*, 2001). Governments increasingly consider entrepreneurship and innovation as the cornerstones of a competitive national economy (OECD report, 2008). Entrepreneurship is becoming one of the explicit parts of the economy in EU (European Commission, 2009) as well as in the other world countries (Bednarzik, 2000; Venkataraman, 2004).

Entrepreneurship is a complex phenomenon that spans a variety of contexts. A variety of definitions of entrepreneurship exists in the literature which reflect this complexity (Bosma *et al.*, 2009) and no single definition has been generally agreed upon. However, entrepreneurship is usually defined as an "economic system" that consists of three components: (1) entrepreneurs, who desire to achieve their goals of economic survival and advancement; (2) the social constitution, that the entrepreneur's right of free enterprise is granted; and (3) the government, that has the ability to adjust the economic institutions that can work to protect each individual entrepreneur and to stimulate entrepreneurs' motive to achieve toward fostering of economic development and growth (Lowrey, 2003). Ma and Tan (2006) stress the four major components of entrepreneurship in their 4-P framework of entrepreneurship: "Pioneer", denoting the entrepreneur as an innovator or champion for innovation; "Perspective", denoting the entrepreneurial mindset; "Practice", denoting the entrepreneurial activities; and "Performance", denoting the outcome or result of entrepreneurial actions and activities. The OECD-Eurostat approach has combined the conceptual definitions of entrepreneurship with (available) empirical indicators and established following definitions (OECD report, 2008):

- *Entrepreneurs* are those persons (business owners) who seek to generate value through the creation or expansion of economic activity, by identifying and exploiting new products, processes or markets.
- *Entrepreneurial activity* is enterprising human action in pursuit of the generation of value through the creation or expansion of economic activity, by identifying and exploiting new products, processes or markets.
- *Entrepreneurship* is the phenomenon associated with entrepreneurial activity.

Early-stage entrepreneurial activity is defined (Hessels *et al.*, 2007) as the entrepreneurial activity of the adult population (18-64 years old) that is either actively involved in starting a new venture (nascent entrepreneur) or the owner/manager of a business that is less than 42 months old (young business entrepreneur).

As noted by Hessels *et al.* (2007), at the micro level people may have different motives for becoming self-employed. Some people mainly start a new business to exploit a perceived business opportunity. These people usually elect to start a business as one of several possible career options. This is for example the case when people choose to become an entrepreneur because they want to be their own boss, to realize a dream or to try and earn more money than in wage employment. This is commonly referred to as *opportunity-based entrepreneurship*. Other people are pushed into entrepreneurship because all other options for work are either absent or unsatisfactory. Entrepreneurship then is the last resort to work and income. This is for example the case if someone is unemployed and is not able to find a paid job. Since this type of entrepreneurship is necessity driven it is commonly referred to as *necessity-based entrepreneurship*. However, necessity-based entrepreneurship does not mean Dejardin's (2000) rent-seeking behaviour with negative social consequences (corruption, stealing, bribery etc.). There is a clear variation in the distribution of opportunity and necessity entrepreneurship across countries. As a country's level of *per capita* income rises, its percentage of opportunity entrepreneurship also goes up (Acs *et al.*, 2004).

Global Entrepreneurship Monitor (GEM) has demonstrated that entrepreneurial activity is associated with national economic growth (Bosma *et al.*, 2009). Witt (2000) claims that entrepreneurial venture is the backbone of persistent restructuring of modern economies. Chepurenko, Gabelko and Obraztsova (2011) claim that entrepreneurship is understood since Schumpeter as the driving motor of economic progress of nations. It is widely recognized that the supply of entrepreneurship is important for economic growth, innovation and job creation (Audretsch and Keilbach, 2007, Henrekson, 2005, Lee *et al.*, 2013; Verheul *et al.*, 2001, Wong *et al.*, 2005). Cowling and Bygrave (2002) argue that small businesses make an important contribution to the success of a country's economy, because they are creators of jobs, they innovate, and they spot and exploit new opportunities. Further, Rasmussen and Sørheim (2006) claim that entrepreneurship, through the creation of new endeavour, is a major engine of economic growth. Similar, Thurik (2003) argues that there is both conceptual and empirical evidence that entrepreneurship fosters growth. Audretsch and Keilbach (2007) claim that entrepreneurship capital has a three-fold impact on economic growth: it facilitates knowledge spillovers, injects new competition in the input market for ideas, and enhances regional diversity, all of which are hypothesized to contribute to economic growth. Mueller (2006) also found out in his research that regions with a higher level of entrepreneurship experience greater economic performance. In particular, new firm formation in innovative industries is an important mechanism to commercialize knowledge, which is important for economic growth.

Many authors also claim that entrepreneurship reduces unemployment. Faria, Cuestas and Gil-Alana (2009) argue that when unemployment is high, more people create new businesses and successful new firm startups create new job which leads in reducing unemployment. Moreover, unemployment rate can stimulate

start-up activity of self-employment on the one hand, and on the other hand a higher rate of self-employment may indicate increased entrepreneurial activity reducing unemployment in subsequent period of time. These two effects have resulted in considerable ambiguities about the interrelationship between unemployment and entrepreneurial activity (Thurik *et al.*, 2008). The response to unemployment or lack of outside alternatives in the labour market can be the individual's decision to start a new business (Cowling and Bygrave, 2002). Van der Sluis *et al.* (2005) claim that entrepreneurs generate a substantial part of national income and employment in most countries. Small enterprises form a large, flexible buffer between salaries employment and incorporated business. Entrepreneurship may also generate benefit for society through the development and maintenance of human and social capital that occur when entrepreneurial activity takes place.

Yu (1998) argues that the economic success is largely attributable to the dynamics of adaptive entrepreneurs who are alert to opportunities and exploit them, maintain a high degree of flexibility in their production and respond rapidly to change. He highlighted the important role of adaptive entrepreneurship for a country and the importance of the entrepreneurial approach to economic problems. He also argues that any policy recommendation on economic development should be based on analysis that incorporates entrepreneurship, the engine of economic growth. There are some important issues as policy implications and the entrepreneurial platform in order to accelerate entrepreneurship in each country. For example, a country with a high tax burden and a strong welfare state is likely to be a country with a weak entrepreneurial culture (Henrekson, 2005).

Adelman and Yeldan (2000) argue that the economic development of a country has to combine five elements: self-sustaining growth, structural change in patterns of production, technological upgrading, social, political and institutional modernization and widespread improvement in the human condition. Even though this aspect of economic development has seen a lot of conflicting views in the past, the real GDP *per capita* (corrected for inflation) is generally used as the core indicator in judging the position of the economy of a country over time or relative to that of other countries (Van den Bergh, 2009).

As evident above, entrepreneurship seems to be positively affecting economic growth. Specifically, Acs and Varga (2005) discovered that necessity entrepreneurship has no effect on economic development while opportunity entrepreneurship has a positive and significant effect. The causal relationship is, however, according to Bosma and Schutjens (2007) still a complex one since the reversed relationship is also well-documented: well-developing regions or nations attract more entrepreneurs (Reynolds *et al.*, 1994). Economic growth can either have a positive (Storey, 1999; Carree *et al.*, 2002) or a negative (Kuznetz, 1966; Schultz, 1990; Bregger, 1996; Carree *et al.*, 2002) impact on the level of entrepreneurship, depending on the stage of economic development and on the intermediate factors through which economic growth exerts influence on entrepreneurship (Verheul *et al.*, 2001).

3 Methodology

3.1 Hypotheses

We are going to test the following three hypotheses which are based on the literature review above:

H1: Where there is a high country's development, there will be a higher early-stage entrepreneurial activity.

H2: Where there is a high country's development, there will be a lower necessity-driven entrepreneurial activity.

H3: Where there is a high country's development, there will be a higher improvement-driven opportunistic entrepreneurial activity.

3.2 Variables

The variables used in our research are the following:

A *"GDP p.c. (PPP in $)"* is the GDP on a purchasing power parity basis divided by population as of 1 July for the same year (CIA - The World Factbook).

B *"GDP real growth rate"* gives us GDP growth on an annual basis adjusted for inflation and expressed as a percent (CIA - The World Factbook).

C *"Unemployment rate"* is the percent of the labour force that is without jobs. Unemployment and unemployment rate were already defined in the theoretical platform (CIA - The World Factbook).

D *"Inflation rate (consumer prices)"* furnishes the annual percent change in consumer prices compared with the previous year's consumer prices (CIA - The World Factbook).

E *"Investment (gross fixed)"* records total business spending on fixed assets, such as factories, machinery, equipment, dwellings, and inventories of raw materials, which provide the basis for future production. It is measured gross of the depreciation of the assets, i.e., it includes investment that merely replaces worn-out or scrapped capital (CIA - The World Factbook). It is expressed as a percentage of the GDP of a certain country.

F *"Public debt"* records the cumulative total of all government borrowings less repayments that are denominated in a country's home currency. Public debt should not be confused with external debt, which reflects the foreign currency liabilities of both the private and public sector and must be financed out of foreign exchange earnings (CIA - The World Factbook). It is expressed as a percentage of the GDP of a certain country.

G *"Early-stage entrepreneurial activity"* is the percentage of 18-64 population who are either a nas-

cent entrepreneur (actively involved in setting up a business they will own or co-own; this business has not paid salaries, wages, or any other payments to the owners for more than three months) or owner-manager of a new business (owning and managing a running business that has paid salaries, wages, or any other payments to the owners for more than three months, but not more than 42 months) (Bosma and Levie, 2010).

H *"Necessity-driven entrepreneurial activity (relative prevalence)"* is the percentage of those involved in early-stage entrepreneurial activity (as defined above) who are involved in entrepreneurship because they had no other option for work (Bosma and Levie, 2010).

I *"Improvement-driven opportunistic entrepreneurial activity (relative prevalence)"* is the percentage of those involved in early-stage entrepreneurial activity (as defined above) who (i) claim to be driven by opportunity as opposed to finding no other option for work; and (ii) who indicate the main driver for being involved in this opportunity is being independent or increasing their income, rather than just maintaining their income (Bosma and Levie, 2010).

3.3 Data Collection

Countries in this research are from the GEM yearly report in which they explain and measure different aspects and levels of entrepreneurship for various selected countries. Based on the selected development indicators, we have selected 52 out of 54 countries from the report to conduct our study (n=52). All of the data are for the year 2009. Table 1 presents the countries' development indicators that we have selected for this study. We can see that the GDPs *per capita* (PPP in $) were between $2,500 and $59,300 (average $20,425), the GDP real growth rates were between -17.8% and 8.7% (average -1.944%),the unemployment rates in these countries were between 2.4% and 40.0% (average 10.877%), the inflation rates (consumer prices) were between -1.3% and 27.3% (average 3.723%), the investments (gross fixed) were between 12.5% and 42.6% (average 22.022%) and that the public debt was between 6.9% and 192.1% (average 53.738%).

Table 1: GDP per capita PPP, GDP real growth rates, unemployment rates, inflation rates, investments and public debt by country for the year 2009 (n=52)

Country	GDP p.c. (PPP in $)	GDP real growth rate	Unemployment rate	Inflation rate (consumer prices)	Investment (gross fixed) (% of GDP)	Public debt (% of GDP)
Algeria	7,100	3.4	12.4	4.1	26.8	10.7
Argentina	13,800	-2.5	9.6	7.7	21.0	49.1
Belgium	36,600	-3.4	8.3	.0	24.2	99.0
Bosnia and Herzegovina	6,300	-2.9	40	.6	n.a.	43.0
Brazil	10,200	.1	7.4	4.2	17.0	46.8
Chile	14,700	-1.5	10	1.7	20.5	9.0
China	6,500	8.7	4.3	-.8	42.6	18.2
Colombia	9,200	-.1	12	3.0	23.2	46.1
Croatia	17,600	-5.2	16.1	2.4	22.8	61.0
Denmark	36,200	-4.3	4.3	1.3	20.0	38.5
Dominican Republic	8,200	-.3	15.1	1.4	16.6	41.5
Ecuador	7,300	-2.0	9.8	4.3	27.5	20.2
Finland	34,900	-7.6	8.5	.0	19.0	41.4
France	32,800	-2.1	9.7	.1	20.8	79.7
Germany	34,200	-5.0	8.2	.0	18.9	77.2
Greece	32,100	-2.5	8.9	1.0	15.6	108.1
Guatemala	5,200	-.5	3.2	2.2	16.9	32.7
Hong Kong	42,700	-3.1	5.9	-.3	17.6	18.1

Country	GDP p.c. (PPP in $)	GDP real growth rate	Unemployment rate	Inflation rate (consumer prices)	Investment (gross fixed) (% of GDP)	Public debt (% of GDP)
Hungary	18,800	-6.4	11	2.0	19.0	78.0
Iceland	39,800	-6.3	8.2	12.0	18.6	95.1
Iran	12,900	2.6	11.8	16.8	27.7	19.4
Israel	28,400	-.3	8	3.9	16.0	78.0
Italy	30,200	-5.0	7.5	.6	19.2	115.2
Jamaica	8,300	-4.0	14.5	8.6	22.2	131.7
Japan	32,600	-5.7	5.6	-1.3	20.2	192.1
Jordan	5,300	3.1	13.5	1.7	31.2	69.9
Latvia	14,500	-17.8	16.6	3.3	26.2	32.5
Lebanon	11,500	7.0	9.2	3.4	21.5	156.0
Malaysia	14,700	-2.8	5	.4	18.2	47.8
Netherlands	39,000	-4.3	5	1.2	19.4	62.2
Norway	59,300	-1.1	3.2	2.3	20.5	60.2
Panama	11,900	2.4	7.1	2.3	26.7	49.5
Peru	8,600	1.0	9	1.2	20.8	26.1
Republic of Korea	27,700	-.8	4.1	2.8	28.2	28.0
Kingdom of Tonga	4,600	-.5	13	5.9		
Romania	11,500	-6.9	7.6	5.0	25.5	20.0
Russia	15,200	-7.9	8.9	11.9	20.0	6.9
Saudi Arabia	20,300	-.6	11.6	5.0	24.2	20.3
Serbia	10,400	-4.6	18.8	6.6	33.1	31.3
Slovenia	28,200	-6.2	9.4	.8	23.7	31.4
South Africa	10,000	-1.9	24	7.2	20.6	35.7
Spain	33,700	-3.6	18.1	-.8	26.6	50.0
Switzerland	41,600	-1.8	3.7	-.6	21.1	43.5
Syria	4,700	2.2	9.2	3.8	21.7	32.3
Tunisia	8,000	.7	15.7	3.7	25.9	47.2
United Arab Emirates	41,800	-4.0	2.4	1.5	28.9	47.2
United Kingdom	35,400	-4.3	8	2.1	15.0	68.5
United States	46,400	-2.4	9.4	-.7	12.5	52.9
Uruguay	12,600	.6	7.9	7.3	15.5	58.7
Venezuela	13,200	-1.5	10.9	27.3	18.3	19.4
West Bank and Gaza Strip	2,900	7.0	19	9.9	n.a.	n.a.
Yemen	2,500	3.8	35	3.6	19.9	39.6

Sources: CIA - The World Factbook

Table 2 presents us the entrepreneurial activity in the selected countries. We can see from it that the early-stage entrepreneurial activity was between 3.3 and 26.84 (average 10.308), the necessity-driven entrepreneurial activity was between 7 and 48 (average 25.71) and that the improvement-driven opportunistic entrepreneurial activity was between 16 and 79 (average 47.25) for the selected countries.

Table 2: Early-stage entrepreneurial activity and its division to necessity-driven and improvement-driven entrepreneurial activity by country for the year 2009 (n=52)

Country	Early-stage entrepreneurial activity	Necessity-driven entrepreneurial activity	Improvement-driven opportunistic entrepreneurial activity
Algeria	16.7	47	37
Argentina	14.7	9	55
Belgium	3.5	39	20
Bosnia and Herzegovina	4.4	39	48
Brazil	15.3	25	42
Chile	14.9	48	29
China	18.8	34	45
Colombia	22.4	37	39
Croatia	5.6	7	56
Denmark	3.6	34	26
Dominican Republic	17.5	32	43
Ecuador	15.8	19	62
Finland	5.2	14	67
France	4.3	31	43
Germany	4.1	26	47
Greece	8.8	23	30
Guatemala	26.8	19	49
Hong Kong	3.6	24	45
Hungary	9.1	10	58
Iceland	11.4	35	35
Iran	12	25	48
Israel	6.1	14	57
Italy	3.7	33	45
Jamaica	22.7	30	62
Japan	3.3	28	35
Jordan	10.2	32	54
Latvia	10.5	18	60
Lebanon	15	25	44
Malaysia	4.4	10	57
Netherlands	7.2	9	74

Country	Early-stage entrepreneurial activity	Necessity-driven entrepreneurial activity	Improvement-driven opportunistic entrepreneurial activity
Norway	8.5	24	59
Panama	9.6	28	42
Peru	20.9	45	37
Republic of Korea	7	33	39
Republic of Tonga	17.4	34	31
Romania	5	29	37
Russia	3.9	12	63
Saudi Arabia	4.7	41	46
Serbia	4.9	10	69
Slovenia	5.4	33	38
South Africa	5.9	16	41
Spain	5.1	7	67
Switzerland	7.7	37	43
Syria	8.5	20	57
Tunisia	9.4	9	79
United Arab Emirates	13.3	16	43
United Kingdom	5.7	23	55
United States	8	22	57
Uruguay	12.2	32	42
Venezuela	18.7	37	33
West Bank and Gaza Strip	8.6	35	16
Yemen	24	47	37

Source: Global Entrepreneurship Monitor, Global Report 2009 (Bosma and Levie, 2010)

4 Results and discussion

4.1 Results

We begin by constructing the frequency tables (Table 3) and the correlation matrix (Table 4) for the variables that we have used in our research.

In the following three tables we will use multiple regressions to analyse the relationships between a set of independent variables representing "Country's development" and each of the dependent variables. The regression analysis for the dependent variable "early-stage entrepreneurial activity" is portrayed in Table 5, for "necessity-driven entrepreneurial activity" in Table 6 and for "improvement-driven opportunistic entrepreneurial activity" in Table 7.

With the predictors that we have used to describe "Country's development" 32.7% variance of "Early-stage entrepreneurial activity" is explained. "GDP *p.c.* (PPP in $)" (β=-0.470) has the most influence. The second most influential predictor is "GDP real growth rate" (β=0.303) which has a positive effect and is also statistically significant.

With the predictors that we have used to describe "Country's development" 34.7% variance of "Necessity-driven entrepreneurial activity" is explained. "GDP *p.c.* (PPP in $)" (β=-0.603) has the most influence and is also the only statistically significant predictor.

With the predictors that we have used to describe "Country's development" 39.2% variance of "Improvement-driven opportunistic entrepreneurial activity" is explained. "GDP *p.c.* (PPP in $)" (β=0.505)

Table 3: Frequency tables for the variables (n=52)

		A	B	C	D	E	F	G	H	I
n	**Valid**	52	52	52	52	49	50	52	52	52
	Missing	0	0	0	0	3	2	0	0	0
Mean		20,425.000	-1.944	10.877	3.723	22.022	53.738	10.308	25.71	47.25
Median		14,600.000	-2.050	9.200	2.300	20.800	46.450	8.550	25.50	45.00
Std. Deviation		14,192.761	4.3049	7.0516	4.9631	5.3504	37.500	6.2615	11.046	13.316
Minimum		2,500.000	-17.8	2.4	-1.3	12.5	6.9	3.3	7	16
Maximum		59,300.000	8.7	40.0	27.3	42.6	192.1	26.8	48	79

Table 4: Pearson r Correlation Coefficients (n=52)

	A	B	C	D	E	F	G	H
B	-.393**							
C	-.466**	.061						
D	-.320*	.078	.125					
E	-.311*	.239	.084	-.023				
F	.269	-.061	-.103	-.205	-.256			
G	-.527**	.415**	.082	.261	.078	-.137		
H	-.663**	.208	.369**	.260	.285*	-.198	.308*	
I	.648**	-.256	-.536**	-.203	-.096	.305*	-.332*	-.733**

**. Correlation is significant at the 0.05 level (2-tailed).*
***. Correlation is significant at the 0.01 level (2-tailed).*

Table 5: Regression Analysis for the Dependent Variable "Early-stage entrepreneurial activity" (n=52)
R=0.641; R^2=0.411; Adj. R^2=0.327

Predicators	**Unstandardized Coefficients**		**Standardized Coefficients**	**t**	**Sig.**
	B	**Std. Error**	**Beta**		
(Constant)	19.408	4.986		3.893	.000
GDP p.c. (PPP in $)	.000	.000	-.470	-2.984	.005
GDP real growth rate	.451	.195	.303	2.315	.026
Unemployment rate	-.030	.148	-.028	-.205	.839
Inflation rate (consumer prices)	.131	.161	.104	.813	.421
Investment (gross fixed)	-.165	.153	-.140	-1.075	.288
Public debt	-.003	.021	-.016	-.129	.898

Dependent Variable: Early-stage entrepreneurial activity

Table 6: Regression Analysis for the Dependent Variable "Necessity-driven entrepreneurial activity" (n=52)
$R=0.655$; $R^2=0.429$; Adj. $R^2=0.347$

Predicators	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	28.442	8.585		3.313	.002
GDP p.c. (PPP in $)	.000	.000	-.603	-3.889	.000
GDP real growth rate	-.190	.336	-.073	-.565	.575
Unemployment rate	.034	.255	.017	.132	.896
Inflation rate (consumer prices)	.159	.278	.072	.573	.570
Investment (gross fixed)	.241	.264	.117	.913	.366
Public debt	.002	.036	.008	.067	.947

Dependent Variable: Necessity-driven entrepreneurial activity

Table 7: Regression Analysis for the Dependent Variable "Improvement-driven opportunistic entrepreneurial activity" (n=52)
$R=0.684$; $R^2=0.468$; Adj. $R^2=0.392$

Predicators	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	31.276	9.678		3.232	.002
GDP p.c. (PPP in $)	.000	.000	.505	3.378	.002
GDP real growth rate	-.212	.378	-.069	-.559	.579
Unemployment rate	-.487	.287	-.217	-1.693	.098
Inflation rate (consumer prices)	.075	.313	.029	.240	.811
Investment (gross fixed)	.352	.297	.146	1.182	.244
Public debt	.065	.041	.190	1.576	.123

Dependent Variable: Improvement-driven opportunistic entrepreneurial activity

has the most influence and is also the only statistically significant predictor.

4.2 Discussion

Our research shows us that based on the data of the variables that we choose to represent country's economic development and the variables representing early-stage entrepreneurial activity we can conclude that country's development does affect early-stage entrepreneurial activity but not entirely as we have imagined.

Based on our research on the H1 hypothesis which states that where there is a high country's development, there will be a higher early-stage entrepreneurial activity we can conclude that countries that have high GDP *p.c.* (PPP in $) have a negative correlation to early-stage entrepreneurial activity, whereas the high GDP real growth rates have a positive correlation to early-stage entrepreneurial activity which can be seen from Table 4 and Table 5. For future research we suggest to divide the countries which are highly developed from those that are developing fast.

Our research confirms the H2 hypothesis which states that where there is a high country's development, there will be a lower necessity driven entrepreneurial activity. We can confirm this hypothesis because we can see from Table 4 that GDP *p.c.* (PPP in $) is negatively correlated to necessity driven entrepreneurial activity whereas the unemployment rate is positively correlated

to it. That means that countries with high GDP *p.c.* (PPP in $) have low necessity driven entrepreneurial activity and high unemployment rates.

Our research confirms the H3 hypothesis which states that where there is a high country's development, there will be a higher improvement-driven opportunistic entrepreneurial activity. We can confirm this hypothesis because we can see from Table 4 that GDP *p.c.* (PPP in $) is positively correlated to improvement-driven opportunistic entrepreneurial activity whereas the unemployment rate is negatively correlated to it. That means that countries with high GDP *p.c.* (PPP in $) have high improvement-driven opportunistic entrepreneurial activity and low unemployment rates.

We suppose that the basic limitation to our work is in the part that we suggest for further research and that is the division between the countries' development. Otherwise we got the results that we have anticipated already from the literature review and personal logical reasoning which we stated in our hypotheses and later on confirmed.

Recently, a paper by Sohn and Lee (2013) has been published that proposed an early-stage entrepreneurial activity index that can predict the percentage of both nascent entrepreneur and new business owner using the variables related to entrepreneurial attitudes of the previous year. This index is also one of the possibilities for future research on and prediction of early-stage entrepreneurship, as it can be used to predict various aspects of entrepreneurial aspiration of the following year. Their proposed index is believed to have a very high prediction accuracy and is expected to provide effective policies to boost future entrepreneurial activity and aspiration.

Also, contrary to our macro view of the problem, Pete, Nagy, Györfy, Benyovszki and Petru (2010) have tackled the issue of early-stage entrepreneurial activity from a more micro-based perspective, analyzing the following influencing factors of the probability of becoming an early-stage entrepreneur in Romania: gender, age, education, household income, work status, network, opportunity perception, perception regarding the trust in own entrepreneurial skills, perception on the society's appreciation regarding the principle of equality in life standard, perception on the society's appreciation regarding the entrepreneurial career, and perception on the proper promotion of entrepreneurial successes by mass media. It is our recommendation for future work in this field to perform a study of early-stage entrepreneurial activity in relation to both micro and macro factors.

5 Conclusion

Entrepreneurial activity is an important part of country's development. Economic development is the goal that every country wants to achieve on a yearly basis on which it is measured. In our research we have used six indicators of economic development for the countries selected: the GDP *per capita* (PPP), GDP real growth rate, the unemployment rate, the inflation rate, investment and public debt. We confirmed our hypotheses almost completely with one small exception that we suggest to be careful of in further research, which is the division between highly developed and highly developing countries.

We believe that economic development plays an important role in early-stage entrepreneurial activity especially in the long term and also but not just as much in the short term. As we have concluded from our research, GDP *p.c.* and the unemployment rate have the highest and not always positive correlations.

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Razvitost države kot determinanta zgodnje podjetniške aktivnosti

Naša študija raziskuje vzroke zgodnje podjetniške aktivnosti, pri čemer razlikujemo med podjetniško aktivnostjo zaradi potrebe ter priložnostno podjetniško aktivnostjo zaradi izboljšav. Kot možne vzroke zgodnje podjetniške aktivnosti raziskujemo BDP na prebivalca, realno stopnjo rasti BDP, stopnje nezaposlenosti, stopnje inflacije, investicije ter javni dolg različnih držav. Izstopajo sledeči izsledki regresijske analize, izvedene z namenom ugotavljanja soodvisnosti: (a) zgodnja podjetniška aktivnost je odvisna od predvidenih kazalcev; (b) priložnostna zgodnja podjetniška aktivnost zaradi potrebe je v negativni korelaciji z razvojem proučevane države; ter (c) priložnostna podjetniška aktivnost zaradi izboljšav je pozitivno korelirana z razvojem države.

Ključne besede: podjetništvo, zgodnja podjetniška aktivnost, kazalci gospodarskega razvoja

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Investment-Cash Flow Sensitivity: A Study of Iranian Listed Companies

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The main objective of the current study is to examine the effect of audit report on cash-flow investment sensitivity of 123 listed companies in Tehran Stock Exchange (TSE) during 2006-2010. Regression analysis and synthetic data were used for data analysis. The results showed that receiving modified report has a significant negative effect on cash flow-investment sensitivity. The findings also suggest the significant effect of receiving qualified report and unqualified report with explanatory paragraphs on cash flow-investment sensitivity.

Keywords: Auditing, auditor report, cash flow-investment sensitivity, Iran.

1 Introduction

The emphasis on capital market imperfections is certainly not a novel idea in empirical studies focusing on the investment behavior of firms in developing countries. As far back as the work of Meyer and Kuh (1957) there has been an awareness of the significance of financing constraints on firm-level business investment. However, since the mid-1960's, most applied work attempted at isolating real firm decisions from purely financial factors. The justification for this approach stemmed from Modigliani and Miller (1958) demonstrating the irrelevance of financial structure and financial policy for real investment decisions, albeit under certain conditions. The central Modigliani-Miller result was that in frictionless capital markets, internal and external sources of capital become perfect substitutes thereby making real firm decisions, such as fixed investment, independent of financial factors such as firm-liquidity, leverage, or dividend policy.

During the last decade, several studies have been done on financial constraints and cash flow-investment sensitivity of firms (Fan and Wong, 2005; Lin, Jiang and Xu, 2011). Almost all of these studies have underlined the significant effect of financial constraint on cash flow-investment sensitivity (Myers and Majluf, 1984; Li et al., 2008). Moreover, taking appropriate investment decisions and using the cash flows in profitable investment opportunities is possible only under certain conditions one of which is the access to sufficient financial resources (Carreira and Silva, 2010). Financial constraints have different sources. According to the literature, information asymmetry and agency dilemma are the most important factors in the resource allocation process of businesses (Kassimand and Menon, 2003). In fact, with increasing information asymmetry and principal-agent problem, firms will be faced with problems in obtaining necessary financial resources (Wang and Chen, 2003; Lin and Huang, 2011).

One of the mechanisms for reducing information asymmetry and agency dilemma is to audit financial statements (Bottom, et al. 2006; Campello et al., 2010). The theory suggests that a high level of information asymmetry may result in costly or unavailable external financing and overreliance on internal funds. Therefore, the sensitivity is higher for constrained firms (Myers and Majluf, 1984). Audit report is, in effect, verifies the quality of financial statements. Investors put much emphasis on the quality of financial information in their decision-making (Beatty et al., 2010). On the other hand, given the effect of financial constraints on cash flow-investment sensitivity and the effect of audit report and quality of financial information on financial constraints (e.g. information asymmetry and agency dilemma) (Guariglia et al., 2011; Bekaert et al., 2012; Barzegar and Salehi,

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2008), the question is whether audit report has any effect on cash flow-investment sensitivity Thus, the present research tries to find whether audit report affects cash flow-investment sensitivity of listed companies in TSE.

2 A brief history of auditing in Iran

Accounting in the world has a background of 6000 years and the first accounting documents were discovered 3600 years before Christ's birth. Documents of ancient Iran show that in 500 B.C., all records of public revenues and costs were kept soundly and with remarkable accuracy (Mashayekhi and Mashayekh, 2008). Here we are going to explain brief history of auditing in Iran after Revolution. Islamic Revolution of Iran in 1979 resulted in electing governmental managers for some companies, expropriating companies belonging to a number of capitalists affiliated to the past Shah's Regimen and nationalizing some of the industrial entities. Proprietorship of public economical entities necessitated the formation of institutes to audit the accounts of the national economic or expropriated companies and entities, and formation of audit institutes of National Industries and Planning Organization, Foundation of the Oppressed and Martyr's Foundation was necessitated from 1980 to 1983. The case of merging the audit bodies of public division was propounded in 1983, and law of founding the audit organization was approved. By approving the statutes of the Audit Organization in 1987, public audit bodies merged and the Audit Organization was established.

In the Certified Statutes and Act of Audit Organization, the responsibilities of Certified Inspector and audit affairs of all agencies and apparatuses, which were under the public proprietorship, were ceded to the Audit Organization.

Furthermore, the Audit Organization was recognized as a specialized and official reference to compile principles, and regulations of accounting and auditing. Hence, for the first time, legal inspection tasks and audit were in practice consolidated, and an organization to audit the financial institutions of public division and an official reference to compile principles and standards of accounting and auditing were ordained (Salehi and Abedini, 2008).

After the Islamic revolution of Iran in 1979, according to a bill ratified by the Revolutionary Council, many enterprises were confiscated or came under direct supervision of Government. To audit and perform statutory examination of these enterprises, three audit firms were established in the public sector, i.e., Nationalized Industries and Plan Organization Audit Firm in1980, Mostazafan Foundation Audit Firm in1981, Shahed Audit Firm in 1983 (Salehi, 2008).

In 1983 an act was ratified by the Parliament, to merge and embody these three audit firms together with Audit Company (established in 1971 to audit government corporations) to establish Audit Organization. Audit Organization's by-laws were also approved by the Parliament in 1987 and the Organization was established as a legal entity with financial independence, affiliated to the Ministry of Economic Affairs and Finance to follow those audit firms functions and pursue the activities legislated in the Organization's Act and by-laws. Audit Organization's by-laws were revised and approved by the Council of Ministers in 2003 to comply with the Article 4 of the Third Economic, Social and Cultural Development Plan and the Organization's legal status changed to State Owned Limited Company.

The Organization's main objectives are: (i) To provide government with basic needs in the field of auditing and specialized financial services for state owned and government supervised entities; (ii) To set Accounting and Auditing Standards and Professional Ethics in compliance with Islamic Rules as well; and (iii) To conduct research in scientific and practical methods of accounting to enhance accountancy compatible with country's needs. The Board of Governors comprises of Minister of Economic Affairs and Finance as chairman, Head of Management and Planning Organization, Minister of Petroleum, Minister of Industries and Mines and Minister of Commerce. The Board sets policies of the Organization; approves plans, manuals and financial statements of the Organization; and appoints members of the Board of Executives Accounting and Auditing Standards and also the Board of Governors should approve the Organization's Code of Ethics and its disciplinary rules. The Board of Executives comprises of Chairman and Chief Executive Officer of the Organization and four or six expert accountants, all appointed by the Board of Governors. The Board is responsible for planning, organizing, preparing manuals, managing and execution of programs. Each Board member directs and supervises a part of the Organization's activities Exposure drafts of accounting and auditing standards should be reviewed and confirmed by the Board of Executives before submission to the Board of Governors.

High Supervisory Council comprises of three expert accountants appointed by the Board of Governors and is responsible for continuous supervision of the Audit Organization's activities, review of internal control system, statutory examination of the Organization's financial statements and reporting its findings to the Board of Governors and where appropriate to the regulatory bodies (Salehi et al., 2009).

In fulfilling its main function to audit and statutory examination of state owned companies in 2003-04, Audit Organization has audited banks; insurance companies; oil, gas and petrochemical companies; regional water and power corporations; post, telegraph and telephone companies; and steel, tobacco and many other large corporations. Social Security Organization, Mostazafan and Janbazan Foundation, Shahid Foundation, and 15th Khordad Foundation and their affiliated companies are another major group of entities audited by the Organization. Investment companies and other enter-

prises controlled by banking system are also among those entities audited by the Organization.

3 Iran stock exchange

Iran has many characteristics that could potentially turn it into one of the most attractive investment options. Its unique geographical location borders it with significant business partners far and near, so much that many consider it to be a cross-road connecting Middle East to Europe and Asia. Iran has a demand oriented consumer base. Its domestic market is still growing as its seventy million populations is expected to grow in the future. Iran has invested a lot in the training of its youth. The system of public and private universities was expanded, starting from the 1980s, to meet the need of the Iranian baby boomers that were born during that era. The result of this effort has emerged into a highly educated and motivated work force that could potentially be put to work in various areas of the industry thus expanding the economical horizons.

Iran has also been gifted with plentiful amounts of natural resources. Its vast oil fields located in the south and partly in the north region of the country are a huge source of income. New fields are actively being explored and investments are being made to make use of the huge gas fields located in the south. It has many metallic and nonmetallic mines currently being explored. Iran is continuously working on its transportation system. It has become clear that the importance of road based transportation is as much as transportation by air and sea. Iran's road, especially those connecting east to the west have become a vital vein in global transportation system.

Upon the ratification of the Stock Exchange Act in 1967, the Tehran Stock Exchange was formed as a small center for trading corporate and government bonds. During the 1970s, Iran's economy was experiencing a booming period as a result of high oil prices (Salehi, 2009). This led to the release of suppressed demands for equities. In response to this high demand, the government would actively grant shares of companies that would either belong to the government or were privately owned by families. This supply and demand cycle caused the market to reach its peak exactly before the 1979 revolution (Mousavi et al., 2013).

After the Islamic revolution, the economic principles were changed drastically. Interest-based activities were banned, and many firms and organizations were nationalized. Iran got into an eight year war with its neighboring country, Iraq, and many resources were shifted towards this war. All this, hand in hand, caused the Tehran Stock Exchange to come into a stand still.

During the reconstruction period, attention was given again towards the privatization of industries. In 1989, the government decided to privatize many of its state-owned industries (Salehi and Sepehri, 2013). This affected the TSE's operation as one of the main tools to achieve this goal. According to article 44 of the Islamic Republic constitution, the government should only assume the role of a policy maker rather than the direct owning and managing of its firms and industries. In compliance with this constitutional article, many state-owned firms have recently been privatized using the Tehran Stock Exchange and many more are expected to follow suit. Different industries ranging from automotive, telecommunications, agriculture, banking and insurance, petrochemicals, mining and steel are listed in TSE (Mousavi et al., 2013).

4 Review of the Literature

This debate over the relation between financial constraints and investment-cash flow sensitivity extends to the international context as well. Hoshi, Kashyap, and Scharfstein (1991), Schaller (1993), and Shin and Park (1998) present evidence from Japanese, Canadian, and Korean data, respectively, showing that the sensitivity is higher for more constrained firms.

Fazzari, Hubbard, and Petersen (1988) find a positive sensitivity of investment to cash flow, even after controlling for investment demand measured by Tobin's q. They posit that financially constrained firms, defined by low-dividend-paying firms, demonstrate relatively high ICF sensitivities compared to unconstrained firms, and argue that when there are financial constraints, external financing is not always available and the investment is financed by internal funds.

Love (2001) uses an Euler equation approach and confirms the FHP hypothesis by showing that firms in less developed countries show a greater sensitivity of investment to cash stock.

Allayannis and Mozumdar (2001) shown that negative cash flow observations may have a serious distortionary impact on estimated investment-cash flow sensitivities. The intuition is that when firms are in sufficiently bad shape (incurring cash losses), investments are down to their lowest possible levels and cannot be cut any further. In such situations, therefore, investment-cash flow sensitivity is extremely low. Including such negative cash flow observations in the sample reduces the estimated sensitivity for the entire sample.

Houston and James (2001) find that the estimated sensitivity is higher for firms that are closely tied to a single bank than firms that have relationships with several banks. Using detailed information on the debt structure of 250 publicly traded US firms, they also find that investment cash flow sensitivity increases as a firm's reliance on bank financing increases. In their sample, bank-dependent firms tend to hold larger stocks of liquid assets and have lower dividend payout rates. However, for most levels of investment spending, bank dependent firms appear to be slightly less cash-flow constrained than firms with access to public debt markets only. Their explanation for this observation is that close banking relationships help to reduce information asymmetries and thereby improve the capital allocation process.

Allayannis and Mozumdar (2001) provide supporting empirical evidence, showing that firms hedge with derivatives to reduce the impact of financial constraints on investment-cash flow sensitivity.

Firth et al., (2012) investigate the relation between the internally generated cash flows and fixed asset investments of Chinese firms and find that it is U-shaped. The results reveal that government controlled listed firms have greater investment–cash flow sensitivities than do privately controlled listed companies, especially on the left-hand side of the U-shaped curve where cash flow is negative. However, the difference in sensitivities appears only among firms that possess few profitable investment opportunities. They attribute this finding to the government having multiple socio-economic objectives, which leads to increased capital expenditures by the firms it controls when internal funds are abundant and when internal funds are negative.

Cleary, Pavel, and Raith (2007) found that there is a nonlinear U-shaped relationship between a firm,s investment and its internal cash flow. They show empirically that if internal funds are negative, a further decrease in internal funds might make it optimal for the firm and lender to increase borrowing to such a degree that there can be a negative correlation between investment and cash flow. Lyandres (2007) and Hovakimian (2009) support the nonlinearity of the relationship by both theoretical model and empirical evidence. However, Chen and Chen (2012) find that sensitivity has declined and completely disappeared among the US firms, even during the 2007-2009 credit crunches. The earlier papers in the area, using US data from the seventies and early eighties, have reported sensitivities in the 0.4-0.7 range, studies employing data from the late eighties and nineties have found sensitivities in the 0.1-0.2 range, and most recent studies have documented estimates below 0.1.

Huang (2002) examines the relation between financial constraints and cash flow-investment sensitivity. Using dividend payout ratio as a priori classification scheme, the results showed that the relationship is nonlinear.

Allayannis and Mozumdar (2004) demonstrate that the negative relationship between financial constraints and cash flow sensitivity is mostly driven by the increase in observations with negative cash flow over time.

Almeida and Campello (2009) provide alternative explanation and suggest that costly outside financing plays a differential role between financially constrained and unconstrained firms. For unconstrained firms, internal cash flow and outside financing are substitutes. Thus, unconstrained firms increase ICF sensitivity when reducing costly outside financing. However, constrained firms usually have a low level of cash flow, and they can make investments only when they have enough cash flow and outside financing at the same time.

Almeida and Campello (2007) examine the interaction term between cash flow and asset tangibility of a firm. They find that asset tangibility increases the sensitivity of financially constrained firms, while asset tangibility does not have a significant impact on the sensitivity of unconstrained firms. Agca and Mozumdar (2008) measure the interaction between cash flow and the factors that are associated with capital market imperfections. They find that cash flow sensitivity decreases with increasing fund flows, institutional ownership, analyst following, anti-takeover amendments and with the existence of a bond rating. This implies a negative relationship between a firm's information asymmetry and its sensitivity.

Islam and Mozumdar (2007) use international data from 31 countries and show that the sensitivity of investment to cash flow decreases with financial development. The latter study however examines only early and a relatively short period between 1987 and 1997, and uses only two aggregate measures of a country's financial development.

Ascioglu et al. (2007) examine the effect of information asymmetry on cash flow-investment sensitivity. They showed that scaled investment expenditures are on average lower and the investment-cash flow sensitivity is greater when the probability of informed trading is high.

Ezzedine and Salma (2007) examine cash flow-investment sensitivity and cash flow-cash sensitivity in Tunisian firms. They showed that constrained firms have higher cash flow-investment sensitivity, while no significant difference was found between constrained and unconstrained firms in terms of cash flow-cash sensitivity. They attributed the results to the fact that firms with severe financial constraints are exposed to high costs of external finance, which induce the transaction motive of cash detentions, implying to use cash reserves to face current expenditures, in opposition with precaution motive to save cash out of cash flow to be able to finance future investments.

Arabsalehi and Ashrafi (2011) examine the relationship between financial constraints and investment-cash flow sensitivity. They found that cash reserves have a positive effect on the investment-cash flow sensitivity of firms. Shoorvarzy et al. (2012) examine the effect of accounting information quality on cash flow-investment sensitivity of listed companies in TSE. The results suggested a significant negative relationship between these two variables. In other words, improved accounting information decreases cash flow-investment sensitivity. In addition, they found that investment constraint cancels the effect of accounting information quality on cash flow-investment sensitivity.

Chen and Chen (2012) however, find that ICF sensitivity is almost zero during this period and conclude that the sensitivity cannot be a good measure of financial constraints.

Almeida et al. (2004) show that financially constrained firms tends to hold cash when they have increasing cash flow. In other words, constrained firms have higher cash flow-investment sensitivity than unconstrained firms.

Willenborg and McKeown (2001) examine the relationship between going concern audit opinion and

certain financial ratios. Using Pearson correlation coefficient and regression analysis, they found that net income to total assets and inventory turnover ratio were the most important variables in the model.

Gómez-Guillamón (2003) evaluates the usefulness of audit report in investment and financing decisions. He argues that the usefulness of auditor's report is sometimes called into question and thus users when making decisions criticize the validity of its information content. The results of a survey among the users of audit reports showed that the users consider the information provided in the auditor's opinion as useful and important when making decisions.

Kashanipour and Naghinejad (2009) conclude that there is no significant difference between constrained and unconstrained firms in cash flow-investment sensitivity. They argued that investment-cash flow sensitivity is a more appropriate determinant of financial constraints.

Bartov et al. (2000) examine the association between discretionary accruals and audit qualification. They found that firms with unqualified audit reports have higher debt ratio than firms with qualified reports.

5 Hypotheses development

Information asymmetry and agency dilemma are considered as important factors that affect the resource allocation process and financial constraints of businesses. Financial constraints are a widespread key concern for firms, hindering their ability to carry out their optimal investment and growth trajectories (Carreira and Silva, (2010). Financial constraints occur when there is a gap between the costs of internal and external financing (Arabsalehi and Ashrafi, 2011). As Modigliani and Miller (1958) argued, market imperfections, which are the result of undeveloped legal and financial systems, lead to a wedge between the cost of internal and external funds. Thus, the business is faced with an added value in external financing, which constrains the financial decisions of the business and limits their ability in financing investment projects. Under these conditions, businesses are forced to rely on their internal sources (cash reserves from operations, operating revenues, etc.) instead of external financing (debt and share issuance), which in turn hinder the growth of businesses.

Auditing financial statements is one way to reduce information asymmetry and agency problems. Based on the signaling theory, financial statements and audit reports contain important information and signals for investors and other groups. Audit report reveals the quality of information provided in financial statements. There are two theories regarding the effect of audit report, especially modified audit opinion, on the financial constraints of businesses. The first theory is the theory of information asymmetry. Audit report includes useful information regarding the quality of annual reports. Thus, receiving modified audit opinion is a sign of reduced information quality and increased information asymmetry between internal and external users, which in turn increases the financial constraint of businesses. The second one is referred to as the Soft Budget Constraint theory. According to this theory, in firms with strong political links which are supported by the government, unqualified reports are supported by the government, and government interference facilitates the financing of the firm and reduces its financial constraint (Lin et al., 2011).

Given the theoretical background and the review of the literature as well as the aims of this study, the first hypothesis postulated as following:

Hypothesis 1: Receiving modified reports affects cash flow-investment sensitivity.

Information asymmetry implies that market participants do not have equal access to information. For instance, internal users may have more detailed information regarding the strategic decisions of the company that they do not share with external investors (Kadapakkam et al., 1998). Information asymmetry leads to risk and moral hazard for external fund providers. Creditors consider a compensation for financing in return for the risks they take; for instance, they raise interest rates on what the company has borrowed or they buy its stocks at a lower price. This is referred to as underpricing. Thus, information asymmetry can lead companies toward underinvestment (Kashanipour & Naghinejad, 2009).

Agency problems are due to separation of ownership and control. The interests of managers and shareholders very consistent and managers tend to maximize firm size. A large body of research has shown that managers of large corporates have higher financial and non-financial interests and benefits than managers of small corporates. Therefore, the goal of the management may be to maximize firm size instead of firm value. Agency problems can lead to overinvestment. Agency problems can go beyond manager-investor relationship and involve creditors as well. To create value for shareholders, managers may have a tendency to invest in riskier projects than those agreed with creditors. These projects lead to transfer of value from bondholders to investors, for the latter would not pay any of the gains from riskier ventures to bondholders, while bondholders bear part of the risk of failure. So bondholders would have an incentive to increase the cost of capital though interest rates, bond indentures, or other legal devices (Kashanipour & Naghinejad, 2009).

So, the second hypothesis is postulated as following:

Hypothesis 2: The type of report affects cash flow-investment sensitivity.

Sub-hypothesis 2-1: Receiving unqualified report with explanatory paragraphs affects cash flow-investment sensitivity.

Sub-hypothesis 2-2: Receiving qualified report affects cash flow-investment sensitivity.

Sub-hypothesis 2-3: Receiving disclaimed opinion or adverse opinion affects cash flow-investment sensitivity.

6 Methodology

a. Population and Sample

The population of the present research consists of all listed companies in TSE. No sampling is used in this study; instead, firms that met the following conditions are examined:

- Firms' financial year must end at the end of Iranian calendar;
- Firms must not have no changes the financial year (not converting fiscal year);
- During the studied period (2006-2010), the stocks of these firms must have been traded at least once every three months;
- Firms must have data available on the selected variables.

Out of 478 listed companies, only 123 companies meet the above conditions.

b. Procedure

This research examines the effect of audit report on cash flow-investment sensitivity in TSE-listed firms. Thus, it is an applied research with a quasi-experimental and ex post facto design. Since the researcher does not manipulate the data, the research has high external validity (Namazi, 2000). The data was collected from the financial statements of the firms as well as the software provided by TSE.

Table 1. A description of the variables

Description	Proxy	Variable
Investment expenditure, measured as annual purchases of fixed assets	INVEST	Investment
Net cash flow generated from operating activities	OCF	Operating Cash Flow
Equals 1 if last year's audit report is modified, and 0 otherwise	MAO	Modified Audit Report
Equals 1 for firms receiving this report last year, and 0 otherwise	UQUA EXPLAN	Unqualified Audit Report with Explanatory Paragraphs
Equals 1 if last year's audit report is qualified, and 0 otherwise	QUAO	Qualified Opinion
Equals 1 for firms receiving this report last year, and 0 otherwise	DISC ADVS	Disclaimed Opinion or Adverse Opinion
Equals 1 for non-government agencies, and 0 otherwise	PRVI	Ownership
Annual revenue growth rate	GROWTH	Growth Opportunities
Natural logarithm of total assets	SIZE	Firm Size

Multivariate regression and synthetic data are used for data analysis. Due to using synthetic data, before running the main regression model, one of the fixed, common, or random effects models is selected using Chow test and Hausman test and then the main regression model is accordingly estimated. Calculations and data extraction are done in Excel and data analysis and hypothesis testing are done in EViews. Finally, the research hypotheses are tested through regression analysis, F-statistic, and coefficient of determination (R^2) at 95% confidence interval.

Regression model (1) is used to test the first hypothesis and regression model (2) is used to test the second hypothesis as well as its sub-hypotheses.

Regression model (1)

$$INVEST_{it} = \alpha + \beta_1 OCF_{it} + \beta_2 MAO_{it-1} + \beta_3 MAO_{it-1} \times OCF_{it} + \beta_4 PRIV_{it} + \beta_5 PRIV_{it} \times OCF_{it} + \beta_6 GROWTH_{it} + \beta_7 SIZE_{it} + \varepsilon$$

Regression model (2)

$$INVEST_{\downarrow}it = \alpha + \beta_{\downarrow}1OCF_{\downarrow}it + \beta_{\downarrow}2UQAO\,EXPLAN_{\downarrow}(it\text{-}1) + \beta_{\downarrow}3QUAO_{\downarrow}(it\text{-}1) + \beta_{\downarrow}4DISC\,ADVS_{\downarrow}(it\text{-}1) + \beta_{\downarrow}5UQAO\,EXPLAN_{\downarrow}(it\text{-}1) \times OCF_{\downarrow}it + \beta_{\downarrow}6QUAO_{\downarrow}(it\text{-}1)$$

The variables incorporated in the models are summarized and described in Table 1.

Table 2. Descriptive statistics of the research variables

SD	Max	Min	Mean	Observations	Variable
107298.64	1087615.00	1.00	47334.98	615	INVEST
476165.76	4241709.00	-2413332.00	148835.15	615	OCF
0.47062	1.00	0.00	0.6699	615	MAO
400474.71	3519782.00	-2413332.00	98220.52	615	MAO × OCF
0.49388	1.00	0.00	0.4195	615	PRIV
79654.21	711748.00	-805579.00	22386.46	615	PRIV × OCF
0.34450	1.86	-0.81	0.1706	615	GROWTH
1.297	9.82	16.76	13.185	615	SIZE
0.4097	1.00	0.00	0.2130	615	UQAO EXPLAN
0.4706	1.00	0.00	0.6699	615	QUAO
0.00	0.00	0.00	0.00	615	DISC ADVS
92588.35	1221993	-805579.0	21096.24	615	UQAO EXPLAN × OCF
400474.7	3519782.0	-2413332.0	98220.52	615	QUAO × OCF
0.00	0.00	0.00	0.00	615	DISC ADVS × OCF

7 Findings

The descriptive statistics of the variables are provided in Table 2. As can be seen, OCF has the highest standard deviation, while DISC ADVS and DISC ADVS × OCF has the lowest standard deviation. This indicates that OCF has the highest level of dispersion. Since in the sample there was no instance of a firm with disclaimed or adverse opinion, the value of DISC ADVS was zeroed and thus the product of this variable multiplied by OCF is zero. Moreover, the highest mean belongs to OCF.

Table 3. The results of Levin–Lin–Chu test

Sig.	Test Statistic	Variable
0.0000	-51.2986	INVEST
0.0000	-50.1856	OCF
0.0000	-5.45813	MAO
0.0000	-33.9682	MAO × OCF
0.0000	-3.73951	PRIV
0.0000	-24.4207	PRIV × OCF
0.0000	-45.7197	GROWTH
0.0000	-33.6593	SIZE
0.0000	-6.16598	UQAO EXPLAN
0.0000	-5.45813	QUAO
0.0000	-14.4821	UQAO EXPLAN × OCF
0.0000	-33.9682	QUAO × OCF
-	-	DISC ADVS
-	-	DISC ADVS × OCF

Before testing the hypotheses with regression model and synthetic data, unit root test must be applied for all the variables to examine whether or not they are stationary. If the variables are non-stationary, estimation of econometric models with these variables creates spurious regression. The results of unit root test are presented in Table 3. Significance levels below 5% indicate the stationarity of the data.

The results of Chow and Hausman tests for selecting the most appropriate model are provided in Table 4. First, Chow test is applied to choose between fixed and mixed models. If the fixed effects model was preferred, it must be tested against random effects model using Hausman test.

Considering the above table, the random effects model is selected for all the hypotheses.

a. The First Hypothesis

The results of testing the first hypothesis are provided in Table 5. The coefficient of modified report (MAO) is less than 5%, suggesting its significance. In other words, modified audit report significantly affects cash flow-investment sensitivity. The negative coefficient indicates the negative relationship between these variables. However, the coefficient of OCF is 0.3985, which is greater than the 5% significance level. Therefore, there is no significant relationship between operating cash flow and investment. Although the relationship is not strong, the positive coefficient indicates a positive relationship between these variables, indicating that investment increases with cash flow.

Table 4. The results of Chow and Hausman test

Model	Sig.	Test Statistic	Test	Hypothesis
Random effects	0.0054	3.704960	Chow test	Hypothesis 1
	1.0000	0.0000	Hausman test	
Random effects	0.0039	3.895968	Chow test	Hypothesis 2-1
	1.0000	0.0000	Hausman test	
Random effects	0.0056	3.88939	Chow test	Hypothesis 2-2
	1.0000	0.0000	Hausman test	

Table 5. Results of the estimation of the first hypothesis

Sig.	*t*-statistic	Standard Error	Coefficient	Variable
0.3958	0.849686	2.22E-07	1.88E-07	OCF
0.0000	-4.561083	0.123625	-0.563857	MAO
0.3155	1.004546	2.21E-07	2.22E-07	MAO × OCF
0.9280	0.090350	0.185034	0.016718	PRIV
0.2837	1.073004	7.45E-07	7.99E-07	PRIV × OCF
0.0574	-1.903918	0.130389	-0.248249	GROWTH
0.0000	12.36958	0.071650	0.886280	SIZE
0.0349	-2.113883	0.972710	-2.056195	C
Significance: 0.0000			F-statistic: 33.53227	
Durbin-Watson statistic: 1.607475		Adjusted R^2: 0.270546		R^2: 0.278863

According to the data in Table 5, the first hypothesis is accepted, i.e. receiving modified audit report affects cash flow-investment sensitivity. Of course, the product of MAO × OCF is not significant. Among the control variables, there is a significant relationship only between firm size and investment. They value of F-statistic and its significance level is 33.53 and 0.000 respectively, indicating that the estimated regression model is generally significant. The value of R^2 is 0.27, suggesting that 27% of the variance in the dependent variable can be explained by the independent and control variables. In addition, the value of Durbin-Watson statistic is within the 1.5-2.5 range (1.60), which indicates the lack of auto-correlation.

b. The Second Hypothesis

The results of testing sub-hypothesis 2-1 are presented in Table 6.

As the above table shows, the *p*-value of OCF is less than 5% and significant. Its positive coefficient suggests that there is a significant positive relationship between OCF and investment. Also the *p*-value of UQAO EXPLAN indicates its significance. Therefore, sub-hypothesis 2-1 is accepted, i.e. receiving unqualified report with explanatory paragraphs affects cash flow-investment sensitivity. Size is the only control variable that is significantly associated with investment. The value of R^2 is 0.26, implying that 26% of the variance in the dependent variable can be explained by the variables incorporated in the model. The value of Durbin-Watson statistic is 1.58, suggesting the lack of auto-correlation. In addition, the significance level of F-statistic (0.0000) indicates that the overall regression model is significant.

As shown in Table 7, the *p*-value of OCF is greater than 5% and thus not significant. Meanwhile OCF is positively associated with investment, though the relationship is weak. Moreover, the *p*-value of QUAO is less than 5%, indicating the significance of this variable. Therefore, the sub-hypothesis is accepted, i.e. receiving qualified report affects cash flow-investment sensitivity. There is also a significant relationship between the control variable of SIZE and investment. The value of R^2 is 0.27, suggesting that 27% of the variance in the dependent variable can be explained by the independent and control variables. The value of Durbin-Watson statistic is 1.61 that is within the range 1.5-2.5; therefore, there

Table 6. Estimation of sub-hypothesis 2-1

Sig.	*t*-statistic	Standard Error	Coefficient	Variable
0.0035	2.934579	1.35E-07	3.95E-07	OCF
0.0007	3.390020	0.144336	0.489303	UQAO EXPLAN
0.1676	-1.381519	6.01E-07	-8.31E-07	UQAO EXPLAN × OCF
0.7743	-0.286907	0.188944	-0.054210	PRIV
0.1371	1.488567	8.07E-07	1.20E-06	PRIV × OCF
0.1262	-1.531258	0.083579	-0.127981	GROWTH
0.0000	11.90628	0.072833	0.867172	SIZE
0.0219	-2.298355	0.989716	-2.274719	C
Significance: 0.0000			F-statistic: 30.885657	
Durbin-Watson statistic: 1.581516			Adjusted R^2: 0.253945	R^2: 0.262451

Table 7. Estimation of sub-hypothesis 2-2

Sig.	t-statistic	Standard Error	Coefficient	Variable
0.4037	0.835595	2.22E-07	1.86E-07	OCF
0.0000	-4.638561	0.123885	-0.574646	QUAO
0.3063	1.023923	2.21E-07	2.27E-07	QUAO × OCF
0.9032	0.121721	0.185203	0.022543	PRIV
0.3226	0.989939	7.43E-07	7.36E-07	PRIV × OCF
0.1241	-1.539976	0.083001	-0.127820	GROWTH
0.0000	12.39379	0.071700	0.888634	SIZE
0.0314	-2.157339	0.972910	-2.098896	C
Significance: 0.0000			F-statistic: 33.34966	
Durbin-Watson statistic: 1.610307			Adjusted R^2: 0.269437	R^2: 0.277766

is no auto-correlation in the model. The significance of F-statistic (0.0000) suggests the significance of the overall regression model.

As for the third sub-hypothesis, this hypothesis was not tested since the sample firms had not received any disclaimed or adverse opinion.

8 Conclusion

The purpose of the present study was to examine whether the type of audit report has any significant effect on cash flow-investment sensitivity. The first hypothesis addressed the effect of receiving modified audit report on cash flow-investment sensitivity. The results of estimating the regression model suggested that there is a significant negative relationship between these variables. The second hypothesis addressed the effect of different types of audit reports (i.e. unqualified audit report with explanatory paragraphs, qualified audit report, and disclaimed or adverse opinion) on cash flow-investment sensitivity, and these effects were tested in the form of three sub-hypotheses. The results of indicated a significant positive relationship between receiving unqualified audit report with explanatory paragraphs and cash flow-investment sensitivity. A significant negative relationship was observed between receiving qualified audit report and cash flow-investment sensitivity. Since the studied firms had not received any disclaimed or adverse opinion, the third sub-hypothesis was not tested. In general, the results of testing these hypotheses support each other and there is no inconsistency between them. Among the control variables, firm size was always associated with

investment. This indicates that larger firms have higher levels of investment that is logical.

The root for the significant effect of various types of audit report on cash flow-investment sensitivity can be found in the link between audit report and the quality of financial information. Audit report serves as a certificate for the quality of financial statements. According to the signaling theory, financial statements and audit reports contain important information and signals for investors and other users. Audit report reveals the quality of information provided in financial statements and this influences the future investments and financing of the firm. For instance, in the theory of asymmetric information, it is argued that modified audit report contains important indications about the quality of annual reports; thus, receiving such reports suggests the information asymmetry between internal and external users, which in turn increases the financial constraints of the firm. One strategy for reducing financial constraint is to increase transparency and improve the quality of financial information, which is feasible only through auditing. The authors believe that the outcomes of the study may give great strength to the Iranian capital market as well other developing countries which have the same Iranian conditions. In nutshell, the audit reports have great effect to firm financing. So, the firms may get unqualified audit reports may leads great financial constrains in the future.

Further to the study

According to the results of the current study, the following suggested for future studies:

1. Employing new variables to cash flow sensitivity.
2. Study on the effect of audit report on cash flow sensitivity in unprofitable companies.
3. The effect of other financing methods on cash flow sensitivity.

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Občutljivost pretoka investicijskega kapitala: študija iranskih korporacij, ki so uvrščena na borzo

Poglavitni cilj članka je proučiti učinek revizijskega poročila na občutljivost pretoka investicijskega kapitala na vzorcu 123 družb, ko so bile v obdobju 2006-2010 uvrščene na teheransko borzo. Pri obdelavi podatkov smo uporabili regresijsko analizo in sintetične podatke. Raziskava je pokazala, da ima spremenjeno revizijsko poročilo statistično pomemben negativen učinek na občutljivost pretoka investicijskega kapitala. Ugotovitve kažejo tudi na pomemben učinek kvalificiranega poročila in nekvalificiranega z dodano razlago na občutljivost pretoka investicijskega kapitala.

Ključne besede: Revizija, revizijsko poročilo, Občutljivost pretoka investicijskega kapital, Iran

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Relation between Knowledge Management and Turnover in Slovenian Micro and Small Start-Up Organisations

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This article discusses the importance of knowledge management and employee turnover, using the example of selected Slovenian organisations, in particular, technology parks. The purpose of this article is to point out statistical characteristics between employee turnover and certain selected independent variables. The empirical research was conducted on a population of 667 Slovenian organisations gathered from the subjects of an innovative environment database, and a further sample of 51 chosen technology parks from the A group. By implementing multivariate regression analysis, we sought to examine whether knowledge requirements and knowledge transfer paths in these organisations have a statistically significant influence on employee turnover. The aim of this article is to present the results of empirical research that defines the development of a conceptual framework for understanding the influence of knowledge management on employee turnover. The results have shown that the importance of intellectual and social capital, intangible capital assets and their continuous measurement must be acknowledged within an organisation.

Key words: employee turnover, knowledge management, organisation, employees

1 Introduction

Recently, the business environment has witnessed the development of a relatively large number of industrial clusters and other business networks, which combine knowledge organisations that promote the creation of business information and knowledge exchange (summarised according to Porter, 2000; Brinkley, 2006; Parise, 2007). According to the definitions of some authors (Argyris, 1998; Devinney et al., 2005), knowledge has become the force that gives a competitive advantage to an organisation. At the same time the organisation must employ all mechanisms (e.g. the establishment of a corporative culture) that enable utilisation of internal and external organisational knowledge in everyday business activities. In their research, Prusak and Cohen (2001) stress the crucial role of meaning and evaluation of knowledge management (KM) in organisations. They evaluate KM from the perspective of human resources theory and from the importance of intellectual capital in the emergence, growth and development of an organisational perspective. As a fast growing discipline, KM is becoming increasingly important for organisations oriented towards maximising efficiency, innovativeness and, in consequence, competitiveness (summarised according to Rowley, 1999; Davenport and Prusak, 2000). It should also be emphasised that the importance of the development and understanding of KM, has also been on the increase (Drucker, 1994; Leonard-Barton, 1998; Teece, 1998). The reason for this can be found mainly in the recognition of knowledge as the foundation for competitiveness and as a key to business success (Nonaka and Takeuchi, 1995; Pemberton and Stonehouse, 2000; Rebecca et al., 2009).

Based on empirical results, this article gives a basic view of the interlinking, influence on and importance of evaluating KM for employee turnover in selected organisations that are members of Slovenian technology parks. André (2008) views science-technology parks as centres of scientific-technological development, with a purpose that includes not only research in the laboratory sense but also the transfer of results into practice and the commercialisation of products or services (also known as a modern way of acquiring new technological

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knowledge and consolidating what has been already acquired). Alavi and Leidner (2001) draw attention to the occurrence of science-technology parks of the third generation, which represent an infrastructure for the establishment and development of knowledge-based organisations, which can be found at locations connected with technology centres of excellence (usually universities). From an organisational point of view, a technology park is an isolated "mini city", which started to grow somewhere on the outskirts of a city or on the ruins of older industries. Thus, a technology park can be part of a university, a multinational corporation or individual interested companies.

The final aim of the article is to present empirical findings from data that have been statistically processed in advance and that define the development of a conceptual framework for understanding the influence of KM (as an independent variable) on employee turnover (as a dependent variable). It was recognised that, if an organisation wants to function properly, the importance of intellectual and social capital, intangible capital assets and their continuous measurement must be acknowledged within an organisation.

2 Theoretical background

Sustainable development and increased uncertainty in the business environment are forcing dynamic technological organisations to invest in technology and knowledge of employees. For technological micro and small organisations innovation and the intuition of employees can be perceived as the critical success factors (Kuula et al., 2012). An organisation can safeguard its success by providing appropriate business processes, with a tendency towards innovativeness, technological solution search and market needs. One therefore needs to be aware of the importance of knowledge and the creation of a suitable relationship with employees that will work towards the common good. Joint success will be guaranteed if both the organisation and the employees are aware of the importance of knowledge dissemination within the entire organisation and of proper decision-making on the basis of available information.

2.1 Social capital as a bond between individuals and the organisation

According to some authors (Adler and Kwon, 2002; Inkpen and Tsang, 2005; Rebelo and Gomes, 2011), social capital is composed of human and intellectual capital, and is based upon the networking of individuals and staff as a whole. This assumption was confirmed by Drucker (2004), who states that management staff must acquire as much information as possible for its work from the external environment. Additionally, Kotler (2004) emphasises that much of the information acquired by mangers originates from outside the organisation, that is to say from business partners, customers and colleagues, as well as state, financial and other institutions. At the same time Cohen and Prusak (2001) emphasise that social capital can be viewed as a state of active connections among people. On this basis, it can be concluded that, compared to a group of individuals, social capital has a greater influence on the growth and success of an organisation. Freeze and Kulkarni (2007) conclude that social capital promotes norms of mutuality, facilitates information flow and, on the basis of former cooperation, enables access to data on the credit status and reputation of stakeholders. Our further research was based on several prior theoretical and empirical starting points on the importance of KM and the phenomenon of employee turnover in an organisation, made by various authors (Zemke et al., 2000; Mathis and Jackson, 2004; Bierly and Daly, 2007; Chatterji, 2009; Phillips and Edwards, 2008).

2.2 Organisation and knowledge management

According to the views of some authors (Bollinger and Smith, 2001; Dess et al., 2001; Kujansivu, 2009), today's organisations must be able to react to challenges in the business environment with a clear vision of how to ensure competitiveness, which involves the entire staff at all organisational levels. Alvesson and Karreman (2001) define KM and processes related to knowledge as part of the organisational activities that stem from information systems, organisational sciences, international business and economy. A knowledge organisation thus encompasses a broad spectrum of processes and techniques, with the help of which it generates, connects, selectively divides and effectively uses knowledge through various processes (Carrion-Cepeda, 2006; Reychav and Weisberg, 2006).

According to Becker (2001), knowledge organisations combine their top information technology with highly educated staff that is capable of realising the intended innovation policy of the organisation. On this point, Jarrar (2002) states that this is organisation management with a salient orientation towards knowledge or KM. Additionally, Schein (2010) points out that an organisation obtains new knowledge on the basis of strategic sources. Marshall et al. (1996) understand KM as a process through which we attempt to determine what kind of human capital is embodied in those individuals to which a larger group of individuals – one that is responsible for the development of the organisation – has access to. McElroy (2003) points out that the process of knowledge formation includes individual and group learning, the definition of which knowledge is necessary and information gathering. We can sum up that the purpose of KM is the creation, accumulation and transformation of individual knowledge into organisational knowledge, which is used in business processes (Thierauf and Hoctor, 2006; Fuentes et al., 2007; Armstrong, 2009).

2.3 Organisation and the importance of employee turnover

Armstrong (2009) defines turnover in connection with employee satisfaction in the workplace and the sense of belonging to the organisation. In general, it can be understood as the final (permanent) departure of employees from the organisation. It appears when an employee leaves the organisation and has to be replaced. On the basis of the above, it can be defined as a rate for measuring employee departure from the organisation.

A higher rate value can be disturbing for an organisation and is associated with higher costs arising from the replacement of departing employees with new ones (Schermerhorn et al., 2002). However, when talking about the phenomenon of positive turnover – an unsuccessful and unsuitable employee leaves the organisation – it can be said that such turnover is good and healthy for an organisation (Dalton et al., 1981). The organisation replaces such employees and gains new co-workers with fresh knowledge, new ideas and creativity (Phillips and Edwards, 2008). Franca and Lobnikar (2008) estimate that an employee turnover rate of up to 5% is necessary in an organisation, a rate of up to 7% is normal, and a rate of up to 10% worrying. Tavi and Tollington (2008) are of the opinion that the desired employee turnover rate is lower in organisations that prefer the internal labour market and life-long employment.

3 Conceptual research framework

3.1 Research orientation

The research concept was based on measuring processes of KM in Slovenian micro and small start-up organisations that are members of Slovenian technology parks. On the basis of a previously prepared survey questionnaire (Roblek, 2011), we sought data on how organisations acquire knowledge, how much knowledge can be found in organisations, what type of knowledge can be found and how the knowledge is created, transformed, transferred and stored. Thus we analysed the staff potential of organisations, with the aim of establishing how knowledge influences employment and staff development. We concentrated on the evaluation of respondents regarding KM processes, to find out how KM influences the efficiency of organisations in Slovenian technology parks in general. The respondents were Slovenian micro and small organisations, and that factor plays an important role in the implementation of KM. Larger organisations have already set up an established organisational structure, whereas in smaller organisations this structure is insufficient. We came to the conclusion that the organisational culture plays a vital role in the implementation of KM processes.

3.2 Purpose of the article and research question

The purpose of this article is to describe the influence of KM factors on employee turnover in selected Slovenian technology parks, on the basis of empirical research conducted in 2011. The study was conducted using a survey questionnaire on a population of 667 Slovenian business entities, gathered from the subjects of an innovative environment database maintained by the Public Agency of the Republic of Slovenia for Entrepreneurship and Foreign Investments (JAPTI). On a sample of 51 technology parks from the A group, we sought a connection between the dependent variable (employee turnover in organisations that are members of technology parks) and selected independent variables. Using multivariate regression analysis, we wanted to examine whether KM has a statistically significant influence on employee turnover. The aim of this article is to present results of the empirical research that define the development of a conceptual framework for understanding the influence of knowledge management on employee turnover. In the research three basic hypotheses were set as a starting point and were used to test the basic research question, that is, whether KM has a statistically significant influence on employee turnover: 1 – various KM factors are crucial for the long-term existence and success of an organisation; 2 – connectedness and the influence of knowledge creativity factors, knowledge accumulation and individual knowledge transformation are basic factors for activities and success within an organisation; 3 – the data acquired by the questionnaire is accurate, and on this basis the hypotheses can be verified or rejected. In the following part of the article, the data collection methodology and subsequent statistical processing are described.

4 Methodology

4.1 Data collection

The empirical data was collected by an online survey questionnaire. The link to the questionnaire was sent to 519 email addresses. The questionnaire was composed of seven blocks of close-ended and open-ended questions relating to the field of knowledge management. The first five blocks were related to KM processes: 1 – environment: development of the organisational culture in connection to KM and the organisational system in individual organisations; 2 – requirements: knowledge requirements in an organisation; 3 – resources: most valuable resources and knowledge; 4 – knowledge development: knowledge forms within an organisation; 5 – knowledge transfer paths.

The questionnaire on KM processes was composed of approximately 21 questions, for which the respondents were asked to indicate their agreement on an ordinal scale. Closed-ended questions were measured using a four-point Likert Scale to see to which degree respondents agreed or disagreed with the proposed statements (1 – strongly agree, 2 – agree, 3 – disagree, 4 – strongly disagree). The sixth block was intended for questions on employee turnover and absenteeism in an organisation. In the seventh block respondents were asked about their demographic characteristics. Before the questionnaire was finally approved, a pilot test was conducted on eight members of the Technology Park in Pomurje. After the testing, the question on knowledge requirements, from the additional question block, as well as the demographic data were supplemented.

4.2 Population and Research Sample

The basic empirical research sample comprised 667 organisations which are members or associated members of Slovenian technology parks and university incubators, kept in the JAPTI database under group A. Invitations were not sent to 148

addresses for the following reasons: 1 – the organisation is a member of a larger technology park; 2 – the organisation does not have an email address; 3 – the organisation has neither a homepage nor an email address. Additionally, we received 51 email responses, in which the respondents explained that they would not participate in our survey for the following reasons: 1 – the content of the questionnaire does not appeal to them; 2 – the organisation has withdrawn from the technology park; 3 – lack of time for answering. On this basis we can assume that other respondents may have ignored the questionnaire for similar reasons. We would like to point out that the survey was conducted among micro and small organisations with fewer employees, who for this reason have to bear a greater burden at work. This is why the response percentage is lower in this segment than it would have been in medium-sized or large organisations. Kuan (2005) also addresses the problem of fewer responses on the part of small organisations. Fiffty-one questionnaires were adequately completed and returned; this means that the final response rate amounted to 9.84%. Sixty-eight questionnaires were inadequately completed and were eliminated (more than 15% of answers were missing).

4.3 Statistical Data Processing

The basic overview of the survey results has been processed and presented on the basis of descriptive statistics (tables, graphs). All hypotheses have been tested at a significant rate, which was smaller than 5% (P=0,05). The reliability of the questionnaire was tested with Cronbach's alpha, which represents a reliability or consistency coefficient. Furthermore, we have processed the acquired empirical data with the statistical analysis programme SPSS. Using the "Enter Multivariate Regression Analysis", we have analysed the relation between the dependent variable and selected independent variables. The dependent variable is the employee turnover in organisations that are members of technology parks. On the basis of the given independent variables in the questionnaire, we have selected those that have the greatest influence on the emergence of and increase in the social capital rate. Table 1 presents values of the Cronbach's alpha coefficient for items related to the individual parts of the survey questionnaire.

We can see that the Cronbach's alpha value ranges from 0.496 for items concerning knowledge transfer paths to 0.816 for items concerning knowledge requirements. Based on these data, we can conclude that the reliability of the questionnaire is high. Except for the alpha value concerning knowledge transfer paths, which is below the level of 0.60, all other alpha values are above the acceptability level and reach values over 0.80: knowledge requirements (0.816). In what follows, we present individual empirical findings of the study, which have been processed with adequate statistical methods.

5 Correlation between knowledge management and employee turnover

5.1 Description of the organisations studied

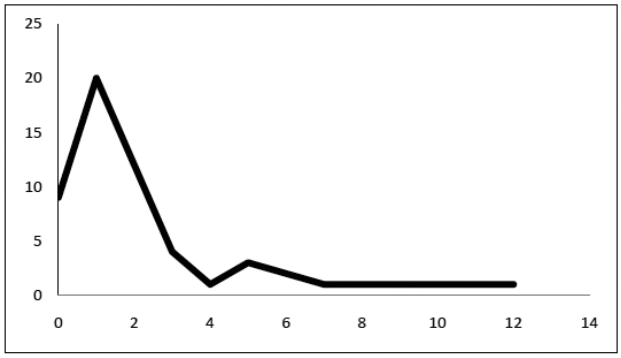
In the studied Slovenian technology parks, on average more than two thirds of employees have a pre-Bologna university education. Based on the membership and the organisations' activity structure, we assume that most of the members are performing high technology activities that demand educated staff. The average age of the respondents varies between 26 and 60 years (average age is 34). This relatively young population can be connected to the fact that new organisations are being established in incubators and technology parks, especially by students, young graduates and researchers. In the collected empirical data collected we include relatively holistic data on an organisation's activity structure. It was found, that in one-fifth of all cases, information technology is predominant, followed by research and development as well as services. The purpose of the collected data is twofold: on the one hand, to determine the size of the organisations studied, and on the other hand, to calculate the turnover rate in these organisations. Figure 1 depicts the number of employees and their turnover in these organisations from the time of their establishment to 31. 12. 2010.

Based on data concerning the number of employees, we found that our sample comprised micro-organisations, which employ less than 10 employees, and small organisations with less than 50 employees. One-third of the organisations had no

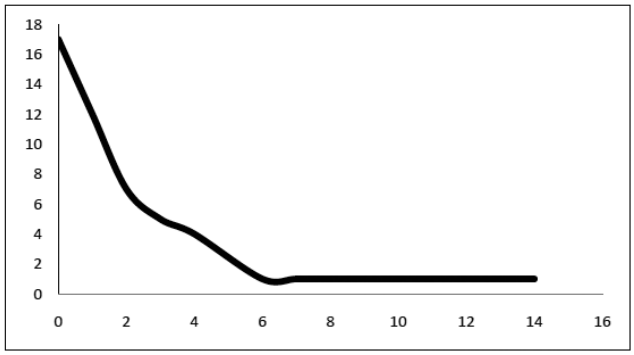
Table 1: Description of variables

Items	Cronbach's alpha	Cronbach's alpha, based on standardised items	N of items
Business environment	0.609	0.624	7
Knowledge requirements	0.816	0.819	14
Value of resources	0.681	0.67	10
Knowledge acquisition	0.767	0.783	14
Knowledge transfer paths	0.496	0.512	10

Source: Authors' own



x – number of employees at the time of establishement
y – number of organisations



x – number of new employees at the time of its establishement until 31.12.2010
y – number of organisations

Source: authors' own

Figure 1: Number of employees in the organisations studied

employees at the time of establishment; less than two quarters had one employee; just over one-fifth had two employees, etc. Furthermore, one-third of these organisations hired no employees after the establishment; in just over one-fifth of cases they hired from 1 to 4 employees. During the research period, in most cases no employee had stopped working for the organisation; in other organisations where this was the case, the number was negligible.

5.2 Importance of KM for the development of small and medium-sized organisations

For calculating the reliability or consistency of the coefficient, we used the "Cronbach's alpha" method. This is used to determine how well a group of variables or items measures an individual one-dimensional latent structure. A "Cronbach's alpha" value over 0.70 is suitable for determining further internal consistency. Based on the questionnaire results, we have calculated that the "Cronbach's alpha" value varies from 0.496 for items concerning knowledge transfers to 0.816 for questions concerning knowledge requirements. We can conclude that the reliability of the questionnaire is high, since all alpha values are above the acceptability level (0.70). Therefore, we can also conclude that knowledge requirements have a statistically typical influence on KM.

Results

The hypotheses were tested with the "enter" regression method, which includes all the variables and evaluates the regression coefficients for all independent variables simultaneously (Kazmier, 2004).

Hypothesis testing 1: The demand for knowledge has a statistically significant influence on turnover in technology parks.

In our case the corrected coefficient of the explained variance (R^2) is 48.4%. The percentage of the explained variance is 51.3%, and this means that the dependent variable is rela-

Table 2: Display regression coefficients – requirements for knowledge

Independent variables	**Unstandardized coefficients**		**Standardized coefficients**	**t statistics**	**sig**
	B	**St. error**	**Beta**		
Technology influence	-0.623	0.337	-0.469	-1.841	0.000
Human influence	-0.625	0.41	-0.521	-1.522	0.000
R2 = 48.4% F = 84.06 p< 0.01					

Source: Authors' own

Table 3: Display regression coefficients – requirements for knowledge acquisition

Independent variables	Unstandardized coefficients		Standardized coefficients	t statistics	sig
	B	St. error	Beta		
Communicatiopn technology	0,107	0,386	0,312	1,251	0,003
Ability of personnel acces to information resources	0,111	0,872	0,41	1,429	0,000
R2 = 49,56% F = 76,34 p < 0,01					

Source: Authors' own

tively well explained by the selected independent variables. With the help of F statistics, we tested the whole regression model and in this way measured or validated the meaningfulness of the model as a whole. We got F = 84.06. Based on this, we can assume that this is a good model that adapts to the data and that it is statistically typical. The influence of the independent variables is also statistically typical. From the standardised regression coefficients, we can conclude that the employees' easy approach to information resources, whether inside or outside the organisation, has the biggest influence on the phenomenon (rate) of turnover. We can therefore conclude that human factor has a statistically significant influence on turnover in small and medium-sized organisations that are members of Slovenian technology parks. An increase of independent variables reduces turnover.

Hypothesis 2: The acquisition of knowledge has a statistically significant impact on social capital in small and medium-sized organisations, members of the Slovenian Technology Parks.

In our case the corrected coefficient of the explained variance (R^2) concerning the importance and impact of social capital is 49.56%. The share of the explained variance is 49.56%, and this means that the dependent variable is relatively well explained by the selected independent variables. With the help of F statistics, we tested the whole regression model and validated the meaningfulness of the model as a whole (F = 76.34). Based on this, we can assume that this is a good model that adapts to the data and that it is also statistically typical. The impact of both independent variables is statically significant, the standardized regression coefficients and shows that the level of social capital largely affects allow personnel access to information sources, both inside and outside the organisation. Increasing the independent variables increase the level of social capital.

Employee turnover

Based on the calculation of turnover rate, we classified the respondents in 4 groups: 1 – from 0 to 25; 2 – from 26 to 50; 3 – from 51 to 75; 4 – from 76 to 100 percents of turnover. We found that the majority of organisations have a turnover rate between 0 and 25 percent. These relatively high turnover rates can be explained by the fact that these are micro-organisations, which are founded by self-employed persons who can change their status by retaining the status of director of one organisation, while at the same time being long-term employed in another organisation (economics, science, education etc.). The organisations state different reasons behind the occurrence of turnover: 1 – voluntary resignation of employees; 2 – termination because goals were not reached; 3 – retirement; 4 – conflicting interests of employees and the organisation; 5 – expiry of employment contract; 6 – lack of financial resources. Moreover, we established that absenteeism is not a disruptive factor in the functioning of micro-organisations that are members of Slovenian technology parks. Only 9.8 percent of respondents drew attention to this problem. The main reason stated was sick leave on account of a child's illness. This can be connected to the fact that these organisations do not have a large number of employees and that they mostly employ relatively young people, without family obligations related to absentism. We can conclude that these organisations different approaches and types of formation, information, planning, transfer and storage of knowledge are being used. We assume that these processes influence knowledge management within the organisations.

6 Final findings

The main purpose of this article was to present empirical data on the importance and the influence of KM on employees of organisations that are members of Slovenian technology parks concerning creativity, innovation and job satisfaction. These are resources that Nonaka et al. (2000) define as specific to an organisation and of utmost importance for the creation of value on an individual organisation. In this empirical study we attempted to define the development of a conceptual framework for understanding the influence of KM on employee turnover in organisations. We had previously studied the theo-

retical framework and acquainted ourselves with the starting points of various authors who had defined KM processes and the influence of employee turnover. We focused especially on the positive and negative causes of employee turnover that influence the work habits of employees.

We collected empirical data based on a questionnaire completed by 51 micro- and small organisations that are members of Slovenian technology parks. We found that better provision and management of knowledge do lead to better performance and consequently to a greater employee satisfaction. Therefore, we can assume that KM has a typically positive influence on turnover in micro- and small organisations that are members of Slovenian technology parks. Furthermore, we analysed the influence of independent variables (1 – influence of technology and human influence (KM); 2 – internal and external influences) on the dependent variable (employee turnover) with the help of the multivariate regression method. We found that there is a statistical correlation between the dependent and independent variables.

Similarly, research on the importance of knowledge management for start-up companies is also carried out in Austria. The results of the Austrian study are mentioned here in order to compare them with the findings of our study. Tangemann et al. (2010) in the study of business-academic incubators in Austria came to the conclusion that the incubated start-up organisations an average age of 2.5 years and create 1.323 jobs. Seventy-two per cent of all jobs created are filled by highly educated staff (university degree), which indicates how intense they are in the field of knowledge creation. An analysis on average annual growth rates showed that two-thirds of all incubated start-up organisations achieved growth, 13% of organisations have more than doubled the number of employees per year, 29% of all organisations stagnated and only 5% reduced the number of employees (Tangemann et al., 2010).

On the basis of the results gathered, we can conclusively report that networking of individuals as well as of organisations with the purpose of increasing processing in the form of knowledge transfer is crucial for both the organisations in general and Slovenian technology parks to function sucessfully. The data and findings are valid only for the sample used for this research. Nonetheless, they can be extended and used on a population with comparable characteristics.

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Odvisnost med upravljanjem znanja in fluktuacijo kadrov v slovenskih mikro in malih podjetjih

V prispevku obravnavamo pomen menedžmenta znanja in fluktuacijo zaposlenih na primeru izbranih slovenskih organizacij, natančneje tehnoloških parkov. Namen prispevka je na osnovi empirične raziskave izvedene na populaciji 667 slovenskih organizacij zajetih iz evidence subjektov inovativnega okolja in nadaljnjem vzorcu 51 preučenih tehnoloških parkov iz skupine A, prikazati statistične značilnosti med fluktuacija kadrov ter nekaterimi izbranimi neodvisnimi spremenljivkami. Z izvedeno multivariantno regresijsko analizo smo preverjali statistično značilen vpliv med zahtevami po znanju in potmi za prenos znanja znotraj preučevanih organizacij na fluktuacijo zaposlenih. Cilj prispevka je podati empirične izsledke, ki opredeljujejo razvoj konceptualnega okvira za razumevanje vpliva menedžmenta znanja na fluktuacijo zaposlenih. Izsledki preučevanja kažejo, da je znotraj neke organizacije pomembno izpostaviti pomen intelektualnega in socialnega kapitala, neopredmetenih osnovnih sredstev ter stalno merjenje le-teh.

Ključne besede: fluktuacija kadrov, menedžment znanja, organizacija, zaposleni

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Characters of Innovation Management in the Primary Health Care Centers

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Innovation management in the primary health care centers is one of the important debates among the governments and academic forums. Although the number of studies in the field of innovation in health care sectors has increased over the last 10 years, little is known about the conditions for the successful implementation of innovations in the health care centers. In this paper, we review and assess the situation of Finnish health care centers from innovation management viewpoint. We try to answer one of the important questions designed by policy makers: "How can Finnish health care centers move toward systems that continuously improve their innovation and creativity?" The presented framework describes the main characters and dimensions of diffusion of ideation and innovation in the health care centers.

Keywords: Health care centers, Ideation, Diffusion of creativity and innovation, Finland

1 Introduction

The main tasks of all public health care systems in different countries are to maintain access and equity of optimal health care among the citizens. The level and quality of each health care system depends on the factors such as population, GDP, governmental budget, health expenditure, and country's age pyramid (Gray, 2012). In recent decades, Finland's health care system has developed rapidly and stands among the world's top health care systems. Publicly owned and operated hospitals, tax-based funding, health access based on residency, and comprehensive coverage make the main body of Finnish system. In response, high proportion of GDP spent on health and social services, high level of social benefits, free or subsidized health services, equal income distribution, and gender equality are the results of these policies. Although this level of standards has brought social welfare for Finland, the reality is something considerably complex. Concerns and trends such as aging population, shortage of native manpower, advances in medical science, and increasing expectations along with budget limitations threaten the Finnish health care system. For instance, the aging Finnish workforce affects patient demographics and availability of nurses and clinicians. This means upcoming wave of retiring health care experts will occur at the time when Finland needs more manpower in the health care sector (HCS). In a larger scale, other Nordic countries and even Europe have similar challenges. Therefore, health care systems should focus on series of strategies and solutions to overcome the concerns. Studies show that prevention and incentives strategies among population, technological development in the systems, diffusion of IT systems, privatization of the health care centers, increasing the public awareness via social media are the most important polices that governments and public policy makers have implemented in their strategies (Sato, 2012).

All strategies have used a kind of innovation that shows the role of creativity and ideation in the HCS. Innovation is an important means of value creation and improvement for clients. This is particularly important in the health care systems where much progress has occurred in various fields of clinical research and medical technology. As primary health care centers (HCC) are directly working with almost all population, innovation dealing with the organization of care centers and professionals has great potential for value creation. However, adoption of innovation in the HCS and especially HCCs is recognized as a complex process. While by innovation, we mean an idea or practice that is perceived new by a person or other unit of adoption, it is difficult to identify and even understand creative and innovative ways in the HCCs.

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This article in the frame of a case study reviews and assesses the situation of Finnish health care centers (FHCC) from innovation management viewpoint. The work also tries to answer to one of the important questions designed by public policy-makers titled "How HCCs in Finland can move toward a system that continuously improve their creativity and innovation?" An innovative framework based on an extensive action research is presented to describe main characters and dimensions of the diffusion of innovation in the HCCs.

2 Brief review of Finnish health care system

The initial preparations to success of Finnish health system were established in the 1960s and 1970s (Teperi et al., 2009). Heavy investments in building hospitals and creation of primary networks of HCCs are examples of those activities. The HCCs have an important role in the Finnish primary HCS with a wide range of services such as GP services, physiotherapy, maternity and child welfare, dental care, school health care, psychologist service. The majority of these services are organized and provided by municipal health care system. Municipalities provide adequate and suitable health services for their residents (Rantanen et al., 2001). Around 336 municipalities are currently working in Finland that provide two thirds of public services. To fund the services, municipalities levy taxes between 16% and 22% and receive state subsidies. Indeed, twenty hospital districts provide the specialist cares in the municipal system with one or multi hospitals under their supports (Teperi et al., 2009). In addition to the public municipal system, private health care, excluding occupational services, accounts for 6% of total health care expenditure.

Finland was the first country in Europe that implemented the Act on the Status and Rights of Patients in 1993 (Magnussen et al., 2009). The Act recognizes the patient right to information and see any relevant medical documents, informed consent to treatment, and to complain and to autonomy. A patient ombudsman is also required in all centers providing medical treatment, to inform patients on their rights and, if needed, to help to make a complaint (Magnussen et al., 2009).

In 2010, the total health expenditure (per capita) in Finland was 2,504€ which had about 4% growth compared to 2006 (2,586 €) (OECD, 2011, OECD, 2012). Total health expenditure as a share of GDP was also about 8.9% of GDP in 2010 with about 8% growth compared to 2006 (about 8.2%) (OECD, 2012).

3 Challenges of healthcare sector in Finland: Importance of innovation

Although fair distribution of services by providing HCCs is one of the longstanding targets of Finnish health care policy, concerns exist in the HCCs. First, the welfare government model runs the danger of turning residents into passive recipients rather than active consumers or co-producers of services. This has been particularly evident in the health care sector (Magnussen et al., 2009). On the other hand, aging population is a big challenge for Finland and Nordic countries from social viewpoint at this time. This brings cost increasing in the health care system, decreasing workforce and thereby declines the government's incomes. Thereby, the fiscal sustainability of the system will be under pressure and reducing benefits, increasing taxes affect the health care system (Vuorenkoski et al., 2007). Simultaneously, shortage in native manpower and increasing expectations are two of other important challenges (Winblad et al., 2010).

On the other hand, because the Finnish health care system is a decentralized system, national steering is rather weak. As each municipality specifies its own scope of coverage within general limits set by national legislation, the amount of services differ geographically in the HCCs of municipalities. In other words, significant differences stand across municipalities in resource allocation for health care delivery in the HCCs. The differences are because of factors such as financial resources, availability of health professionals (Teperi et al., 2009).

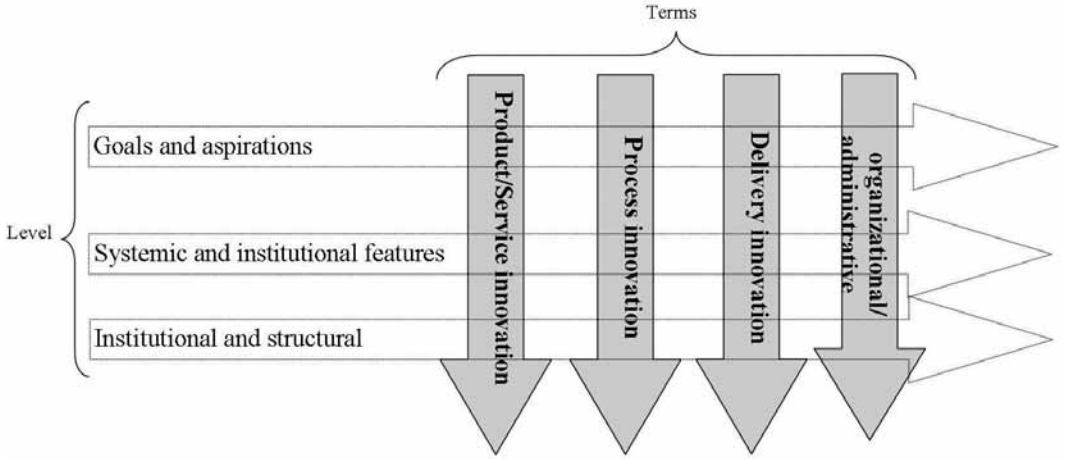
In response, Finnish policy makers have tried to understand these challenges and consider for creating a number of ambitious innovations in the HCCs among the professionals to increase the efficiency of the system. Examining values and goals of HCCs that form the basis for structural and institutional arrangements are examples of these efforts. This shows the degree that HCCs are changeable and ready for innovation's mechanisms. Therefore, ideation in structures and process are the keys for innovation improvement in the HCS and HCCs. Despite some success, the evaluations show that the total impact of innovation among the Finnish manpower has not met expectations (Paakkonen and Seppala, 2012).

4 Levels and terms of innovation in the health care centers

Innovation in the HCCs can be discussed in three different levels: goals and aspirations in the HCC, institutional and structural, and systemic and institutional features operationalized in the HCCs (Figure 1).

Indeed, it can be presented in four main types known as the terms. The first innovation in the HCCs is product/Service innovation. It includes introduction or implementation of a good or service that is new or significantly improved in the HCCs (Omachonu and Einspruch, 2010). Process innovation includes implementation of a new or significantly improved process of service (e.g., equipment and/or software) (Aslani et al., 2009). Delivery innovation referees implementation of a new delivering or marketing method involving sig-

Figure 1. Levels of innovation in the HCCs



nificant changes in service design or packaging, health service placement, and care costs (Kekale and Aslani, 2011). Finally, organizational/administrative innovation introduces the implementation of a new organizational method in the HCC business practices, workplace organization, or external relations with government, municipalities, and other HCCs' networks.

5 Research method

This investigation is a part of a national project to study collaborative innovation management in the Finnish HCS. The contributions extracted based on an action research done during a period of eight months in two HCCs working in two municipalities of Finland. Due to the role of personal and patients in this study, as well as direct engagement of researchers during research and observation, an action research should be implemented. Action research is an evidence-based research that links directly to practice. Figure 2 illustrates a simple model of the typical action research process that was implemented in this article. Each cycle includes four steps: plan, act, observe. and reflect.

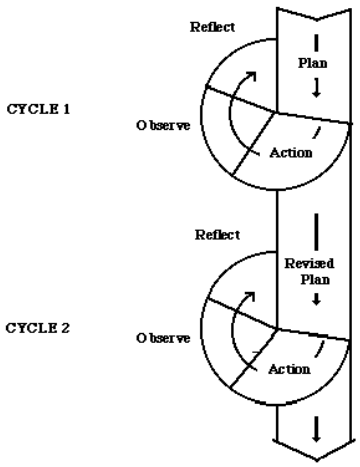


Figure 2. Simple Action Research Model (Gerald, 1983)

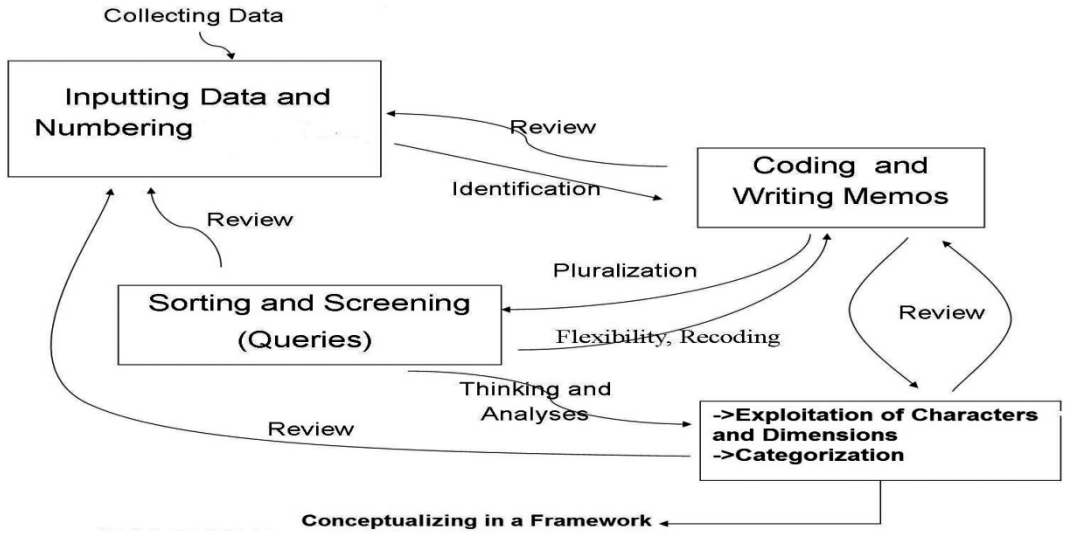
To assess and identify the situation of creativity and innovation in the HCCs, two different questionnaires for nurses, and head of the departments (professionals) and doctors were designed. The researchers asked respondents to explain their work and amount of ideation or innovation that have in their daily tasks. Further, importance of ideation in their work, and questions related to encouragement schemes to appear creative and innovative ideas were asked. The questions were open response and the researchers directly interviewed with all respondents. The average time of each interview was 30 minutes. A sample of 36 interviews including the nurses, head of the nurses, and doctors was selected among of 78 professionals. In light of the numbers of the professionals who are working in the centers, the number of sample is quite enough to the have a valid analysis.

To organize and extract the results, NVIVO 9 software was used (Aslani et al., 2012a). NVIVO is one of the best research software produced by QSR Company to support qualitative and mixed methods researches. The software helped us in three main ways: managing data, managing the ideas, and querying data (Figure 3). This qualitative data analysis provides the possibility of identifying the key themes of diffusion of innovation in the HCCs.

6 Discussion and analysis

The analysis of the interviews illustrates several factors that positively or negatively affect innovation of Finnish professionals in the local level. While almost all of the respondents believe that creativity and ideation can play an important role in their work and patient satisfaction, most of them do not ensure about innovatively working in their organization. In some cases, they even do not know how the creativity and ideation can be implemented in the HCCs. Therefore, low efficiency and motivation, poor innovation, and lack of responsiveness to patients' needs can be expected in such level of awareness among the HCCs' professionals. This proves

Figure 3. Data analysis by using NVIVO 9



the complexity of innovation concepts in the HCS. The analysis shows that there are determinant factors affect innovativeness of the professionals in the HCCs. These factors are essential to design an appropriate and value-based innovation. We categorize the factors in three main characters: individual, systematic, and structural.

Figure 4 illustrates general framework of the ideation and innovation processes in the HCCs analyzed by NVIVO 9. Since diffusion of innovation in the HCS is sorted as a strategic decision process, the proposed framework is based on a strategic decision making model (Rajagopalan et al., 1993). Therefore, three aspects of enablers, processes, and outcomes are comprised in the framework. "Enablers" are the characters that affect diffusion of innovation within or across work units and departments. In other words, innovation enablers include the efforts that nurses, doctors, managers, and policy makers implement to provide the emergence possibility of creative and innovative ideas and methods in the HCCs (process dimension). The "process" dimension of innovation refers to how the health care's employees implement the enablers of innovation in their work-related experience and expertise (adoption process). Several strong research works have been independently done to consider this dimension (Fleuren et al., 2004). Finally, the "outcomes" dimension reveals the effects of the degree of creativity and innovation management effectively achieved on the health care performance indicators.

a. Individual characters

The success of creativity and innovation in an organization depends on individual characters (Aslani et al., 2012b). The analysis of responses shows that professionals' attitudes, perception, motivation, personality, biographical factors, and job satisfaction are the main important characters affect the level of creativity and innovation in the HCCs (Aslani et al., 2012b). Table 1 shows the sub-factors of each character. While Finnish professionals are not sure about application of innovation and creative idea in the HCCs, this is a big gap among the targets and execution for a government with a high attention to innovative issues. The barriers of creativity and innovation from individual characters can be reviewed biologically, socially, psychologically, and historically (Aghaei, 2008, Ferlie et al., 2008).

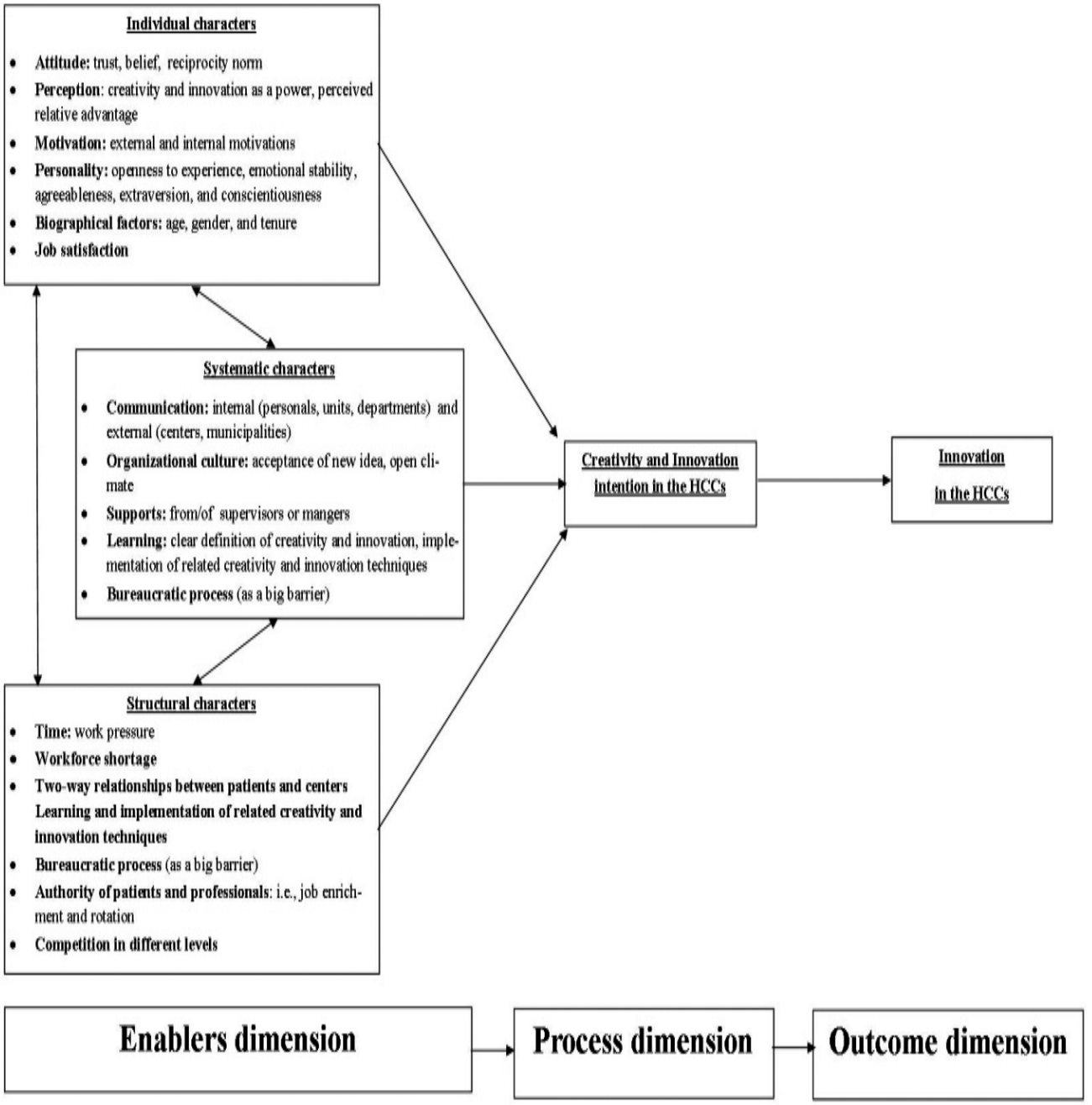
Table 1. Sub-factors of individual characters

Professionals attitudes	– Trust, – Belief, – Reciprocity norms,
Perception	– Importance of innovation as a power, – Perceived relative advantages,
Motivation	– External or internal motivations such as government supports, job promotion
Biographical factors	– Age, – Gender, – Tenure

b. Systematic characters

Systematic characters describe factors related to organization of the HCCs and formal and informal groups. The analysis of interviews indicates that the possible communication among the professionals, organizational culture, team working, supports from/of the supervisors

Figure4. General framework of innovation management in the health care sector



or mangers, learning and implementation of creativity and innovation techniques, and bureaucratic process along with long waiting lists (in different levels from patients to personnel) are the most important systematic characters that affect diffusion of innovation in the HCCs (Aslani et al., 2012c). An organizational environment that encourages new problem-solving methods and creative ideas is an important gap in the Finnish HCCs. To provide this environment, applications of related creativity and innovation techniques is an appropriate strategy (Proctor, 2005). In fact, in searching to find the solutions of a problem, the activity of a person decreases and stops after finding the first/two solutions based on his/her mental characters. Application of creativity techniques will be effective to spread decision space (Hyginz, 2002). A survey shows that about 80% Austrian companies have used creativity techniques at least once, and 69% of them believe they are useful for generating ideas and solving daily problems (Aslani et. al., 2012d).

Therefore, creativity techniques should be an important part of innovation management in the HCCs.

c. Structural characters

The structural characters discuss about issues that are beyond of behavioral aspects. For example, one of the main barriers of creative idea is the lack of time available for nurses and doctors to think innovatively in the Finnish HCCs. The analysis of interviews shows that almost all of the respondents believe that the workforce shortage is the main barrier for them to think innovatively. As this caused work pressure, it even harms the staff's motivation. Two-way relationships between patients and centers (in order to individual cares or even suggestions for working better) are also characters that can effect on diffusion of ideation and innovation in the HCCs. In addition, authority of patients (e.g., increasing patient choice to choose the centers, normal and daily checkup) and staff in their tasks (job rotation and enrichment) are the factors affect the HCCs innovations. Finally, competition in different levels from HCC's staff to HCCs is an important driver to encourage centers and professionals to think innovatively.

7 Conclusion

Studies show that the application of innovation in the health care sector is usually defective with ambiguity and complexity. On the other hand, aging populations, rising public expectations, progress in medical science and technologies, and other trends generally increase the need for changes in the health care systems. This article tried to answer to one of the important challenges of the Finnish health care system related to the diffusion of innovation in the health care centers. As discussed, the main enablers of the development of ideation and innovation in the HCCs can be categorized in three main types: individual, systematic, and structural. Each category includes different themes that provide successful implementation of innovation management process.

Importance of each factor or character, effects of centralization or decentralization of fiscal authority into larger regional on HCCS's innovation, and the amount of correlation between different factors and diffusion of innovation in the health care centers are subjects for future research that are suggested by authors.

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Značilnosti inovacijskega managementa v primarni zdravstveni mreži na Finskem

Inovacijski management v centrih za primarno zdravstveno oskrbo je ena od poglavitnih tem diskusije tako v državnih ustanovah kot med raziskovalci. Čeprav je v zadnjih letih naraslo število raziskav na temo inoviranja, malo vemo o pogojih za uspešno uvedbo inovacij v zdravstvenih centrih za primarno oskrbo. V članku je podan pregled situacije na Finskem z vidika inovacijskega managementa. Poskušamo odgovoriti na vprašanje: kako se lahko centri za zdravstveno oskrbo na Finskem razvijejo v sisteme, ki stalno dvigajo svojo kvaliteto in inovativnost? Predstavljeno ogrodje opisuje glavne značilnosti in razsežnosti prodiranja mišljenja in inovacij v centre za zdravstveno oskrbo.

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Competency management is seen as one of the most important sources for comparative strategic advantages. Competencies in a narrow sense are dispositions of self-organized actions. As they are internal, unobservable dispositions, competencies are always a form of attribution based on judgments of the beholder. Competencies are attributed on the basis of problem and solution orientation, by informing a person of an objective – without a specific solution – and then measuring the degree to which the objective was achieved. Accomplishing or even exceeding the degree of achieving an objective is hence defined as competency (Erpenbeck/von Rosenstiel 2003).

Recent work on individual competency management (e.g., Probst et al. 2000; Sarges 2001; Erpenbeck/von Rosenstiel 2003; Mühlbacher 2007) primarily emphasises the fact that competencies are strongly oriented towards the future. This enables a person to tackle upcoming challenges, whose nature cannot be predicted or determined, in a self-organized manner. Thus, discussions regarding competencies are of importance whenever strategic personnel planning and development take centre stage in times of uncertainty.

The seminal works of Bartlett and Goshal (1997) or Brown and Eisenhardt (1998) show the need for the adaptation of management competencies based on an increase of speed and complexity in the organizational environment and – vice versa – a lack of flexibility and innovation within organizations. This also requires a change in perspective within human resource management. Both the current requirements and the competencies necessary in the future have to become the focal point of the analysis and must be seen as a strategic competitive advantage for the company (McCall 1998; Nahapiet/Sumantra 1998).

What is still missing throughout the competency literature are empirical studies concerning the drivers of change and their influence on individual management competencies and also empirical evidence on the relationship between competency management and organizational performance. Only the answer to these questions makes it possible to use further education as a strategic instrument of management development.

So competency management represents a wide range of research from strategic and organizational to individual competencies. Therefore, this special issue aims at a broad variety of empirical studies, giving answers to some of the above mentioned questions. Contributions may address but are not limited to the following topics:

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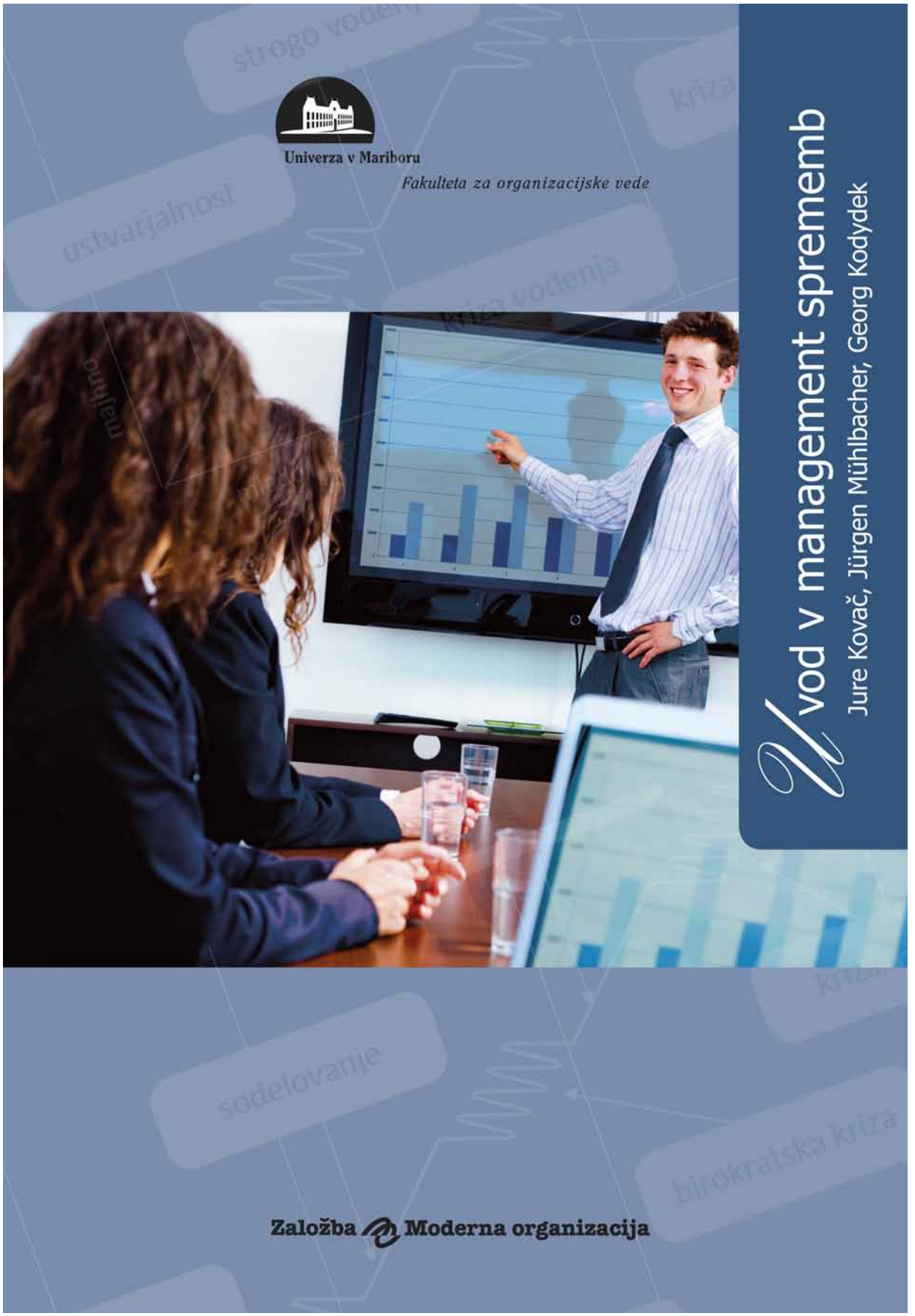
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