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RATIONALITY OF SELF-EMPLOYMENT: DO FEMALE AND MALE ENTREPRENEURS DIFFER?

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A B S T R A C T

It is not clear whether changes in self-employment are primarily driven by the necessity to take part in the labour market, or if those activities reflect new modes of labour market integration revealing new opportunities and markets, which are especially due in wide parts to the service and health care sector. A fundamental question is how gender matters when investigating the above mentioned developments. Do we find specific "gender patterns" within the increasing expansion of self-employment, or will the new chances and risks lead to greater equality of opportunities? Is the increase of solo self-employment of females driven by the need to earn a living, or is it the result of females taking risks, e. g. to become more economically independent? The structural changes of the labour market raise the question whether self-employment can be seen as a strategy for women to achieve work-life balance and whether these changes in the organisation of work are leading to an improvement of the quality of (working) life. To gather more reliable information, the relationship between self-employment, partner's employment, the household and children is explored, using Germany as an example. The influence of personal as well as household and labour market characteristics for women and men in a family context and their probability of being self-employed as compared to those who have chosen formal, gainful employment are analysed. The empirical analysis shows that people's intentions to engage in a specific volume and with specific degrees of motivation reflect diverse areas in the organization of private life. The rationality of private duties, needs, challenges and aspirations belongs to the factors which influence the decision to engage in the labour market. A crucial impact on those decisions is given by the individual's domestic background and what the household looks like. Issues of firm partnership, marital status, and the existence of children and age of children or elderly relatives are factors which provide different life-worlds, which set relevant parameters. In the end, the household as the entity and composition of different interests, motivations, needs, and obstacles proves to be the real acting subject of our analysis.

Keywords: Self-employment, Gender, Labour Market, Diversity, Household, Entrepreneurship, Inequality, Germany, Logistic Regression.

INTRODUCTION

Talk about the rise and future of self-employment must be linked to the discussion about changes in the structure of occupations, labour markets and regulations. At the same time, all different items are embedded within the general trend of a growing knowledge and service society. A main reason for the growing relevance of self-employment can be identified in the employment shift from the industrial to the service sector. To a large extent this sector is characterized by personnel-intensive or technologically innovative fields of work, often requiring flexible organizational arrangements. Thus, the service sector seems to be particularly suitable for self-employed activities.

In light of this, the more or less steady growth of the service sector mirrors changes within the category of self-employment. One of those fundamental changes is the increase in female solo self-employment, as there is prima facie evidence that the rise of self-employment is mostly a rise of micro-firms and solo self-employment of which especially solo self-employment is a female domain. But it is not clear whether the development is primarily driven by the necessity to take part in the labour market, or if those activities reflect new modes of

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labour market integration revealing new opportunities and markets which are, in wide parts, especially due to the service and health care sector.

A fundamental question is how gender matters when investigating the above mentioned trends. Do we find specific "gender patterns" within recent developments of an increasing expansion of self-employment, or will the new chances and risks lead to a greater equality of opportunities? Is the increase of solo self-employment of females driven by the need to earn a living or is it the result of females taking risks, e.g. to become more economically independent?

However, those developments raise the question whether self-employment can be seen as a strategy for women to achieve work-life balance and whether these changes in the organisation of work are leading to an improvement of the quality of (working) life. One of the most consistent findings in studies on women's labour force participation is the negative effect of the presence of young children on the probability of participation. It could be argued that difficulties in combining work and family enhance the transition or entry into self-employment.

Self-employment may deliver possibilities for women to use their strength to overcome weaknesses and it opens up opportunities helping to counter threats. In particular, self-employment may deliver options that could lessen the constraints which family care places on women's employment. It may be the case that women place a higher value on nonwage aspects of self-employment than men do, and women with greater family responsibilities may trade earnings for the family-friendly aspects of self-employment. Therefore self-employment may reflect the development of more or less successful strategies for coping with the conflicts arising from the difficult balance of self-employment and family life.

However, can female self-employment be seen as a representation of a new paradigm of employment, which does not fit the well-known traditional type of self-employment? To gather more reliable information it is necessary to explore the relationship between self-employment, partner's employment, the household and children. We will examine the influence of personal characteristics, household and labour market characteristics for both mothers and fathers in a family context and their probability of being self-employed as compared to parents who have chosen formal, gainful employment.

The article combines conceptual thoughts on the development of self-employment within stratified modern societies with empirical reflections. The analysis is based upon German Microcensus data from the Statistical Office Germany, which are available for the period from 1989 till 2009. The Microcensus is a representative sample of Germany's population, which covers 1 % of all households and it contains labour market data in particular. Additionally to the descriptive analysis we will carry out multinomial logit regressions of the determinants of self-employment to obtain more knowledge about the statistical relevance of determining factors.

COMPETING APPROACHES TO DEAL WITH GENDER RELATED LABOUR MARKET DISPARITIES

When analysing social structures and patterns of inequality, gender is one of the items which highlights social disparities. Disparities are sometimes interpreted as indicators of discrimination practices and literature reports four puzzles of sex segregation (Charles & Grusky, 2004). Regarding the fact that divisions of social structure show significant differences in gender participation and in gender distribution, discussion has to evaluate carefully the reasons which are responsible for those gender gaps (Verheul, Thurik, Grilo, & van der Zwan, 2012).

In public, but also in academic gender discourse, different explanations can be found why gender imbalances exist, which factors can be held responsible, and if we are witnessing a declining significance of gender (Blau, Brinton, & Grusky, 2006). A more fundamental feminist explanation interprets female over- or underrepresentation as a mirror of male power strategies in society and as proof of the limited power of women to obtain the same positions in the same percentages as held by men. While this position is close to a model of gender domination, a competing position argues more moderately by claiming that the gender division of different social classes and labour market categories is itself a reflection of more complex factors, to which different patterns of gender decisions in education and further education also belong (England et al., 2007). In particular, we see that gender decisions for different university study subjects are obvious, which initialize the result that engineers and many natural sciences are overwhelmingly male while the teaching profession is dominated by women (Leoni & Falk, 2010). Gender based discussion is very rich in showing divergent sets of academic argumentation in that

respect (Minniti, 2010).

Finally, one can interpret the landscape of social and occupational (asymmetrical) distribution not only as a result of societal discrimination practices or divergent individual decisions by genders but as a mirror of complex *household* decisions rather than individual actors' decisions. When following that line of thought, households gain a status as acting subjects, which appear to have their own distinguished rationality to make occupational decisions and to organize the structure and philosophy of life-courses. When employing this perspective, patterns of explanation become more diverse than simple dichotomic black-white modes usually offer and, finally, causes and effects become difficult to separate, which also has to be reflected when teaching entrepreneurship (Heinonen & Hytti, 2010).

However, not only household decisions have to be taken into account as a factor of influence but also labour market influences and global contextual changes in economy and society, commonly referred to as the trend of tertiarization (Wölfl, 2005). Last but not least, sectoral changes towards a service sector based economy and society are on-going in an irreversible way. To bring a complex phenomenon to one denominator, those professional groups that Max Weber (Weber, 1972, p. 179) described as the "*poor Intelligentsia and with specialised knowledge*", are now well on their way to becoming the majority of society. As far as the work, which is not directly done in productive parts of the economy and especially manufacturing, will further expand, it will become an important as well as difficult task to capture it in appropriate words (Castells, 2010). Common labelling of a knowledge based service sector society fosters new professions, new firms and employment structures, which exemplify a meaning of so-called creative destruction (Schumpeter, 1963), in which old facets are continuously substituted by newer ones.

The on-going trend towards service sector employment serves as an institutional push factor to increase the numbers of the self-employed. By its nature, the self-employment quota in agriculture has always been the highest amongst the economic sectors, whereas those in manufacturing represented the smallest group. The self-employment quota in the service sector is much higher than that in manufacturing, which consequently leads to an increase in self-employment when service sector employment increases. The trend towards services has had – among others – the following social and economic/structural effects: Since the self-employment quota in the service sector is higher than in any other branch of the economy apart from agriculture, a shift in the economy towards the direction of an expanded service sector will inevitably lead to a rise in the amount of self-employed activity. A large part of this –currently dubbed "new self-employment"– is quite simply a structural consequence of tertiarization. Service sector trends generally go hand in hand with processes of outsourcing and it is often difficult to decide which is the cause and which is the consequence.

All changes within the division of work and related gendered labour market participation take place within a societal environment. First of all, we have to ask whether the division of occupations is primarily the result of free choice by individual actors rather than of pressure through contextual variables to which factors like unemployment or missing alternatives also belong. Contextual variables exist at different levels, they consist of sectoral trends but also in the form of different national managerial styles to influence companies, their organizational structures and industrial relations (Javidan, Dorfman, Sully de Luque, & House, 2006; Tung & Verbeke, 2010).

Hence, dynamics in markets and firm population affect the occupational structure, patterns of flexibilization and social mobility. Five interdependent trends regarding the socioeconomic situation of self-employed labourers in the employment system can be found when looking at the past 15 years.

Increased *unsteadiness* of labour market activity with multiple changes between waged work and unemployment or lack of contracts is significant. New forms of occupational dynamics and career patterns are increasing, which are connected to a high degree of uncertainty and which sometimes imply high financial risks. The socioeconomic category of self-employment seems to be in a state of permanent creation and re-creation, and parts belong to a category of vulnerable work. In parallel, a high extent of *destandardisation* within the category of self-employment has become evident. While Kuznets expected that self-employment ratios would decrease within the course of further economic development (Kuznets, 1966), recent cross-national comparisons indicate very diverse tendencies in which self-employment ratios very often increase rather than decrease (Acs, Sameeksha, & Hessels, 2008). At the same time, considerable divergences concerning

social situations are emerging, which have become especially clear through their economic activities. One indicator of divergences is working time. Weekly workloads are very heterogeneous. Many individuals have working hours, which are considerably higher than 40 hours per week, but also significant proportions of marginal working hours can be registered. Different aspects of destandardisation demonstrate a high degree of diversity within self-employment.

In the context of unsteadiness, destandardisation and heterogeneity of different *hybrid forms of labour market activity* are emerging (Folta, Delmar, & Delmar, 2010; Sørensen & Fassiotto, 2011). The individual employment biography covers not only different periods of dependent employment and self-employment consecutively, but also the possibility of multiple employment activities and combinations at the same time, e.g. being a free-lance quasi self-employed translator in the morning hours, tutoring pupils in a private coaching institute on an hourly basis in the afternoon, working as a salary-dependent supervisor in a cinema in the evenings, and giving paid tennis instruction at the weekends. Employment patterns and careers increasingly look like a patchwork of nodes functioning sequentially and simultaneously.

The problem in relation to the question of self-employment is that the economic and social material is rich and diverse, from both a theoretical and an empirical standpoint (Verheul & van Stel, 2010), because the reservoir of self-employed labour is highly diverse and the socio-economic factors governing people's motives for seeking to move in the direction of self-employment are extremely varied and divergent (Shane, 2003).

The category of self-employed personnel includes social winners and losers simultaneously, but also new indefinite types have appeared, which are difficult to characterize. Therefore the image of an "entrepreneurial society" (Audretsch, 2007) has become multi-linear. We observe secular changes of employment and industrial relations, which also affect self-employed workers (Kalleberg, 2009, Kalleberg, 2011). The scenario is structured quite simply: We observe increased forces towards heterogenization and segmentation of labour, which mirror rising social dynamics and related mobility.

With growing self-employment (Arum & Müller, 2004; Bosma, Acs, Autio, Coduras, & Levie, 2009; Kelley, Singer, & Herrington, 2012) new facets in the structure of the labour market and in the division of occupations have emerged (Shane, 2008). What is happening at present is paradoxical in that a succession of mega-mergers between economic giants has been announced in recent months and years, while at the same time small companies are visibly sprouting in the shadow of these emerging amalgamations and oligopolies. Small businesses and micro-firms have been growing vigorously for some years (Müller & Arum, 2004). How is the landscape of self-employment changing and which effects are emerging for those at the lower fringes of economic stability and financial income? The forces which are responsible for the new emergence of those stakeholders are of crucial research interest. Must they be regarded primarily as a result of "pushes" by labour market deficiencies? Are they a response to new lifestyles and working demands, which act as "pulling" factors into self-employment?

EMPIRICAL DATA ON SELF-EMPLOYMENT IN GERMANY

The analysis of self-employment and gender disparities has to acknowledge a bundle of influencing factors, labour market trends towards flexibilization and individualization (Beck, 2009), sectoral changes and decision rationalities by households and individual agents, which are based upon ideas of rational choices to maximize individual (household) wealth (Veenhoven, 2000) including happiness and life-satisfaction (Andersson, 2008; Benz & Frey, 2008; Binder & Coad, 2010).

The development of (absolute) self-employment numbers in Germany between 1996 and 2010 is shown in figure 1. The numbers declined in the sector "agriculture and forestry, fishery", remained nearly stable in "industry", increased slightly in the area of "domestic trade, accommodation and food service activities, transport", especially during the last two years, and they boomed in the field of (other) services.

Figure 2 visualizes these changes as changes of percentages of self-employment. First of all, the rapid increase of self-employment in services becomes clear. In 2010 nearly every second self-employed person belongs to the category of services. If we add the areas of services and of "domestic trade, accommodation and food service activities, transport", which are both taken together in other sets of statistics, nearly three quarters of all self-employment belong to these two areas, while self-employment in industry and agriculture has further shrunken towards one quarter of self-employment

population during the last 14 years in Germany. Many further aspects are of specific interest. However, one central item is concerned with the type of self-employment. To which firms do these self-employed people belong, are they related to "bigger" companies or to small and smallest firms? Earlier investigations already highlighted the strong relevance of smallest firms during the economic period of the last 20 years, when the revival of self-employment in Germany was virtually carried out by a revival of micro-firms defined as firms, which are run by owners who have no further employees in their firms (Bögenhold & Fachinger, 2012). The owners are commonly called solo self-employed.

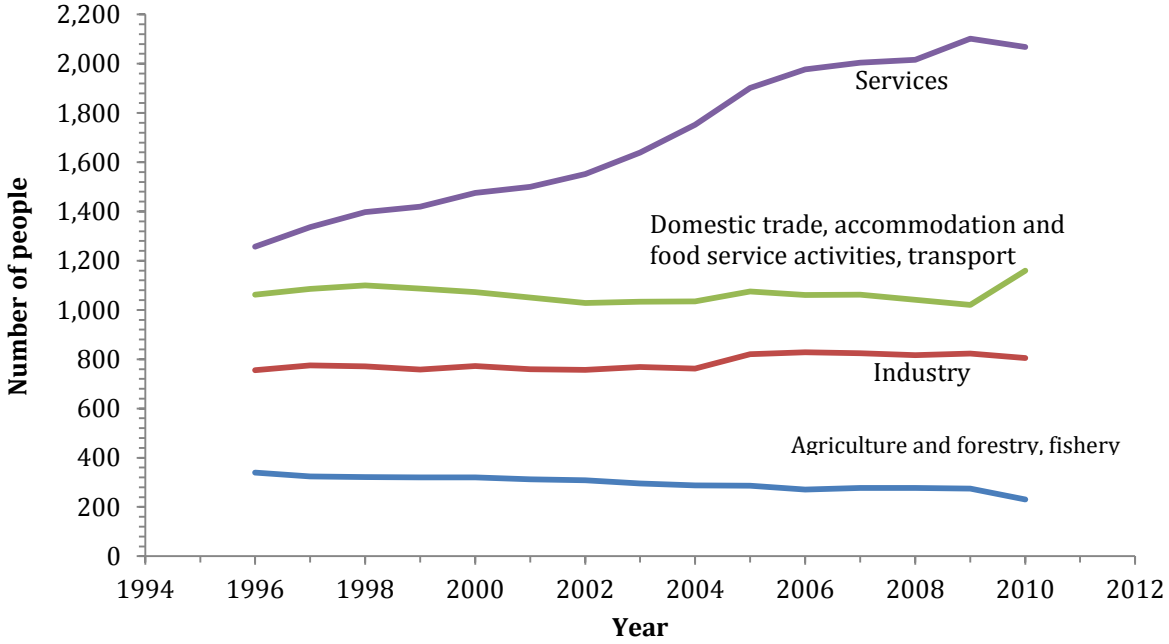

Figure 1. Number of self-employed people per economic sector.
Source: Own calculations based on Piorkowsky & Buddensiek, 2011; Piorkowsky, Fleißig, & Junghanns, 2009.

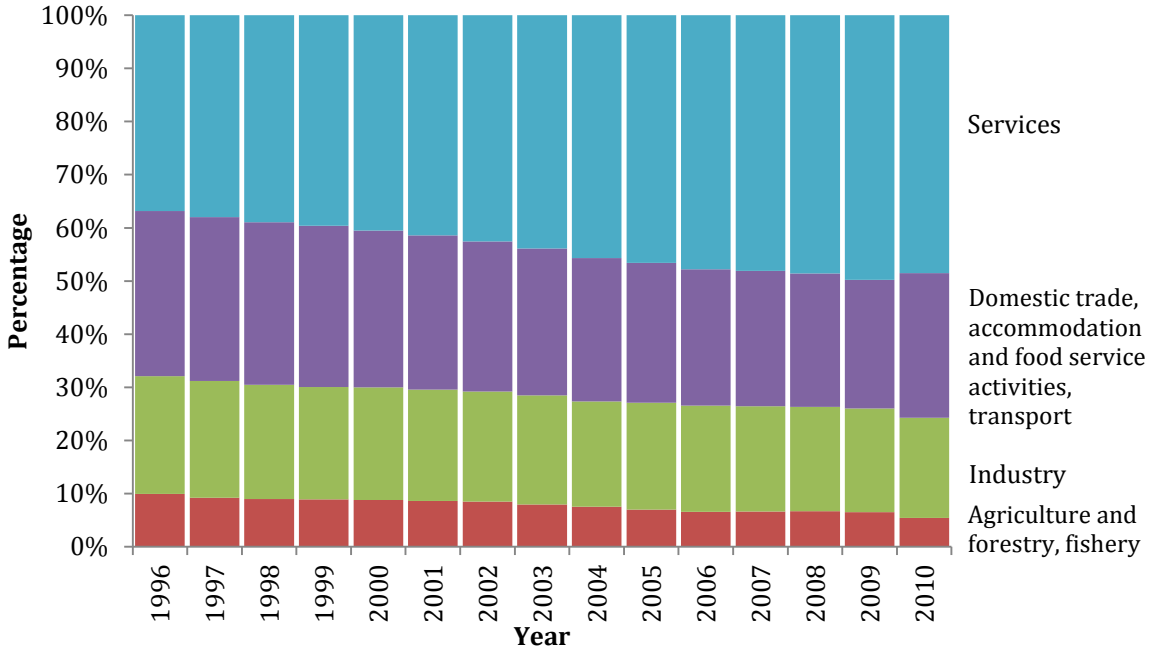

Figure 2. Percentage of self-employed people per economic sector.
Source: Own calculations based on Piorkowsky & Buddensiek, 2011; Piorkowsky et al., 2009.

Distinguishing between economic sectors, gender and the question if self-employed people work with or without employees, Table 1 gives further information about trends in self-employment in Germany during the last 15 years.

Table 1. Changes in the Composition of Self-employment 2010 to 1996.

All sectors		**Agriculture, forestry, fishing**		**Industry**	
2010 to 1996 all	14.1	2010 to 1996 all	-31.8	2010 to 1996 all	28.0
Men		Men		Men	
All	11.5	All	-32.0	All	6.9
Solo	24.2	Solo	-39.2	Solo	39.7
With employees	2.1	With employees	-17.6	With employees	-9.1
Women		Women		Women	
All	23.2	All	-30.8	All	-13.6
Solo	32.4	Solo	-34.6	Solo	-18.5
With employees	14.4	With employees	-23.1	With employees	-9.4

Domestic trade, accommodation, transport		**Services**	
2010 to 1996 all	1.9	2010 to 1996 all	45.3
Men		Men	
All	7.0	All	35.4
Solo	25.1	Solo	46.5
With employees	-3.9	With employees	25.4
Women		Women	
All	-10.7	All	70.3
Solo	-12.4	Solo	87.2
With employees	-9.4	With employees	51.1

Source: Own calculations based on Piorkowsky & Buddensiek, 2011; Piorkowsky et al., 2009.

Data in Table 1 highlight several previous findings in more detail and with greater clarity: The overall trend towards services pushes not only self-employment but develops differently when distinguishing for men and women and when distinguishing for the type of self-employment (with further employees versus solo self-employment). Only the agricultural sector features a reduction in self-employment for all categories and both genders while the sectors "industry" and "domestic trade, accommodation, transport" differ for men and women, showing losses for women and gains for men.

Comparing the two categories of self-employment with employees and without employees shows that "small" entrepreneurs with their micro-firms have increased their share between 1996 and 2010 in Germany tremendously; female self-employed people even more than male. Significant differences occur when comparing economic sectors: While the proportion of female solo self-employment declined in industry and in domestic trade, accommodation and transport, male solo self-employment increased in the same areas at the same time. The increase applies to nearly 40 % within the category of male solo self-employment in industry.

The situation within the socioeconomic field of services reflects a contrast: Both genders and all size categories have considerable growth ratios in those 15 years but the increase of female solo self-employment is extremely high compared with all other figures. Female self-employment gained 70 % in services within 15 years but, here, 87 % in solo self-employment whereas men merely gained 46 %. In addition to organizational and sectoral change, the growth ratio of female self-employment, mainly in the liberal professions and in diverse further social services, has contributed to and mirrors a drastic transformation in the composition of the labour market.

SELF-EMPLOYMENT BY GENDER IN THE GERMAN ECONOMY AND SOCIETY

With growing solo self-employment, a new social phenomenon in the structure of the labour market and the division of occupations has emerged. We observe not only a rapid tertiarization but also fragmentation and segmentation of labour market trends in which different developments are overlapping each other. Of

crucial research interest are the driving forces and the features of self-employment. Are they a response to new lifestyles and working demands, which act as *pull* factors into self-employment or are they driven by needs and necessities? In other words, does solo self-employment serve as a valve on a pressurized labour market, or must it be regarded more positively as a new option in the classic division of labour through which an increasing number of people find new self-supporting and stable jobs? And, can we verify appropriate trends at the level of genders which indicate different rationalities, opportunities and needs (Lombard, 2001; Wellington, 2006; Georgellis & Wall, 2005; Kelley, Brush, Green, & Litovsky, 2011)?

Although different developments appear quite similar regarding their directions, if we control for gender, fundamental differences remain significant: Female self-employment is based to a much greater extent upon solo self-employment and it is much more highly represented in the service sector than male self-employment.

Under the aspect of heterogeneity we also find that a considerable dispersion of workload can be seen. It ranges from less than 15 hours per week up to more than 40 hours per week. Those differences have diverse causalities when looking at logics of individual agents. They may mirror bad business situations because of insufficient orders or intended decisions in favour of part-time self-employment. Whereas less than 45 % of women are working more than 40 hours per week, more than 70 % of men report to be working full-time. For women, part-time work seems to be more "normal" than for men. This could be an indication that women use the flexibility of self-employment and the "freedom" of self-determination regarding the workload. On the other hand, the normal case for men leans much more towards full-time work with 40 hours or more than 40 hours per week.

A large portion of factors is responsible for new contours in the composition of occupations. In academic discourse very often trends are postulated based on empirical speculations since data which can shed reliable light on those questions are not always available. The German Microcensus provides further reliable information regarding the socioeconomic situation of self-employed workers. Figure 3 gives an idea regarding the heterogeneity of the net incomes of self-employed people. What becomes clear is that the incomes cover a broad range of diverse incomes ranging from very low to comparatively high. Differentiating for solo self-employed people and self-employed people working with further employees shows that the incomes of the solo self-employed are, on average, much lower than those of entrepreneurs with employees.

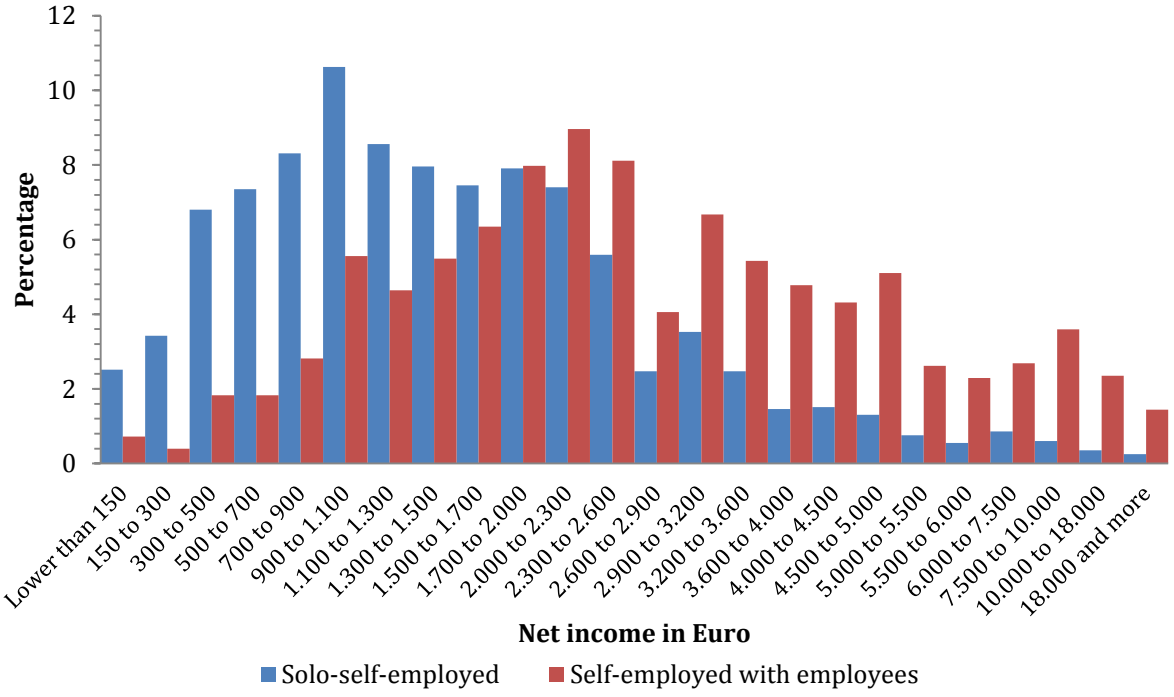

Figure 3. Net income of self-employed people, according to self-assessment, Germany 2009.
Source: Own calculations based on the scientific use file of the Microcensus of the Federal Statistical Office Germany.

A comparison between male and female solo self-employment income (see Figure 4) shows that the income distribution differs between men and women. Both genders cover a range of incomes from lowest incomes to comparatively high incomes, but female incomes are concentrated much more densely at the lower ends than the incomes of men. Since these incomes are net incomes (based on self-assessment) of individual agents, two questions are of specific interest:

- Do those incomes stand alone or do they contribute to specific household incomes?
- Are the incomes related to fulltime or part-time work?

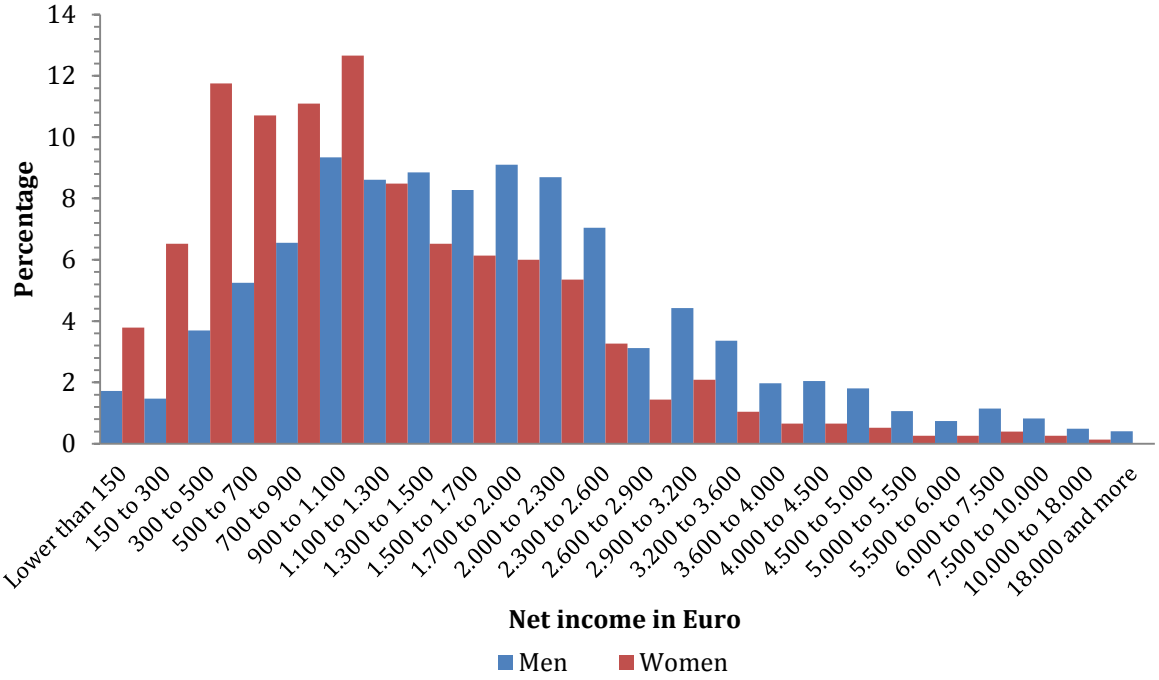

Figure 4. Gender-specific income of solo self-employed people, according to self-assessment, Germany 2009.
Source: Own calculations based on the scientific use file of the Microcensus of the Federal Statistical Office Germany.

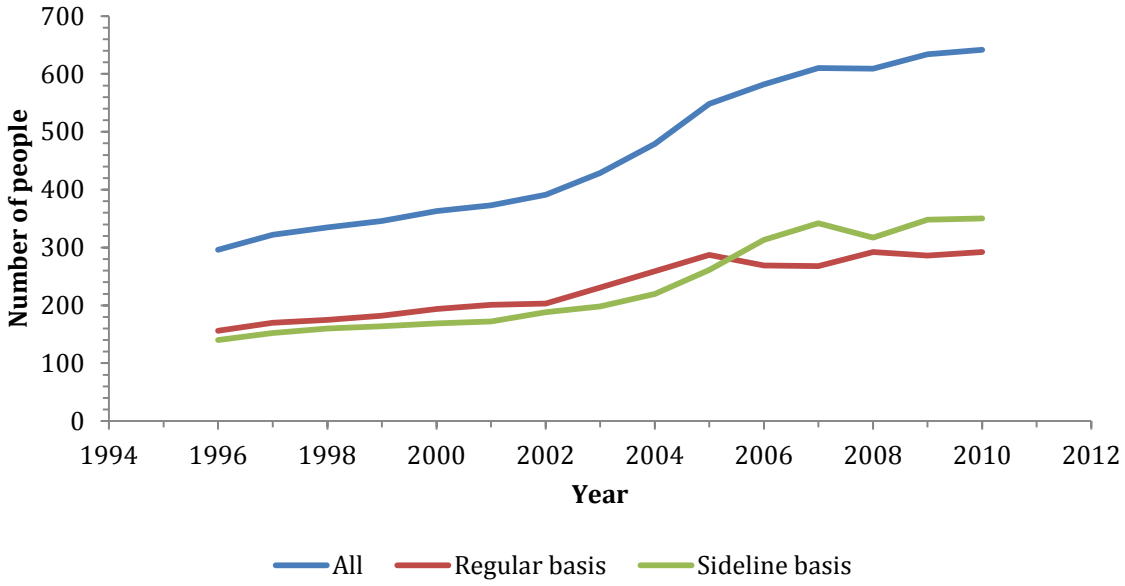

Figure 5. Number of solo self-employed women in the service sector (regular basis, sideline basis).
Source: Own calculations based on the scientific use file of the Microcensus of the Federal Statistical Office Germany.

As Figure 5 shows, solo self-employed women increasingly work on the basis of a sideline employment which has become a more important economic activity than solo self-employment on a regular basis. When asking for reasons why people work part-time, huge differences between gender and between the status of the different agents (solo self-employed, self-employed with employees, employee) can be found. A huge difference between men and women is that women work part-time (instead of full-time) because they have private or family commitments or that they care for a child or disabled person (see Table 2).

Table 2. Reason for working part-time.

	Solo Self-Employed	Self-Employed with employees	Employees
Men			
Full-time employment not available	17.2	5.8	38.8
Education	8.8	3.8	14.6
Illness, accident	3.3	3.8	7.0
Private or family commitments	5.1	7.7	5.1
Full-time employment not possible or not wanted	39.8	53.8	23.5
Caring for child or disabled person	2.9	1.9	3.1
n.a.	23.0	23.1	7.8
All	100.0	100.0	100.0
Women			
Full-time employment not available	10.9	5.9	20.1
Education	5.3	1.5	3.5
Illness, accident	1.8	2.9	2.1
Private or family commitments	20.8	23.5	23.8
Full-time employment not possible or not wanted	27.1	25.0	21.0
Caring for child or disabled person	21.7	25.0	26.3
n.a.	12.4	16.2	3.2
All	100.0	100.0	100.0

Source: Own calculations based on the scientific use file of the Microcensus of the Federal Statistical Office Germany.

To obtain more reliable information about the factors behind those statements, it is necessary to explore the relationship between self-employment, partner's employment, the household and children. Our analysis examines the influence of personal characteristics, household and labour market characteristics for both mothers and fathers in a family context and their probability of being self-employed as compared to parents who have chosen formal, gainful employment. Observing labour market data at a level of households allows an investigation of the forms of work hybridity (Folta et al., 2010) as a strategy to combine different income sources of the household agents to a common whole on a rational basis.

Family and/or household background of those entrepreneurial agents who were treated as full-time or part-time entrepreneurs in our previous discussion is shown in Table 3. Now, when turning to the perspective of households, completely new horizons emerge. While female solo self-employed people and female employees contribute to a household income in about 48 % of the cases (compared to 27 % for self-employed people with employees), which is not the strongest income source of the household, one can interpret the data in the sense that a very wide share of the female agents simply want to gain additional income in order to contribute to the overall household income. Taking together reasons for working part-time (Table 2) and information provided in Table 3, the interpretation comes to mind that especially female part-time entrepreneurship is led by a rationality geared towards generating additional income for the financial package of a household. An argumentation which highlights different gender aspects in entrepreneurship by emphasizing new meanings of reliability and risk-moderation (Hytti, 2005) may find specific proof here.

Table 3. Relationship between main income earner and the reference person representing the household.

	Solo Self-Employed	Self-Employed with employees	Employees
Men			
Main income earner in the household is the reference person and is an independent farmer	5.9	4.4	0.0
Main income earner in the household achieves highest income class by him-/herself	59.6	70.1	75.2
Main income earner in the household achieves the highest income class jointly with additional person	5.4	4.1	5.0
Other main income earner (reference person in the household)	7.0	8.2	3.6
Person in the household with main income earner being an independent farmer (full time)	0.3	0.1	0.2
Person achieving the highest income class, but not main income earner	1.3	0.9	2.1
Person declaring income, but not in the highest income class	15.2	6.5	12.2
Person does not declare income, but other members of the household provide details for individual incomes	4.6	4.9	0.9
Person does not declare income, no other household members declare income	0.7	0.8	0.8
Total	100.0	100.0	100.0
Women			
Main income earner in the household is the reference person and is an independent farmer	0.3	0.4	0.0
Main income earner in the household achieves highest income class by him-/herself	34.9	46.6	38.0
Main income earner in the household achieves the highest income class jointly with additional person	1.5	2.0	1.7
Other main income earner (reference person in the household)	2.8	4.0	1.3
Person in the household with main income earner being an independent farmer (full time)	1.3	1.1	0.4
Person achieving the highest income class, but not main income earner	4.3	9.3	6.2
Person declaring income, but not in the highest income class	47.4	27.1	48.7
Person does not declare income, but other members of the household provide details for individual incomes	4.0	3.8	0.6
Person does not declare income, no other household members declare income	3.6	5.8	3.0
Total	100.0	100.0	100.0

Source: Own calculations based on the scientific use file of the Microcensus of the Federal Statistical Office Germany.

A life course can be adequately interpreted as a story from birth to death, which includes different transitions and trajectories. These changes also affect entrepreneurship and provide underlying sense to rationalities within entrepreneurship and related agents within economic and societal developments. During one´s life course, entrepreneurship can be a source of income among other sources, and its role in the income portfolio changes. Consequently, it makes sense to understand entrepreneurship in the larger context of employment, career, life course and personal well-being. Therefore the biographical perspective of looking at life courses as lives of cohorts in transition is a further axis of discussing intentions and choices (Kohli, 2007; Mayer, 2009).

These turbulences within the existing organisations – the need to downsize, rationalise, delayer, outsource, restructure, flatten or shape the organisation for the future – have changed the concept of a career from the perspective of the individual. From a positive point of view, it has been suggested that the changes enhance the emergence of a new "boundary-less career" or "portfolio career", where individuals accumulate skill and personal reputation as key career resources through frequent movements between firms, in and out of self-employment, and job opportunities that extend beyond a single employment setting. In other words, employment relations are increasingly in transition, working contracts become insecure and work often becomes precarious, which emerges as a more visible downside of current labour markets and societies (Kalleberg, 2009).

SOME RESULTS FROM THE BINARY LOGISTIC REGRESSION

Employees and self-employment: Over the past decades, a restructuring of the labour market has taken place, which has led to diminishing differences between the employees and self-employed people – due on the one hand to outsourcing and on the other hand to more possibilities for taking up a business, especially as a high start-up capital is frequently not necessary in the services sector. Often, when starting up a business, one can manage this from one's own pocket and may remain independent of banks and collateral for loans. However, core workforces are outsourced by companies in order to carry out the very same activity with the status of self-employed worker. They work regularly for only one enterprise or contractor and can be characterised as fictitiously self-employed.

Therefore the relevance of the special variables, e.g. individual characteristics connected with self-employment, may have decreased.

To gather more information about the significance of the explanatory variables, binary logistic regression was undertaken. In the first step, we took a look at the differences between self-employed people and employees. The employment status was coded with 0 = employees and 1 = self-employed.

The following variables were chosen as predictors

- Economic sectors: services; agriculture and forestry, fishing; industry, and domestic trade, accommodation, transport
- Gender
- Age
- Highest level of education (ISCED97)
- Actual working time
- Number of children below the age of 3.

The descriptive statistics are presented in Tables A-1 and A-2. From the data set, we excluded the cases where no information was given regarding the level of education (N = 496).

According to the scientific use file for 2009, the labour force consists of around 38.64 million people, with 45.8 % females. Most people work in the service sector (51.4 %). In the industry sector 22.3 % are employed and in the primary sector only 2.3 %. Regarding the highest level of education (ISCED97), most people in Germany have a level of ISCED 3b (45.8 %).

For the regression we chose the following the reference categories

- Services for the economic sector
- ISCED 6 for highest level of education (ISCED97)
- Male for gender
- 3 children

As we have about 34.3 million employees and approx. 4.2 million self-employed, the prediction of the simple model with only the constant gives quite a high value for the correct percentage as can be seen in Table 4.

The model predicts 89 % of the responses correctly without using any independent variable additionally. The result indicates that without any further information, we would be correct in 89 % of the cases, when we suggest that that particular person is an employee. Therefore a better fit of the model will not be easy to achieve, as only 11 % are incorrect.

The predicted odds of being self-employed are 0.123 if only the intercept is used in the model. As can be seen from the statistics of the variables not in the equation

(Appendix Table A-3), the number of children and some values of the education variable (ISCED 3b, ISCED 4a, b, n.a.) are not significant. All other variables seem to contribute to a better prediction. Information about the goodness of fit is presented in the row omnibus test of model coefficients. The simple model has a poor fit: the chi square has 18 degrees of freedom and a value of 4,269.157. This indicates that the predictors may have a significant effect. However, the values for the test statistics are not convincing. Nagelkerkes R^2 is .210 and therefore quite low as is Cox and Snell's R-Square. The results for another test statistic, the Hosmer-Lemeshow-Test are shown in Appendix Table A-4. The table reveals the same outcome: a poor fit.

Table 4. Test statistics and results of estimation for employees versus self-employed people.

Classification table

Observed			Predicted self Employed	Self-employed	Percentage correct
Step 0	Self	Employee	34,3330	0	100
		Self-Employed	4,222	0	.0
Overall Percentage					89.0

Constant is included in the model; cut value is .500

Variables in the Equation

		B	S. E.	Wald	df	Sig.	Exp(B)
Step 0	Constant	-2.096	.016	16,513.519	1	.000	.123

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	4,269.157	18	.000
	Block	4,269.157	18	.000
	Model	4,269.157	18	.000

Model Summary

	-2 Log likelihood	Cox & Snell R square	Nagelkerkes R square
Step 1	22,372.365	.156	.210

Classification table

Observed			Predicted Self Employee	Self-employed	Percentage correct
Step 1	Self	Employee	34,1626	171	99.5
		Self-Employed	3,823	400	9.5
Overall percentage					89.6

Additionally, the number of actually observed versus the number of predicted people in each group can be compared. The division into ten subgroups shows quite remarkable differences, especially for the self-employed people (Appendix Table A-5), thus backing up the results of the other measures. The classification table for step 1 shows that the value of the overall percentage is only 0.6 higher than the value in the model with only the constant term. Furthermore, it can be seen that merely 9.5 % are correctly classified for the self-employed. To complete the information about the regression, in Table 5 the statistics for each predictor are given. The Wald Statistic for most of the variables is quite high, indicating some relevance of predictors. However, the number of children and some ISCED values for education have a low Wald statistic and are not significant. Factors of relevance are the economic sector, age, working time and gender.

With respect to the economic sectors, the possibility of being self-employed is higher for the primary sector and the sector with domestic trade, accommodation and transport, and lower for the industry than for the service sector. People are also more likely to be self-employed if they are older. The positive sign of the actual working time indicates that on average self-employed people are working longer. Regarding the education level it can be seen that for people with a low level the possibility to be self-employed is low. However, for ISCED 2 and 3a the Wald statistic is low, therefore those variables are not statistically significant.

On the contrary, there are two statuses in particular, ISCED 3b and ISCED 6, where the B values indicate that people with those levels of education are very likely to be self-employed.

Table 5. Variables in the Equation, Step 1

	B	S. E.	Wald	df	Sig.	Exp(B)
Services			837.570	3	.000	
Agriculture and forestry, fishing	1.186	.086	191.839	1	.000	3.273
Industry	-1.181	.062	357.661	1	.000	.307
Domestic trade, accommodation, transport	.489	.042	136.598	1	.000	1.630
Age	.047	.002	848.417	1	.000	1.048
Actual working time	.034	.001	836.379	1	.000	1.034
Female	-.408	.039	109.694	1	.000	.665
ISCED 1			614.176	9	.000	
ISCED 2	-.155	.163	.901	1	.342	.856
ISCED 3a	-1.357	.456	8.857	1	.003	.257
ISCED 3b	1.019	.174	34.475	1	.000	2.770
ISCED 3c	.018	.151	.014	1	.907	1.018
ISCED 4a, b	.610	.161	14.305	1	.000	1.840
ISCED 5a	.906	.155	34.044	1	.000	2.475
ISCED 5b	.860	.153	31.418	1	.000	2.364
ISCED 6	1.219	.180	46.061	1	.000	3.384
n.a.	.481	.405	1.410	1	.235	1.617
3 children			36.092	3	.000	
No child	.445	.077	32.955	1	.000	.560
1 child	.499	.273	3.347	1	.067	1.647
2 children	.941	1.303	.522	1	.470	2.563
Constant	-5.653	.176	1030.768	1	.000	.004

Overall, the binary logistic regression regarding the differences between being self-employed or having a job shows a rather weak model fit. This indicates that there are no major differences between the people in those two statuses.

However, in the literature it is argued that the group of self-employed people is very heterogeneous and sometimes being solo self-employed or working for a company is nearly the same regarding the individual characteristics – those solo self-employed are sometimes characterised as "scheinselbständig" (self-employed in name only). Therefore, differences may occur when comparing solo self-employed with self-employed people with employees.

Self-employment and Solo Self-employment: To get a better understanding of the self-employed, we took a closer look at the differences between self-employed and solo self-employed people. In the sub-sample only people who are self-employed are included. The employment status is coded with 0 = self-employed with employees and 1 = solo self-employed.

The dependent variable which measures the solo self-employment is equal to 1 if the respondent is solo self-employed and 0 otherwise. The logistic regression model is used to estimate the factors which influence solo self-employment if someone is self-employed. The following variables are used to predict solo self-employment

- Economic sectors: services (reference category); agriculture and forestry, fishing; industry, and domestic trade, accommodation, transport
- Gender
- Age
- Age squared
- Highest level of education (ISCED97)
- Actual working time
- Number of children below 3.

However, in a first estimation, age squared and the number of children was not significant regarding the Wald statistics.

Therefore, as the inclusion of irrelevant variables can result in a poor model fit, we omitted those variables for

the final estimation. The basic information is given in Appendix Tables A-6 and A-7.

In 2009 the number of self-employed people was ca. 4.2 million, with 31.2 % females. Most self-employed people work in the service sector (53.1 %). The percentage of self-employed in the industry sector is quite low at 8.1 %. The percentage of 2.3 % in the primary sector is an expression of the structural changes of the economy. Regarding the highest level of education (ISCED97), most people have a level of ISCED 3b or ISCED 5 a first stage of tertiary education (34.1 % resp. 42.9 %).

For the regression we chose the following reference categories

- Services for economic sector;
- ISCED 1 for highest level of education;
- Male for gender.

Table 6. Test statistics and results of estimation for employees versus self-employed people.

Classification table

Observed			Predicted self Employed	Self-employed	Percentage correct
Step 0	Self	Employee	0	1,858	100
		Self-Employed	0	2,364	100.0
Overall Percentage					56.0

Constant is included in the model; cut value is .500

Variables in the Equation

		B	S. E.	Wald	df	Sig.	Exp(B)
Step 0	Constant	.241	.031	60,325	1	.000	1.272

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	691.932	15	.000
	Block	691.932	15	.000
	Model	691.932	15	.000

Model Summary

	-2 Log likelihood	Cox & Snell R square	Nagelkerkes R square
Step 1	5,101.361	.151	.202

Classification table

Observed			Predicted Self Employee	Self-employed	Percentage correct
Step 1	Self	Employee	1,036	823	55.7
		Self-Employed	576	1,789	75.7
Overall percentage					66.9

The model predicts 56.0 % of all cases correctly without any additional information. Using only the intercept will therefore lead to results which are no better than "tossing a coin". The predicted odds of being self-employed are 1.272, if only the intercept is used in the model. Taking a look at the table with the statistics of the variables not in the equation (Appendix Table A-8) shows that ISCED 3b, 4a and 4b have a relative high significance, which is the same result as for the overall labour force. However, for all other variables the significant is less than 0.001. As is the case for the overall model, the model for the sub-sample seems to have a poor fit: the chi square has 15 degrees of freedom and a value of 691.932. The values for the test statistics are also relatively low, indicating a poor fit. Nagelkerkes R^2 is 0.202 and Cox and Snell's R-Square is 0.151, indicating a weak relationship between prediction and grouping. However, the Hosmer-Lemeshow-Test reveals better results (Appendix Table A-9). The significance is 0.816, which means that the hypothesis has to be rejected and therefore the model seems to be a good fit. This is also documented in the contingency table for the Hosmer and Lemeshow Test, where the differences in the number of actually observed and the number of predicted people in each group are shown (Appendix Table A-10).

The classification for step 1 shows that the value of the overall percentage is 10.9 higher than the value in the

model with only the constant term. The model predicts 66.9% of the responses correctly. The estimations for the self-employed is 54.1 % and for the solo self-employed 75.3 % are correctly classified. To complete the information about the regression, in Table 7 the statistics for each predictor are given.

Table 7. Variables in the Equation, Step 1.

	B	S. E.	Wald	df	Sig.	Exp(B)
Services			95.474	3	.000	
Agriculture and forestry, fishing	.283	.144	3.844	1	.050	1.327
Industry	-.723	.130	30.986	1	.000	.485
Domestic trade, accommodation, transport	-.627	.082	59.133	1	.000	.534
Age	-.015	.003	23.624	1	.000	.985
Actual working time	-.032	.002	290.873	1	.000	.968
female	.133	.078	2.939	1	.086	1.142
ISCED 1			112.707	9	.000	
ISCED 2	.318	.328	.942	1	.332	1.375
ISCED 3a	-.104	.956	.012	1	.914	.902
ISCED 3b	.689	.354	3.776	1	.052	1.991
ISCED 3c	,340	.303	1.259	1	.262	1.405
ISCED 4a, b	,262	.323	.659	1	.417	1.300
ISCED 5a	-.314	.309	1.032	1	.310	.731
ISCED 5b	.099	.308	.104	1	.747	1.104
ISCED 6	-1.265	.352	12.895	1	.000	.282
Constant	2.439	.345	49.910	1	.000	11.463

The Wald Statistic for most of the variables is quite high, indicating the relevance of predictors.

- Regarding the economic sector, the results indicate that with respect to the service sector the possibility to be solo self-employed in the industry sector and the sector of domestic trade, accommodation, and transport is lower. That means that it is more probable that we can find solo self-employed people in the service sector.
- With respect to age, the negative sign shows that on average, solo self-employed people are younger than self-employed people with employees.
- The actual working time for solo self-employed is lower than the working time for self-employed people with employees. This is also a plausible result, as the solo self-employed work part-time more often, as the descriptive analysis has shown.
- Gender also contributes to the model, as the positive B indicates that the solo self-employed group tends to have significantly more females than males.
- Concerning the education level, the results show that with a higher level of education it is more likely for self-employed people to have employees. It can also be seen that people with a special form of education e.g. ISCED 3b and c as well as 4a, b are more likely to be solo self-employed. Especially interesting is the negative B for ISCED 6. This group consist to a larger part of members of the Free Professions (legal representative, solicitor, physician, auditor, tax advisor and related professions), which need to have a high education level.

CONCLUSIONS

While gender disparities can be found and are discussed at many different levels, our article restricted the level of observation to the division of labour market segregation and especially to gendered aspects of participation within self-employment. “Because women are disproportionately located in economic sectors that are growing (especially the white-collar and service sectors) and men are disproportionately located in economic sectors that are shrinking …” (Blau et al., 2006, p. 3), we can observe the same tendency within the socioeconomic category of self-employment. Our data confirm that the general trend of rising female integration into the labour market is true for the specific field of self-employment. However, since women engage

in the service sector and in solo self-employment to an above average extent, there is no real trend that a gender pay gap is closing, because those fields of engagement provide lower working hours and lower wage levels.

In the article the topic of female self-employment is discussed in the wider framework of household organization and the organization of work, life and income within the context of family organization. Our data suggest that not only the division of labour but also the division of engagement in self-employment is highly dependent on the rationality of labour market participation. People's intentions to engage in a specific volume and with specific degrees of motivation reflect diverse areas of the organization of private life. The rationality of private duties, needs, challenges, and aspirations belongs to the factors influencing decisions. A crucial impact on those decisions is given by the individual's domestic background and by what the household looks like.

Issues of firm partnership, marital status, and the existence of children and age of children or elder relatives are factors which provide different life-worlds, which set parameters of relevance to engage in labour market. This engagement is often a struggle between different preferences and conditions to acknowledge so that decisions are framed and led by different social contexts.

In the end, the household as the entity and composition of different interests, motivations, needs, and obstacles proves to be the real acting subject of our analysis. Individual actors seem to be embedded in wider logics of life-world sense including all factual restrictions, wants, and necessities. In so far, above average participation of women in solo self-employment may reflect growing needs for flexibility in terms of time sovereignty despite lower incomes. Understanding the variability in sex segregation (Charles & Grusky, 2004) also needs to go down to the grips of household rationalities to understand that different divisions of gender participation are not only a reflection of discrimination but also the mirror of different social constraints in a context of the organization of business and society (Charles & Bradley, 2009).

Our descriptive data indicated very many of these leading assumptions, which help to interpret different gender gaps but our modelling underlined and supported those ideas.

Our results also deliver some advice for policy recommendations, if the improvement of women's participation in self-employment –often seen as entrepreneurship– is intended. Designing effective labour market participation for women as self-employed has to take the differences of women's life-worlds into account as firm partnership, marital status, and the existence of children and age of children or elder relatives are parameters of relevance for engagement in the labour market. Providing an environment with regard to those parameters would be conducive to enhancing women's participation in the labour market as self-employed. Overall, women face specific obstacles such as family responsibilities that have to be managed in order to give them access to the same opportunities as men (Delmar & Holmquist, 2004; Welter, 2007; Kelley et al., 2011). However, the individualistic view has to be overcome in policy recommendations as the household proves to be the relevant actor.

What is more, to get a more complete picture, the development over time should be considered, though such analysis may be hampered by the availability of adequate data. In the best case, information about the career of the people within the context of the household would be available. For example, with such data it would be possible to analyse how a working life has evolved starting e. g. as an employee, becoming solo self-employed, and – if successful – hiring some employees, developing an enterprise. Also, the effects of children on the labour market supply of women over time, e.g. how it changes as children grow older, could be examined. Such longitudinal data –ideally panel data– would also help to differentiate between age-, period-, and cohort effects. Furthermore, a closer look regarding specific occupations or sectors seems necessary considering the change of patterns of gender decisions in education and further education, especially taking into account the process of tertiarization and the development of the fourth sector.

As the empirical analysis here was done for Germany, another direction for further research would be analyses on an international level. This would be especially relevant for the EU, as the economic policy of the European Commission has fostered entrepreneurship for a long time (Commission of the European Communities, 2003). Such analysis could also shed some light on the relevance of institutional factors, as labour market regulations differ widely between EU countries (Ganzerla, 2008).

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APPENDIX

Table A-1: Case Processing Summary.

Unweighted Cases		N	Percent
Selected Cases	Included in Analysis	222,373	99.8
	Missing Cases	496	.2
	Total	222,869	100.0
Unselected Cases		0	.0
Total		222,869	100.0

Table A-2: Number of people in 1,000, Germany 2009.

Economic Sectors	N	Percent
Agriculture and forestry, fishing	877	2.3
Industry	8,632	22.3
Domestic trade, accommodation, transport	9,286	24.0
Services	19,845	51.4
Gender		
Male	20,936	54.2
Female	17,704	45.8
Highest level of education (ISCED97)		
ISCED 1 - Primary level of education	857	2.2
ISCED 2 - Lower secondary level of education	4,680	12.1
ISCED 3 - Upper secondary level of education	-	-
ISCED 3a (designed to provide direct access to ISCED 5A)	1,566	4.1
ISCED 3b (designed to provide direct access to ISCED 5B)	17,699	45.8
ISCED 3c (designed to prepare students for direct entry into the labour market	222	.6
ISCED 4a, b (Post-secondary non-tertiary)	2,956	7.7
ISCED 5 - First stage of tertiary education	-	-
ISCED 5a (university of applied science, university)	6,240	16.1
ISCED 5b (vocational college)	3,759	9.7
ISCED 6 (Doctoral degree)	579	1.5
n.a.	83	.2
Total	38,640	100.0

Table A-3: Variables not in the Equation.

			Score	df	Sig.
Step 0	Variables	Services	968.772	3	.000
		Agriculture and forestry, fishing	413.685	1	.000
		Industry	558.399	1	.000
		Domestic trade, accommodation, transport	168.476	1	.000
		Age	921.495	1	.000
		Actual working time	1,408.268	1	.000
		female	406.055	1	.000
		ISCED 1	1,066.859	9	.000
		ISCED 2	173.219	1	.000
		ISCED 3a	16.191	1	.000
		ISCED 3b	.384	1	.536
		ISCED 3c	265.083	1	.000
		ISCED 4a, b	.009	1	.925
		ISCED 5a	311.082	1	.000
		ISCED 5b	309.762	1	.000
		ISCED 6	201.093	1	.000
		n.a.	.003	1	.954
		3 children	1.496	3	.683
		No child	1.094	1	.296
		1 child	.124	1	.725
		2 children	.264	1	.607
	Overall Statistics		4,195.104	18	.000

Table A-4: Hosmer-Lemeshow-Test.

Step	Chi-square	df	Sig.
1	48.722	8	,000

Table A-5: Contingency Table for Hosmer and Lemeshow Test.

		Employee		Self-Employed		Total
	Sr. No	Observed	Expected	Observed	Expected	
Step 1	1	3,793	3,815.046	63	41.544	3,857
	2	3,734	3,768.437	122	86.843	3,855
	3	3,708	3,727.563	147	127.302	3,855
	4	3,674	3,680.856	180	173.091	3,854
	5	3,626	3,621.174	227	231.771	3,853
	6	3,559	3,546.425	296	308.569	3,855
	7	3,485	3,444.696	370	410.193	3,855
	8	3,339	3,295.718	516	559.346	3,855
	9	3,103	3,048.213	750	805.006	3,853
	10	2,312	2,384.415	1,551	1,478.691	3,863

Table A-6: Case Processing Summary.

Unweighted Cases		N	Percent
Selected Cases	Included in Analysis	24,571	100.0
	Missing Cases	0	.0
	Total	24,571	100.0
Unselected Cases		0	,0
Total		24,571	100.0

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IMPACT OF ORGANIZATIONAL CULTURE AND PROMOTIONAL POLICIES ON EMPLOYEE JOB SATISFACTION: THE CASE OF PAKISTAN

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A B S T R A C T

This study aims to know the impact of organizational culture and promotion policies on job satisfaction of employees working in different organizations of Pakistan. More specifically, this study is to find the factor among organizational culture and promotional policies which more strongly affect the level of satisfaction of employee's jobs. Questionnaire used to know this impact on job satisfaction. Out of 125 questionnaires, 100 questions are fully filled by the employees of different organizations. For the data analysis, SPSS version 15 is used to interpret the findings of the paper. By applying the technique of OLS on data, we get the results. Results show that there is a significant relationship between independent variables (organizational culture and promotion policies) and with the dependent variable (job satisfaction). Both the independent variables show positive relationship with job satisfaction.

Keywords: Job satisfaction, organizational culture, promotion polices.

INTRODUCTION

When we research on organizational issues, employee satisfaction is one of the main and important issues of all time. How we satisfy our customer is the key question, which is to be answer in a research. Employees are the key players in organization so their commitment with organization is very important. Due to the better commitment and involvement of employees at work provides competitive advantage to organization. Different efforts have done and many are at work to cope with this issue. In organization, the most frequently investigated variable is job satisfaction (Spector, 1997).

Employee satisfaction based on many factors some of them are good working conditions, supervisory support, good leadership style, attractive reward system, better chance for personal development, smart promotion polices etc. these facets leads towards commitment of employees. Whereas, employee dissatisfaction based on poor working conditions, deprived leadership style, be deficient in job security, poor organizational climate etc. facets like these show high level of dissatisfaction of employees at work. In extensive researches on job satisfaction, shows that it depends on many factors such as pay, promotion policies, organizational culture, working conditions and leadership and with the supervisory relationship (Schneider & Snyder, 1975; Hellriegel & Slocum, 1974; Kerego & Mthupha, 1997; Peterson, 1995; Boeyens, 1985). Job satisfaction is the essential element for the employees to be committed at their job. The concept of job satisfaction is widely defined by many authors in different researches but the concept regarding employee satisfaction is same. Job satisfaction is an attitudinal variable that shows or describe the personal feelings of a person at the job (Spector, 1997). Above mentioned are some of the variables that affect the job satisfaction, but I discussed here only few.

The main objective of this paper is to show the impact of organization culture and promotional policies on job satisfaction also to know there relationship with job satisfaction, with the help of the questionnaire that are filled by 100 respondents. Further in this paper: section 2 explain the brief literature on the variables under study, section 3 describe hypothesis for the paper, section 4 explain research methodology, section 5 explain results and discussion and section 6 includes the

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conclusion and recommendation about the paper and in the end there are references.

LITERATUER REVIEW

In recent years job satisfaction is the topic of interest for many researchers. Job satisfaction is the employee's positive feelings towards a job. Job satisfaction is pleasant and constructive feeling that comes from the appraisal of employee during his job (Locke, 1979). Job satisfaction described as general approach, which is deriving from different distinct approaches (Reddy & Rajasekhar, 1990). Drever, (1964). defined this phenomenon as "the ultimate order of feeling". Whereas Singh (1990) gave explanation that job satisfaction is related to life satisfaction. In the same way, life is persuading by the job of a person whatever he or she has.

Locke (1979) illustrates that if the researcher wants to study the job satisfaction issue than they must know what the dimensions it has are; its dimensions are linked and multifaceted in character. He also explained its dimensions that are work, pay, promotion, organizational climate, working conditions, benefits, appreciation, leadership, supervisory support and coworkers (Locke, 1979, p. 1302).

On the other hand, when we study the literature regarding the job satisfaction with the pay and job satisfaction with promotion of employees it shows that there is a positive relationship among these. A comprehensive study on the relationship of promotion and its expectation on job satisfaction are doing in a paper of an American researcher KOSTEAS V. D. As the employee is promoted at work, its satisfaction for the job is increased (KOSTEAS, V. D., 2011).

A climate may be defined as ''a set of characteristics, through which one organization differ from other organizations; are bearing over time; and predominance the behavior of people in the organization''(Forehand & Gilmer, 1964). They perceived organizational environment or climate as influencing motivation, which result in satisfaction, productivity or performance, and retention or turnover (Litwin and Stringer, 1968). Climates are perceive by people and usually are psychological in nature (James & Jones, 1976; Jones & James, 1979; Joyce &Slocum, 1979; Schneider, 1975; Weick, 1979). Organizational climate is one of the most vital concepts which is created by organizational researchers because it explain the set of independent variables which need to maintain or increase the effectiveness of the organization and the satisfaction of its employee (Guion, 1973).

Organizational climate have used as a variable which interpose between organizational processes and job satisfaction (Lawler et al., 1974). Organizational climate also defined as the 'personality' of an organization (DuBrin, 1974; Hoy and Miskel, 1982). The literature has demonstrated the relationship of organizational climate and job satisfaction in facilitating organizational development (Brady, 1985). Job satisfaction is an important variable in organizational climate research, and it incorporate job satisfaction as one measurement of climate (Camp, 1994; Stohr, Lovrich, Menke, & Zupan, 1994; Whitehead &Lindquist, 1989; Wright, 1979; Wright & Saylor, 1991). The relationships of job satisfaction and organizational climate have examined in different organizations (Repettiand and Cosmas, 1991; Sheinfeld and Zalkind, 1987; Prichard and Karasick, 1973; Payne et al., 1976; Schneider and Synder, 1975; Johansson, 1973; Lafollette and Sims, 1975). Job satisfaction has positive relationship with the organizational climate in the study (Srivastava and Pratap, 1984). Organizational climate consider as a vital factor in job satisfaction (Sharma and Sharma, 1989; Kumara and Koichi, 1989; Gellerman, 1968; Litwin and Stringer, 1968; Prichard and Karasick, 1973). Climate predominance the behavior of the organization's employee (Grace, 1986).

Satisfaction has an impact of income ups and down but it is short-term in nature (Hammermesh, 2001). In this paper the researcher, explain that promotion has a positive impact on satisfaction of employee and has an effect on its attitude for a work. The employees who get the promotional benefits are more strongly committed towards an organization as compare to those who do not receive it.

An inclusive paper on the promotion and its affect is given by a researcher who explain that promotion is significantly influence the job satisfaction (KOSTEAS, V. D., 2011). He explains that there is a strong connection between the promotion and job satisfaction by using the data of U.S for the years of 1996-2006. His paper also depicts the picture of study that promotion has significantly positive, but on the other hand has reducing effect by the time on job satisfaction.

There is a powerful role of expectation on the job satisfaction at work for the employees (Clark, 1997; Sousa-Poza and Sousa-Poza, 2003 and Long, 2005). In

these papers, one hypothesis state that there is a difference between the satisfaction of men and women at their jobs. Evidence found in these research papers depicts the picture that women have low expectation as compare to men.. Low life satisfaction is come from the high level of income desire in people in organizations (Stutzer, 2004).

Only few papers are having on the relationship between promotion and job satisfaction of employees. Pergamit (1999) also find that there is a positive relationship between promotion and employee job satisfaction, when he study the data of 1989-1990 waves of the NLSY. In another study, promotional has significant impact on job satisfaction and its expectation for employees in organizations (De Souza, 2002). De Souza explains the behavior of individuals who received the promotion is change from those who do not promote. People who get promotional opportunity are more satisfied and they expect more from their jobs. De Souza also explains many factors that determine the job satisfaction.

All above literature shows that job satisfaction has many dimensions to study but as we are discussing under Pakistan scenario, so we focused only the organizational culture and promotion policies and their impact on job satisfaction. Organizations should satisfy its employees for the betterment of the company as well as for the society.

The study was based on the following hypothesis:

H1: Organizational Culture positively affects job satisfaction. Strong organizational culture imparts high level of job satisfaction in employees.

H2: Promotional policies of the organization affect positively on job satisfaction. Strong promotional policies impart high level of job satisfaction in employees.

RESEARCH METHODOLOGY

125 employees of different organizations are selected to fill the questionnaires. Complete and fully filled questionnaires are 100. So, the response rate is 80%. Employees of lower and middle level in organizations are use in this study.

Data for this research is gathering by the questionnaire. Questionnaire is consisting of two parts. Part 1 is of general information (i.e.) name, age sex, and education, and organization name, designation in organization and years in organization. Whereas, part 2 is consisting of section A and B, section A have the questions regarding the job satisfaction of employee in organization of around 9 questions. In addition, section B is consist of around 24 questions that covers the area of employee satisfaction towards a promotion polices and organization culture. In this section, each question has five options to select any one from 1-5 i.e. strongly disagree-strongly agreed.

In this study, we are going to know that the organization culture (OC), and promotion policies (PP) have affect the job satisfaction (JS) of employees at work. Therefore, we have used the two (2) independent variables that affect the job satisfaction (JS).

In our study, the main focusing variables are:

Organization Culture i.e. technical help, social support, social harmony and respect.

Promotion policy of the organization i.e. chances for further advancement.

For the analysis of data, the technique, which is used, is ordinary least square method. With the help of multiple regression method, we get the result. Spss version 15 was use to get the results in form of descriptive statistics, model summary and Pearson correlation.

RESULTS & DISSCUSSION

Multiple regression was applied to draw results on the data received through questionnaires. Following are our results regarding this research study:

Table 1: Descriptive statistics

	Mean	Std. Deviation
job satisfaction	27.7041	4.32258
Age	1.40	.682
Sex	1.57	.498
level of education	2.03	2.057
marital status	1.78	.545
Years in current organization	2.965	2.3487
Organization culture	17.7500	2.73538
promotion policy	27.4800	4.76197

Table 1 showing the standard deviations and means on the responses of respondents on different variables i.e. job satisfaction age , sex, level of education , marital status, years in current organization, organization culture and promotion policies. Results shows that mean value of responses received on job satisfaction is 27.7041 and standard deviation is 4.32258 depict more satisfaction level of employees. Promotional policies have more mean value then organizational culture i.e. 27.48 > 17.75. Respondents are more satisfied with their promotional policies then organizational climate. Whereas respondents shows least satisfaction with age,

sex, level of education, marital status and experience in current organization. The overall model summary is mentioned in Table 2. As model explains the 50.7% variance in employees' job satisfaction by the change in independent variables (organizational climate and promotional policies).

Table 2: Model summary.

R	R Square	Adjusted R Square	Std. Error of the Estimate
.712	.507	.468	3.15320

Table 3: Pearson correlation.

	Job Satisfaction	Organization Culture	Promotion Policy
Job Satisfaction	1.000	.537	.628
Organization Culture	.537	1.000	.510
Promotion Policy	.628	.510	1.000

In the Table 3, we use Pearson correlation to examine the individual effect of different independent variables on dependent variable and among independent variables themselves. It is clear from the table 3 that organizational culture and promotional policies correlate with job satisfaction. There is an indication of high correlation of variable factors with one another showing the overlapping effect of variables. Correlation Table indicates a strong relationship between dependent and independent variables, which illustrate that our model strongly influences job satisfaction. Here, it is also consider that the data should not show multicollinearity problem i.e. there is not strong correlation existing between our independent variables. Correlation of organizational culture with promotional policies is .51.

Table 4: Coefficients.

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.427	3.162		.451	.653
	organization_culture	.536	.142	.339	3.782	.000
	promotion_policy	.414	.080	.456	5.195	.000
	age	1.547	.581	.244	2.661	.009
	sex	.830	.699	.096	1.188	.238
	level of education	-.078	.158	-.037	-.496	.621
	merital status	1.134	.681	.143	1.666	.099
	yrs in current ogr.	.016	.147	.009	.107	.915

a. Dependent Variable: job_satisfaction

Coefficients are explained in table 4, they interpret that all variables (organization culture, and promotional policies) have statistically significant contribution towards job satisfaction of employees. Results interpret that beta coefficients for both culture and promotion policies explain job satisfaction 53.6% and 41.4% respectively whereas age. Sex, education and marital status and experience in years do not have any significant effect on job satisfaction.

CONCLUSION & RECOMMENDATION

This paper presents the effect of promotion policies and organizational culture on the employee's job satisfaction. The paper shows a positive relationship between promotions and organizational culture with job satisfaction. While controlling other factors aside like age, education, skills, experience, and that of sex. The paper shows that by promotions an employee's satisfaction increases, as they feel confident about their job performance and a sense of justice. Correspondingly, the organizational culture also plays an important role in employee's satisfaction. As if better working conditions, well-organized policies and encouragement are there, they enhance the employee's satisfaction. The findings in this paper are relating to the previous literature which shows the positive relationship between job satisfaction and that of promotions and organizational culture as supported by previous studies.

The results concluded in my research paper are

supported by these researches: Kosteas, V. D., (2011); Pergamit and Veum (1999); De Souza, (2002); Sharma and Sharma, (1989); Kumara and Koichi, (1989); Gellerman, (1968); Litwin and Stringer, (1968); Prichard and Karasick, (1973). Kosteas,(2011) found a positive relationship job satisfaction and promotional policies. Pergamit and Veum (1999) and De Souza, (2002) also find that employees job satisfaction has positive impact of promotion and its expectation of employees. Similarly, Grace, (1986) reveals through his study that organizational climate influence on the behavior of the organization,s employees. The similar results are found in the researches of Prichard and Karasick, (1973); Gellerman, (1968) and Kumara and Koichi, (1989). However, there are some suggestions for boosting the satisfaction level and performance of employees. These are:

- The above discussion suggests that to enhance the satisfaction of employees there is need of timely and accurate promotional systems.
- Employees should promote on time and because of performance and experience. These provide satisfaction related to the job performance and job security.
- There should be good working conditions for an employee to do his task effectively.
- Proper policies and rules are making because of justice and equality.
- Timely and accurate promotional policies should adopt.
- The system is flexible enough to adopt the changing conditions.
- Organizations need to adopt more understandable organization climate to enhance the employees' job satisfaction.

Lastly, the human resource is one of the most important assets of an organization. If an organization wants to increase its effectiveness and efficiency then there is need of efficient and energetic mind with new ideas. Employees perform in a relaxed and good working environment providing good performance that result in their satisfaction.

In this study there are so many areas that are unfold as job satisfaction has many dimensions to study but we are studying only few. Our sample of study is small; it can be increase for the better results in future. In this paper, employees are select from private organizations and some government organizations. In future study the multinational companies can also become the part of study and the area for study can be expand for good and significant results. So by doing the above steps the scope of the study can be increase and enlarge.

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INVESTIGATING THE ROLES OF CLAIMS MANAGER IN CLAIMS HANDLING PROCESS IN THE NIGERIA INSURANCE INDUSTRY

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A B S T R A C T

Claims management can be seen as an essential tool of image boosting in insurance industry. Therefore, excellence in claims handling gives an insurance company a competitive edge over its competitors. To achieve this, there must be a virile claim department headed by a seasoned technocrat whose main role is to fashion out effective claims procedures and operations. This study aims at exploring the roles of claim managers in claims handling process in insurance business in Nigeria. Using a structured questionnaire, the study adopted exploratory research design using a simple random sampling technique. Inferential statistical method of Chi-square test was used to analyze the data in order to determine if there is any significant relationship between the variables in each hypothesis. The study reveals that there is a significant relationship between claims operation and effective claims management. It also reveals that there is a significant relationship between fraud detection and effective claims management. In order to strengthen these roles, it is recommended that head of claims should be part of top management team, staff in claims department must be exposed to training and insurance companies must internalize organizational philosophy on claim handling process.

Keywords: Claims Management, Insurance, Insurance Fraud and Claims Manager.

INTRODUCTION

A claim payment is the defining moment in the relationship between an insurance company and its customer. Butler and Francis (2010) see claim payment as a chance to show that the years spent paying premiums were worth the expense. From a commercial point of view, Butler and Francis (2010) assert that claims payment represents the largest single cost to insurers and 80 percent of all premiums are spent on claims payment and associated handling charges.

Claims management includes all managerial decisions and processes concerning the settlement and payment of claims in accordance with the terms of insurance contract (Redja, 2008). However, strengthening of claims departments, according to OECD (2004), involves effective claim procedures or operations which include claims reporting, claims assessment, claim processing, fraud detection and complaints and dispute settlements. But despite the above, claim settlement has never been without some hiccups for some insurance companies.

Statement of the Problem: Managing claims effectively is a complex task. Despite its many steps and variations in each process, most Nigerian insurance companies struggle to consistently improve claims operations. This may not be unconnected with the poor claims process and non-recognition given to the staff of the department in the industry.

Given that the claims experience is a primary driver of policyholder satisfaction and loyalty, there is need to have a virile claims department headed by a seasoned technocrat who will deliver high quality experience and equally cut costs. A major way of cutting cost is by identifying genuine and fraudulent claims. Pesout and Andrle (2011) posit that frauds in insurance are one of the major sources of operational risk of insurance companies and constitute a significant portion of their losses. Dionne (2000) provides many reasons for insurance fraud such as changes in morality, poverty, behaviour of the intermediaries, insurer's attitude and nature of insurance contract. Due to these anomalies, roles of claims managers need to be expanded to

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detecting fraudulent claims and minimizing the overhead cost of the company.

In order to bring this argument into proper perspective, we seek to assess the effectiveness of the current role of the claim manager in some of insurance companies in Nigeria.

Objectives of the study: The main objective of this study is to explore roles of an insurance claims manager in claims handling process in insurance business. Other specific objectives include; assessing claims management process, to assess effectiveness and efficiency of claim management process in terms of service delivery to consumers, to determine the roles of claims manager in fraud detection and to proffer suggestions for policy and practice.

From the above stated objectives, the study proposes the following hypotheses for testing:

H_1 There is no significant relationship between claims operations processes and effective claims management.

H_2 Claims manager does not play any impact on fraud detection and prevention for effective claims management process.

Meaning and Concept of Claims Management: The word "claim" according to Kapoor (2008) emanated from the Latin word, "Clamare" which means to "*call out*". Barry (2011) defines insurance claims as all activities geared towards monitoring insured's compensation, restitution, repayment or any other remedy for loss or damage or in respect of doing their obligations. Therefore, Marquis (2011) posits that insurance claims management consists of the departmental stipulation, corporate policies and industry practices that insurance firms use to validate policyholder payment or reimbursement requests. Supporting this definition, Gallagher (2012) opines that claims management involves administration of claims arising from loss events.

Claims handling is the moment of truth for the insurance industry, an opportunity to fulfill the promise made to customers to pay a valid claim (Hewitt, 2006). The essence of its actual application is to invoke the benefit of the insurance promise (Kapoor, 2008), provided all terms and conditions of the policy are met and the insured has acted with due diligence, as if uninsured, to protect his assets from the stipulated perils (Peverett, 1993).

The main objectives of claims management, according to Redja (2008), are to verify that a covered loss has occurred for fair and prompt payment of claims and to provide personal assistance to the insured after a covered loss occurs. These objectives, according to Brooks et al (2005), are often carried out by claims personnels that include managers, supervisors, claims representatives, customer service representatives, special investigation unit personnel, in-house council and third-party administrators.

Key issues that assist the claims department in achieving its objectives include understanding the customers, choosing the right claims model for the business, developing a mutually beneficial relationship with service providers, gaining an information advantage and taking a greater control of the claims process (Butler & Francis, 2010). Krishnan (2010) singles out claims process as the most important issue. He further defines claims process as the step by step process taken by the insured individual in making the demand from the insured's company and sometimes through the broker or an agent for settlement of losses incurred from the covered risk. This process can either be manual or web – based system. In manual based system, the client has no idea as to what stage of the claims process his or her policy is into while in the web-based system, deficiencies in the forms can be pointed in a faster manner (Krishnan, 2010).

However, either manual or web – based system, handling of claims process varies across insurance companies because they have different business models and different supplier network (Meyricke, 2010). Generally, Brooks et al (2005) propose that claims handling process includes acknowledging and assigning the claim, identifying the policy, contacting the insured or the insured's representative, investigating and documenting the claims, determining the cost of loss and loss amount and concluding the claims, that is, claims payment. Major components necessary for effective claims management process according to AIRMIC (2009), include culture and philosophy, communications, staff or people, infrastructure, claims procedures, data management, operations, monitoring and review.

Fraud in Claims Management: Isimoya (2013), notes that insurance is based on the principle of financial compensation for the effects of misfortune. But this principle can be undermined by fraud. According to Europe Insurance (2013), insurance fraud affects this principle as fraudulent applications and claims deplete the funds paid by the many honest customers to cover genuine losses.

There is no generally acceptable definition of insurance fraud. According to Gill et al (1994), is knowingly making a fictitious claim, inflating a claim or adding extra items to the claim or being in any way dishonest with the intention of gaining more than legitimate entitlement. Insurance fraud ranges from mild overstatement of the value of an item, lost or damaged through organized criminal activity designed to obtain large sum of money. (Bates & Atkins, 2007).

From a criminal point of view, Derrig & Krauss (1994) propose that fraud can be reserved for criminal acts, probable beyond a reasonable doubt, that violate statutes, making the willful act of obtaining money or value from an insurer under false pretense or material misrepresentation of a crime. However, Artis et al (1999) are of the opinion that this definition may be too strict to match the estimation objectives of the discrete choice model applied to the Spanish Auto insurance Market.

Claims fraud can be classified into mere exaggeration of claims, systematic fraud such as staged accident, false document and misrepresentation of information at the proposal stage. Clarke (1989), classifies insurance fraudster into the opportunist, the amateur and the professional. The opportunist takes an advantage of a genuine loss to commit fraud (Morley et al, 2006). The opportunistic fraud according to Dionne & Gagne (2002) can be induced when the benefits from fraud is sufficiently large. The amateur involves committing opportunistic fraud and then takes a step further while the professional engages in systematic frauds both individually and in organized networks.

Similarly, Gill et al (1994) posit that personal circumstances and resentment of insurance companies appear to be major determinants affecting a person's willingness to commit fraud. Other circumstances are the competitive nature in the insurance industry (Morley et al 2006), perceived efficiency of procedures such as scrutiny of policy and increasing consumer awareness (Clarke, 1989).

Measures undertaken to detect fraud, according to Morley et al (1999), include the responsibility for detecting fraudulent claims in insurance companies which rest heavily with staff at the front line of claims handling process. Therefore, the staff of the claims department must possess all round skills which include technical skills, work skills and interpersonal skills (Brook et al, 2005). They further stated that technical skill includes frauds investigation, evaluation skills and negotiation skills. Work skill involves positive works ethics, organizational skills, time management skills, computer skills and mathematical skills. The interpersonal skill consists of verbal communication, effective speaking, non – verbal communication, personal appearance, listening skills, active listening, reflecting and clarifying.

To corroborate the view above, OECD (2004) releases guidelines for good practices for insurance claims management which include claims reporting, receipt of claims by the company, claims files and procedures, fraud detection and prevention, claims assessment, claims processing, timely claims processing, complainant and dispute settlement, supervision of claims-related services and market practices.

MATERIALS AND METHODS

This study adopted exploratory research design method. The rationale behind using this design is to seek new insights into the two major characteristics of the operating variables in this study that is, claims operations and fraud detection. These variables also served as indicators to investigating the roles of claim manager. Simple random sampling technique was used to select a sample of 112 staff of claims department of insurance companies operating in Lagos. The choice of Lagos was due to the fact that the city is the commercial nerve center of the nation's economy and most of the insurance companies have their head offices situated in Lagos. Four (4) questionnaires were sent to twenty-two non-life insurance companies and six life insurance companies. A set of structured questionnaires were distributed to the selected respondents who work in the claims department. The research instrument contained 23 questions with sections A and B. section A had seven (7) questions which deal with socio-demography. Section B was further divided into two parts, the first part was based on the outlook of claim department and the second part contains 4 likert index questions to address claims management drivers, organizational culture and philosophy on claims management staff, development of claims department, effects of infrastructure and technology, claims operations and fraud detection. The research instruments were validated by top executives in claims management. The response rate for the questionnaires distributed was 71.42%, though minor discrepancies in total number of respondents were observed due to respondents' inability to provide answers to some of the questions. Inferential statistical method of Chi-square test was

used to analyze the data in order to determine if there was any significant relationship between the variables in each hypothesis. Descriptive statistic of frequency and percentage was used to analyse the demographic data. Stata (version 12) Excel (version 2007) and SPSS (version 15) were used to analyze the data.

RESULTS AND DISCUSSION

Table 2. Test of Hypothesis 1.

Items		Frequency	VLE	LE	HE	VHE	Total	Df	X²cal	P-value
S/N	**1**	Observed	3	14	47	16	80	12	19.8	0.071
		Expected	1.4	10.2	44.6	23.8	80.0			
	2	Observed	0	7	42	31	80			
		Expected	1.4	10.2	44.6	23.8	80.0			
	3	Observed	0	6	45	29	80			
		Expected	1.4	10.2	44.6	23.8	80.0			
	4	Observed	2	11	50	17	80			
		Expected	1.4	10.2	44.6	23.8	80.0			
	5	Observed	2	13	39	26	80			
		Expected	1.4	10.2	44.6	23.8	80.0			
Total		Observed	7	51	223	119	400			
		Expected	7.0	51.0	223.0	119.0	400.0			

X2 = 19.8 (df = 12; p< 0.1).

The research hypothesis geared toward achieving the stated objectives of the study was tested using inferential statistic of Chi-square at 0.05level of significance. From the table, the X2 value of 19.8 (df = 12; p<0.05) is significant at 0.1. This indicates that, there is a significant relationship between claims operation and effective claims management. Consequently, claims operation has a positive impact in claims management.

Table 3: Test of hypothesis 2.

Items		Frequency	VLE	LE	HE	VHE	Total	Df	X²cal	P-value
S/N	**1**	Observed	5	11	39	25	80	09	80.0	0.000
		Expected	15.5	7.5	37.0	20.0	80.0			
	2	Observed	40	4	23	13	80			
		Expected	15.5	7.5	37.0	20.0	80.0			
	3	Observed	1	9	44	26	80			
		Expected	15.5	7.5	37.0	20.0	80.0			
	4	Observed	16	6	42	16	80			
		Expected	15.5	7.5	37.0	20.0	80.0			
Total		Observed	62	30	148	80	320			
		Expected	62.0	30.0	148.0	80.0	320.0			

X2 = 80.0 (df = 9; p< 0.05).

From the table, the X2 value of 80.2 (df = 9; p<0.05) is significant at 0.05. Based on this explanation, this indicates that, there is a significant relationship between fraud detection and effective claims management. Consequently, fraud detection improves effective claims management.

Discussion of Findings: From the above results, it can be deduced that there is a significant relationship between claims operation and effective claims management. The claims operations may include flow chart to record processes and levels of authority, adequately experienced and qualified senior staff to supervise operations, consistent interpretation of policy terms and conditions, minutes of meeting and other records of client discussions and outsourcing of claims process to third party (loss adjuster).

The results also show that there is a significant relationship between fraud detection and effective claims management. The fraud detection can be through the establishment of compliance programme for combating fraud, awareness of consequence of submitting a false statement by the insured, adequate

training of claims department on fraud indicators and effective communication line where claims susceptible to fraudulent are reported. Hence, the role of claims manager in claims process is crucial to the survival of insurance companies because the process of claims settlement according to Krishnan (2010) is the final point of an insurance contract.

We also found out that members of staff of claims department have relatively low work experience mostly less than 10 years, hence, more experienced staff can be deployed to the department. Because of image boosting that claims management brings to insurance companies, head of claims must be part top executive management so as to ease decision making.

Findings also revealed that motor policy has the highest claims payment. This corroborates the fact that motor vehicle policy is most sought after. The roles of loss adjuster cannot be underestimated in claims management process. To achieve efficient and effective claims management process, insurance claim drivers must be taken into cognizance. Some of the claims drivers include information technology, regulatory compliance to claim handling process, access to claims information, client complaints procedure and direct involvement of claim function by top executive management.

CONCLUSION AND RECOMMENDATIONS

The role of claims manager in claims process is crucial to the survival of insurance companies because the process of claims settlement, according to Krishnan (2010), is the final point of an insurance contract and its application is to invoke the benefit of the insurance promise (Kapoor, 2008).

The findings of this study are convergent with the view of Redja (2008) who also believes that roles of a claim manager include to verify that a covered loss has occurred, for fair and prompt payment of claims and to provide personal assistance to the insured after a covered loss occurs. However, in understanding these roles, a claim manager must possess certain qualities like understanding the customers, choosing the right claims model for the business, developing a mutually beneficial relationship with service providers, gaining an information advantage and taking a greater control of the claims process and fraud management. (Butler & Francis, 2010).

Finally, the following suggestions are given;

Head of claims should be part of management team rather than reporting to someone who then report to the management.

Staff in claims department must be exposed to training to include customer satisfaction, identification and reduction of fraud, regulatory compliance and image boasting.

Claims manager can also be trained in claims reporting process like, minimization of losses, investigation, verification of claims, loss evaluation and assessing the extent of the damage prior to any repair or replacement.

Insurance companies must have organizational philosophy on claim management to include board commitment, establishment of client complaints procedure, commitment to treating consumer fairly and direct involvement of claim by top executive management.

Insurance claims departments must improve their technology to include feedback mechanism, filing of claims process through the social media and internet and adoption of statistical data base in tracing performance of claims performance of claims settlement.

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ECONOMIC SIGNIFICANCE OF PREDICTABLE RETURNS: THE CASE OF EMERGING ASIAN COUNTRIES

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A B S T R A C T

The aim of this paper is to investigate whether the predictability of stock returns is economically significant, i.e if it can be exploited in practice to earn abnormal returns using various measures of market-timing and investment performance presented by Lo and Mackinlay(1997). The estimated multifactorial model linking yields and macroeconomic variables and the weights of the sector portfolios have been determined and a maximum predictability portfolio (MPP) was constructed. Measuring the economic significance of predictability of returns was done by calculating threshold transaction costs compared to actual cost in providing practical evidence of the existence of investment strategies based on profitable and beneficial predictability market yields Korean and Singaporean.

Keywords: Return Predictability, Maximum Predictability Portfolio, Market Timing, Transaction Costs.

INTRODUCTION

"An efficient market is a market where stock prices fully and instantaneously reflect all available information concerning the securities" (Fama, 1965), in other words, no investor is able to use this information available on the market order to predict future changes in stock prices and thus to derive abnormal profits. In his pioneering work, Fama (1970) has defined the hypothesis of efficient capital markets and in particular the strong form of efficiency as the assumption that all public and private information are fully taken into account by security prices. On the contrary, the evidence of a temporal variation of expected returns by fundamentals was recognized by many researchers to know the pioneer work of Chen, Roll and Ross (1986) in the U.S. market. They found that there is a long-run equilibrium between stock prices and macroeconomic variables. This result is consistent with other research on various international markets and those of Kizys Pierdzioch (2009), Aydemir and Demirhan (2009) and especially the emerging Asian markets namely those of Maysami et al. (2004), Pan et al . (2007), Gay (2008), Abugre 2008) Shahid (2008), and Brahmaserne Jiranyakul (2009).

Evidence of statistical significance and economic predictability of returns has been shown by various studies on different markets. Lo and Mackinlay (1997) have maximized the predictability of returns by building a portfolio for maximum predictability, MPP, based on a set of groups of segment assets. Using three-sample measures of predictability, they showed the economic significance of predictability in portfolio returns MPP in the U.S. market. This evidence has been found in developed markets namely the studies of Bekaert et al. (2008), Molodtsova and Papell (2009), Jacobsen et al. (2009) as well as emerging markets such as the studies of Lam et al. (2007), Hsu, Hsu and Kuan (2009), Gray (2009).

The purpose of the paper is to investigate whether the predictability of stock returns is economically significant, i.e if it can be exploited in practice to earn abnormal returns using various measures of market-timing and investment performance presented by Lo and Mackinlay(1997). This article is organized as follows: In the first section, we first give a review of the literature on the relationship between macroeconomic variables and stock returns. Section two presents two

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methodologies to maximize predictability of returns ie Principal Component Analysis (PCA) and one Portfolio Predictability Maximum (MPP). The third section presents the measures of market timing and investment performance. The empirical results are summarized in section four.

Section 1: The relationship between macroeconomic variables and returns: Review of Literature: The relationship between the stock market and economic theory has been widely studied in literature financial and macroeconomic namely the work of Fama (1981), Friedman (1988), Nelson (1976). Changes in the prices of stock index is extremely sensitive to changes in key economic fundamentals and changes in expectations about future prospects. The relationship between stock returns and macroeconomic variables such as money supply, the interest rate, inflation and industrial production is crucial not only in the analysis yields stock but also in understanding the interactions between expected returns and the real economy. Beginning with the pioneering work of Chen, Roll and Ross (1986) in the U.S. market based on the theory APT. This gave new impetus to the search for macroeconomic determinants of stock returns and focused primarily on the study of the significance of the risk premium attached to each macro-factor, providing considerable evidence that the variables states such as industrial production, yield spread between the good treasure of short and long term are important in explaining equilibrium asset prices. Kizys and Pierdzioch (2009) found that asymmetric shock in interest rates, industrial production, the exchange rate and inflation had no impact on integration yields Canadians, Italians, Great Britain returns with Americans.

The relationship between stock prices and macroeconomic variables has been well documented not only in developed markets but also in emerging economies. Following the methodology of Chen et al. (1986), Goswani and Jung (1997) studied the relationship between the prices of securities in the Korean market and macroeconomic variables, namely the interest rate in the short and long term, inflation, money supply, the industrial production, oil prices, the trade balance and exchange rates. Their results show that the prices of the index are positively correlated with Korean industrial production, inflation and interest rates in the short term while they are negatively correlated with the rate of long-term interest and the price of oil. Abdalla and Murinde (1997) studied the interactions between exchange rates and stock prices in emerging markets of Korea, India, Pakistan and Philippines. Their results show unidirectional causal relationships between these factors and for all markets except the Philippines. Maysami and Sim (2000, 2001a, 2001b) used the model vector error correction to examine the relationship between macroeconomic variables and stock returns of Hong Kong and Singapore (Maysami and Sim, 2002b), Malaysia and Thailand (Maysami and Sim, 2001a), Japan and Korea (Maysami and Sim, 2001b). Wongbangpo and Sharma (2002) studied the relationship between stock prices and economic factors of five ASEAN countries (Indonesia, Malaysia, Philippines, Singapore and Thailand) and found that in the long run, prices of securities five indices are positively correlated with growth.

Whereas production cost term, prices indices are based on past and future macroeconomic variables. Tarzi (2000, 2005) attempted to study the relationship between stock prices of the ASEAN countries and five macroeconomic variables namely: Gross domestic product, inflation, money supply, interest rate and exchange rate. Its result shows that in the long term, stock prices of five countries are strongly and positively related to the overall price level. A long-term negative relationship was detected between the prices of securities Thailand, Philippines, Singapore and the interest rate so that the relationship is positive for Indonesia and Malaysia. Islam (2003) showed the equilibrium relationships in the short and long term of four macroeconomic variables (interest rates, inflation, exchange rate and industrial production) and the KLSE index of Singapore. Its result is identical to that of Mookerjee and Yu (1997).

Maysami and Koh (2000) applied the model vector error correction to analyze the relations between the Singaporean market and the exchange rate, inflation, money supply, the rate of good to treasure long-term rate money on a daily basis. They concluded that inflation, money supply, changes in exchange rates form a cointegration relationship with the Singaporean market returns. This has been shown by Mukherjee and Naka (1995) in the Japanese market. The results of Naka et al. (1997) on the Indian market shows a largely positive relationship between industrial production and prices of the index while the Indian inflation is a determinant of large negative price. Ibrahim and Yussoff

(2001) analyzed the dynamics of interactions among three macroeconomic variables (real output, the index of consumer prices, money supply and the Malaysian price index. Based on the cointegration test and the error correction model, their results show that in the short term, the money supply has a positive effect on prices, while a negative long term. The same tests were used on weekly data for the period 1991:1-2007:4 market prices Ghana, Adam and Tweneboah (2008) examined the impact of five macroeconomic variables on these prices. Their results indicate that the lagged values of interest rates, inflation had a significant influence on security prices, while foreign direct investment, oil prices and the exchange rate had little influence.

Using monthly prices from six countries of Asia-Pacific (Malaysia, Korea, Hongkong, Thailand, Japan and Australia) and macroeconomic variables namely the exchange rate, the index of industrial production and the index of consumer prices, and Dinnich Mahmood (2006) showed the existence of an equilibrium relationship of long term and short-term causality between these variables. The Hong Kong shows a relationship between prices and the exchange rate as prices in Thailand reported a significant interaction with industrial production. Pan et al. (2007) have found the one-way causal relationship between exchange rates and prices in Japan, Malaysia and Thailand during the period 1988-1998.

Chen (2008) found that it is easy to predict recessions in the U.S. market using macroeconomic variables and above the inflation rate from an assessment of monthly data for the period 1957-207, series of interest rates, money supply, rate of public funds, debt total unemployment rates, exchange rates, debt. Over the period January 1986 - August 2001, Abugre (2008) showed that the monthly series of exchange rates, interest rates, money supply and industrial production are significant in explaining market returns Latin America (Argentina, Brazil, Chile and Mexico). The aim of the study of Robert Gay (2008) is to study the relationship between macroeconomic variables in the exchange rate and price of oil prices market indices of Brazil, Russia, India and of China. On monthly data and during the period from March 1999 to June 2006, the results indicate a positive relationship between the market index and the exchange rate is negative while the price of oil. The OLS estimation of the empirical relationship between the monthly macroeconomic variables (industrial production, inflation, money supply, exchange rates, interest rates and oil prices) and market returns of Istanbul executed by Kandir (2008) has provided over the period July 1997-June 2005, a significant relationship between the exchange rate, interest rates, inflation and yields while it is not significant with the money industrial production and oil prices. Brahmasrene Jiranyakul and (2009) examined the relationship between market returns Thailand and four macroeconomic variables during the pre-crisis (Janvier1992-June1997) and post-crisis (July 1997-December 2003). Tests of cointegration and causality indicate the positive effect of money supply on yield, while industrial production, the exchange rate and oil prices had a negative effect during the pre-crisis.

The majority of studies have examined the influence of certain macroeconomic variables on the components of the market index. Maysami et al. (2004) studied the cointegration relationships between macroeconomic variables (interest rates, industrial production, price levels, exchange rates and money supply) and prices of the securities of three sector indices (Finance, Real Estate, Hotel manager) of Singapore STI index. Their results on monthly data for the period January 1989 - December 2001, indicate a significant relationship between the different macroeconomic variables and real estate portfolio returns, while the Finance portfolio returns are significantly influenced by changes in the rate of inflation rates exchange and interest rates in the short and long term. A non-significant relationship was detected between the interest rates and yields of hotel portfolio while it is negative and significant with the exchange rate. Maysami et al. (2005) examined the relationship between macroeconomic variables and the prices of individual securities in the Singaporean index (STI) and American (SP500) divided into sectors.

Using the cointegration relationship and the model vector error correction on daily data, they showed that the index SP500 advance the electronics sector the index of Singapore.

Aydemir and Demirhan (2009) studied the Granger causality between prices indices Services, Industry, Finance and Technology market of Turkey and the exchange rate over a period from February 2001 to January 2008. The results reveal bidirectional causality between exchange rates and all these indices, a positive causality are apparent between the index and the

technology exchange rate and negatively with all the clues.

Section 2: Methodologies of Maximally Predictable Returns: Lo and Mackinlay (1997) proposed two methods to maximize predictability of returns: the Principal Component Analysis and methodology of a Portfolio of maximum Predictability. In what follows, we present these two methods.

The Principal Component Analysis: The most popular approach to study the predictability of returns is to assume the multifactor asset pricing model and then investigate the predictability of individual factors. This is a two-step procedure: First, the linear model yields an estimated representative: $r_t = \alpha + \delta^T F_t + \varepsilon_t$ (1.1)

$r_t \equiv [r_{1t}, r_{2t}, ..., r_{nt}]^T$ The vector of return at time t;

$F_t \equiv [F_{1t}, F_{2t}, ..., F_{pt}]^T$ The vector of factors p in period t;

$\varepsilon_t \equiv [\varepsilon_{1t}, \varepsilon_{2t}, ..., \varepsilon_{nt}]$ The vector of white noise

δ^T Is a matrix of coefficients.

When the p factors are known, the system of regression equations (1.1) can be estimated equation by equation by the method of ordinary least squares. If not, the principal component analysis is applied to extract the most important factors generating returns of securities. The first principal component is a linear combination $\gamma_{PC1}^T r_t$. Second, we analyze the predictability of the most important factor that is the portfolio given by the first principal component weighted ω_{PC1}^T. A simple measure is the square of the first order autocorrelation coefficient of $\gamma_{PC1}^T r_t$ from the regression:

$$r_{PC1}^T = a + \rho_1 r_{t-1}^{PC1} + \varepsilon_t \quad (1.2)$$

Where $\{\varepsilon_t\}_{t=1}^T$ is the white noise sequence with $Var[\varepsilon_t] = \sigma_\varepsilon^2$. Noting that the pattern of autocorrelation r_{PC1}^T may be more general than that implied by an autoregressive process of order 1 (AR (1)).

Maximal Predictability Portfolio: Lo and Mackinlay (1997) propose an alternative to the principal component analysis. They show that although captures most of variance of the n stock returns, it need not reflect much of predictability. Instead of maximizing the variance, they built a portfolio by maximizing predictability measured by the coefficient of determination. They assume that returns on lagged values rather than contemporaneous values of factors driving stock returns:

$r_t = \alpha + \delta^T F_{t-1} + \varepsilon_t$ (1.3)

Each of the n coefficients of determination, R_i^2, $i = 1,2,3,.....,n$, measures the predictability of individual stock returns securities included in r_t. Suppose we form a linear combination $\gamma^T r_t$ of n shares and consider the coefficient of determination when we regress $\gamma^T r_t$ on a constant F_{t-1} and:

$$R^2(\gamma) = \frac{Var[\gamma^T(\delta^T F_{t-1})]}{Var[\gamma^T r_t]} = \frac{\gamma^T \operatorname{var}[\delta^T F_{t-1}]\gamma}{\gamma^T Var[r_t]\gamma} = \frac{\gamma^T \Gamma_F \gamma}{\gamma^T \Gamma_r \gamma} \quad (1.4)$$

Where $Var[\delta^T F_{t-1}] \equiv \Gamma_F$ et $Var[r_t] \equiv \Gamma_r$.

To maximize predictability of a portfolio is equivalent to choose γ such that equation (1.4) is maximized and γ is a portfolio . The maximum $R^2(\gamma)$ is given by the largest eigenvalue γ_1 of the matrix $B \equiv \Gamma_r^{-1}\Gamma_F$ and is achieved by the vector corresponding to the largest value of B.

Section 3: Measures of "Market-Timing" and Investment Performance: In the previous section, we presented the methodology for maximizing predictability of returns. We will present the measures of "market timing" in order to determine whether predictability of returns is economically significant.

The evolution of the traditional measures of portfolio performance: Traditional measures of portfolio performance is three: Treynor, Sharpe and Jensen. The Treynor ratio (1965) is based on the model of the market where yields are holding into account the non-diversifiable or systematic risk represented by beta (β). The Treynor index is the ratio of the risk premium of the title and the systematic risk. The higher value of T_p implies a higher performance:

$$T_p = \frac{(R_p - R_f)}{\beta_p} \quad (1.5). \qquad \text{where } \beta_p = \frac{\sigma_{pm}}{\sigma_m^2}$$

The Sharpe ratio (1966) uses the method of replacing

(β) measure of risk as the standard deviation of the portfolio's return. A higher value of S_p implies a higher performance:

$$T_p = \frac{(\mathrm{R_p} - \mathrm{R_f})}{\beta_\mathrm{p}} \quad (1.5)$$

$$S_p = \frac{(\mathrm{R_p} - \mathrm{R_f})}{\sigma_\mathrm{p}} \quad (1.6)$$

The third measure of performance, widely used in empirical studies is that of Jensen (1986, 1969). The Jensen index is measured as the constant of regression between fund returns and market returns:

$$R_p - \mathrm{R_f} = \alpha_\mathrm{p} + \beta_\mathrm{p}(\mathrm{R_m} - \mathrm{R_f}) + \varepsilon_\mathrm{p} \quad (1.7)$$

Portfolio Performance (α) detects the sensitivity of portfolio returns to market returns.

Henriksson-Merton approach: The market-timing model of Henriksson and Merton (1981) is represented as follows:

$\gamma(t)$ Is the predictor with market-timer

$$\gamma(t) = \begin{cases} 1 & \text{si } Z_\mathrm{M}(t) \succ R(t) \\ 0 & \text{si } Z_\mathrm{M}(t) \le R(t) \end{cases} \quad (1.8)$$

With: $Z_\mathrm{M}(t)$ is the market return, $R(t)$ Is the return on risk-free asset.

Henriksson and Merton (1981) proposed two measures to evaluate the performance of a single transaction strategy. They used measure parametric and nonparametric measures. This is: Let p_1 the probability of a correct forecast in a "down" market and p_2 the probability of a correct forecast in an "up" market. Formally,

$$p_1(t) = \mathrm{Pr}ob[\theta_t = 0 / Z_M(t) \le R(t)]$$
$$p_2(t) = \mathrm{Pr}ob[\theta_t = 1 / Z_M(t) \succ R(t)] \quad (1.9)$$

As shown by Merton (1981) $p_1 + p_2$ that is a sufficient statistic for assessing predictability. This forecast has no value if $p_1 + p_2 = 1$

Testing the null hypothesis of no predictability, i.e H0: $p_1 + p_2 = 1$, against the alternative H1: $p_1 + p_2 > 1$.

The break-even transaction costs: A direct measure of the economic significance of stock return predictability are the break-even transaction costs equating the total return on an active market timing trading strategy with the total return on a passive investment. Lo and Mackinlay (1997) defined the end of period value of a dollar investment over the entire period as:

$$W_T^{passive} \equiv \prod_{t=1}^{T}(1 + r^k{}_t)$$

$$W_T^{Active} \equiv \prod_{t=1}^{T}\left[\theta_t(1 + r_t^k) + (1 - \theta_t)(1 + r_{ft})\right]$$

If active strategy requires k switches into or out of the portfolio k aver the entire investment period then the one way break-even transaction costs $100 \times s$ are a solution to the equation:

$$W_T^{passive} \equiv \mathrm{W_T^{Active}} \times (1 - s)^k$$

$$s = 1 - \left(\frac{W_T^{passsive}}{W_T^{Active}}\right)^{1/k} \quad (1.11)$$

Section4. Empirical Applications: In this section, we evaluate the statistical and economic significance of the predictability of returns based on the methodology of maximum predictability portfolio (MPP) Lo and Mackinlay (1997) and the techniques of market timing.

Description data: This section provides a detailed description of our database of four markets: Korea, Hong Kong, Indonesia and Singapore. The analysis of the economic significance of predictability is applied to the monthly returns of more liquid securities in each market. We group these securities in three portfolios following sectors: Financial sector (including all shares of banking institutions, financial, insurance and other financial services ..), industry sector (including securities firms industrial chemicals, food, ...) and Services sector (including securities of the media, telecommunications, ...). Referring to the results of previous studies and the lack of availability of monthly data, we choose four macroeconomic variables: Interest rate, index of industrial production, the index of consumer prices and money supply (M1).

Empirical results: Several previous studies have used the multifactor model for forecasting returns by fundamentals:

$$r_t = \alpha + \beta_1 LDR_{t-1} + \beta_2 LIP_{t-1} + \beta_3 LCP_{t-1} + \beta_4 LM1_{t-1} + \varepsilon_t \quad (1.15)$$

With: r_t Is the vector (3 × 1) yields three sector portfolios.

β_i is the sensitivity of returns to changes in factors.

LDR_t Logarithm of the discount rate (discount rate) to the end of the corresponding index.

LIP_t Logarithm of the index of industrial production at the end of the corresponding index.

LCP_t Logarithm of the price index for the consumption of the corresponding index.

$LM1_t$ Logarithm of the money supply (M1) to the end of the corresponding index.

This section reports the results of analysis of the economic significance of predictability of returns on emerging Asian markets. We start with a principal component analysis. Then we give the results of the analysis of portfolio Maximum Predictability in the context of a multifactor model for forecasting macroeconomic variables where four factors are considered our study period from 01/01/2003 to 02/10/2008.

Table 1.1: Weights of the first Principal Component of each index (γ^1_{PC}).

Indices	Weights	Variance Explained	Indices	Weights	Variance Explained
KS11	0,0769	42.0820%	JKSE	0,2827	29.2368%
	0,0419			0,2801	
	0,0992			0,3911	
	0,9656			0,2970	
	0,1411			0,4081	
	0,1209			0,3532	
	0,0777			0,2639	
	0,0027			0,1912	
	0,0737			0,3359	
	0,0623			0,2998	
HSI	0,0136	69.14%	STI	-0,2246	29.2368%
	0,1143			-0,4053	
	0,3593			-0,2319	
	0,1023			-0,1549	
	0,3624			-0,1549	
	0,2797			-0,4512	
	0,3858			-0,5834	
	0,6114			-0,2866	
	0,2602			-0,1694	
	0,2168			-0,1689	

Table 1.2: Autocorrelation functions of each (γ^1_{PC}) index.

Indices	Order	2003:02–2008:10	Confidence Interval
KS11	$\hat{\rho}(1)$	-0.2871	
	$\hat{\rho}(2)$	0.1421	
	$\hat{\rho}(3)$	-0.1463	
	$\hat{\rho}(4)$	0.0504	
	$\hat{\rho}(5)$	0.0118	0.2604
	$\hat{\rho}(6)$	-0.0121	-0.2604
	$\hat{\rho}(7)$	0.0707	
HSI	$\hat{\rho}(1)$	0.3417	
	$\hat{\rho}(2)$	0.0241	
	$\hat{\rho}(3)$	0.0727	
	$\hat{\rho}(4)$	-0.0168	
	$\hat{\rho}(5)$	0.0010	0.2604
	$\hat{\rho}(6)$	0.0226	-0.2604
	$\hat{\rho}(7)$	0.1615	
JKSE	$\hat{\rho}(1)$	0.1494	
	$\hat{\rho}(2)$	0.0458	
	$\hat{\rho}(3)$	0.0421	
	$\hat{\rho}(4)$	-0.0656	
	$\hat{\rho}(5)$	0.1416	0.2604
	$\hat{\rho}(6)$	0.0713	-0.2604
	$\hat{\rho}(7)$	0.2400	
STI	$\hat{\rho}(1)$	0.3313	
	$\hat{\rho}(2)$	0.2492	
	$\hat{\rho}(3)$	0.1951	
	$\hat{\rho}(4)$	0.0297	
	$\hat{\rho}(5)$	0.1237	0.2604
	$\hat{\rho}(6)$	0.0226	-0.2604
	$\hat{\rho}(7)$	-0.0114	

Based on MPP portfolio, we present the dynamic investment strategy and evaluate its performance outside the sample using several measures market

timing. We applied the two stages of the Principal Component Analysis to see if the portfolio of the first principal component is predictable or not. The empirical results of the ten most liquid shares of each index of Korea (KS11), Hong Kong (HSI), Indonesia (JKSE) and Singapore (STI) are summarized in Table 1.1 and 1.2.

¬ The autocorrelation coefficients of the first order of the first principal component indices KS11, HSI, STI and JKSE are outside the range of 95% and therefore are all significant at the 5% d: a first-order autocorrelation positive and significant for the weights of the main component indices HSI and STI while it is negative for the index of Korea KS11,

¬ The portfolio returns of the first principal component indices KS11, HSI and STI are predictable during the period 2003:02 to 2008:10 and therefore

¬ Ability to construct active strategy and the possibility attaining abnormal returns of these four markets¬the gains from market timing and active strategy are no value in the Indonesian market since returns are unpredictable.

In what follows, we present the results of the analysis and evaluation of MPP's economic significance of predictability of returns on emerging Asian markets. For each index, our study period from February 2003 to October2008 is divided into two periods: in the sample period from2003 to 2005 and out-of the sample from 2006 to 2008.

The Korea market: Using monthly data on the period from February 2003 until October 2008, we consider 50 most liquid shares traded on the Korea grouped into three portfolios: Finance, Industry and Services. The estimation results of the empirical relationship between the returns of three portfolios and four sectoral macroeconomic factors taking into account the Heteroskedasticity of errors are presented in Table 1.3

Table 1.3: OLS estimates for sector-grouped portfolio returns of the KS11 index.

	Constant	***LDR***	***LIP***	***LCP***	***LM1***	***R²***
Finance	0.008	0.1927	-0.017	-1.019	0.009	0.040
Industry	0.009	0.07	-0.204	-1.278	0.320	0.047
Services	0.011	-0.015	0.227	-0.320	-0.413	0.039

The results show a low explanatory power efficiency of Finance and Industry by the macroeconomic variables. After estimating the model prediction is made, the portfolio weights (MPP) are determined for the first 35 months in our sample (2003:02-2005:12).

Table 1.4: MPP weights

Finance	0.575
Industry	0.186
Services	0.239

The weights for Industry and Services portfolio are lower than the Finance portfolio. It helps to maximize the predictability of portfolio MPP. The weights are the eigenvectors corresponding to the largest eigenvalue of the matrix. Table 1.5 contains the results of OLS estimation of the forecast model of MPP returns, taking into account the Heteroskedasticity of errors: From the below table, we find that maximum R^2 of MPP is larger but weaker than R^2 individual sector portfolios.

Table 1.5: OLS estimates for the MPP portfolio

	Constant	***LDR***	***LIP***	***LCP***	***LM1***	***R²***
r_t^{MPP}	0.009	0.120	0.007	-0.89	-0.038	0.081

Hence an increase in the predictability of returns by combining the three MPP sector portfolios.

After all, this result does not imply a lack of predictability of returns due to variability of returns of securities and data mining data in the sample and hence the statistical significance of the predictability of returns.

A true predictability of returns is apparent in the MP Pout of the sample forecasts (Lo and Mackinlay, 1997). The forecast a month ahead is generated on a monthly basis starting from January 2006 and ending in October 2008. The process rolling is adopted as the first observation of the sample is left for a new will be added by keeping the sample size constant at 34 months. In addition, the coefficients of the forecasting model of returns and the portfolio weights MPP updated monthly. Our strategy is built active and naive: at the end of each month, the expected returns of MPP are

compared to risk-free rate. As the expected rate of return exceeds the risk-free rate, all funds will be invested in MPP and in the opposite case, all funds are invested in the risk-free asset. The monthly average yields, the monthly volatility and the terminal value of three strategies are shown in Table 1.6.

Table 1.6: Performance of trading strategies of KS11 index.

	ACTIVE	MPP	Risk-Free
Mean returns (%)	5.98	2.99	1.83
Volatility(%)	11.8	12.92	3.25
Terminal Value (Won)	2496.28	1456.5	1124.28

The terminal value is the value for October 2008 to 1000 Korean Won invested in the corresponding strategy in January 2006. We note that the active strategy was the superior performance over the period 2006:01 to 2008:10, and it yields higher mean average return with lower volatility than the passive strategy MPP. However, the volatility of the first two strategies increases this implies that these investments are very risky. To assess the predictability of the MPP passive strategy, we calculate the break-even transaction costs. The active strategy requires two switches into and out of the MPP strategy:

$$c = \left[1 - \left(\frac{1456.5}{2496.28}\right)^{\frac{1}{2}}\right] \times 100 \approx 23.61\%$$

This break-even transaction costs is greater than this incurred in reality. The implications that our strategy is beneficial and can beat the market and have earnings via abnormal returns of the strategy MPP. Therefore, the economically significant of predictability on the Korean stocks and during the period from January 2006 until October 2008.

The Hong Kong market: This market and the HSI index, we considered the same sample period and out of sample on the Korean market, the monthly returns of 33 most liquid shares and three macroeconomic variables (interest rate, inflation rate and the supply of money). Taking into account the Heteroskedasticity of the errors, the estimation of equation (1.1) gives us the following results:

Table1.7: OLS estimates for sector-grouped portfolio returns of the HSI index.

	Constant	*LDR*	*LIP*	*LCP*	*LM1*
Finance	-0.017	-0.080	-1.367*	0.012	0.286
Industry	0.002	0.109	-1.097*	0.055*	0.284
Services	-0.014	0.095	-1.013*	0.029	0.221

We note the strong predictive power of returns by macroeconomic variables via the coefficients of determination. Using the first 35 months of our sample period 2003:02 to 2005:12, we determined the different weights of the portfolio sector portfolios MPP. The weights of Finance and Industry portfolios are higher than that of Portfolio Services. Therefore, the first portfolios maximize the predictability of portfolio returns MPP Hong Kong market.

Table 1.8: MPP weights

Finance	0.405
Industry	0.349
Services	0.246

The estimation results of the forecasting model yields MPP portfolio, taking into account the Heteroskedasticity of the errors, are summarized in the following table:

Table1.9: OLS estimates for the MPP portfolio

	Constant	*LDR*	*LIP*	*LCP*	*LM1*
r_t^{MPP}	-0.015	0.094	-1.185*	0.042	0.294

The maximum R^2 of MPP is greater, equal to 29.42%, compared with those of sector portfolios and therefore a statistically significant predictability of returns MPP. Procedure "Rolling" out-of-sample from January 2006 until October 2008 is adopted at each end of the month and the performance of three strategies (Table 1.10).

Table 1.10: Performance of trading strategies of HSI index.

	Active strategy	Passive strategy	Artisans risk
Mean returns (%)	21.33	12.13	6.08
Volatility (%)	33.06	43.44	16.5
Terminal Value (dollar Honkong)	3993.37	3586.3	1862.89

The terminal value is the value for 1000 in October 2008 Hong Kong dollar invested in the corresponding strategy in January 2006. We find that the performance of the active strategy is superior to the passive strategy. It generates the mean return and lower volatility than the passive strategy. We calculated break-even transaction costs to assess the predictability of the MPP passive strategy. The active strategy requires seven changes in the passive strategy:

$$c = \left[1 - \left(\frac{3586.3}{3993.73}\right)^{\frac{1}{7}}\right] \times 100 \approx 1.52\%$$

This break-even transaction costs cannot be exceeded by the actual costs and therefore our strategy is not beneficial and the difficulty of beat the market and to have abnormal gains. These results are evidence of a predictable statistically and economically insignificant returns on the Hong Kong market over the period January 2006 to October 2008.

The Singapore market: We considered 17 most liquid securities in the STI index grouped into three portfolios and four macroeconomic variables: interest rate, the index of industrial production, the index of consumer prices and the supply of money. The OLS estimation of the empirical relationship between these variables taking into account the Heteroskedasticity of errors is shown in the following table:

Table 1.11: OLS estimates for sector-grouped portfolio returns of the HSI index.

	Constant	*LDR*	*LIP*	*LCP*	*LM1*	R^2
Finance	0.009*	-0.006	0.063	-0.317	-0.062	0.068
Industry	0.007*	0.012	-0.027	-0.373	0.465	0.075
Services	0.009*	-0.129	-0.186*	-0.480	0.062	0.072

A period from February 2003 to December 2005, MPP portfolio weights are reported and suggest the contribution of industry in maximizing predictability of portfolio returns as MPP has great weight.

Table 1.12: weights MPP

Finance	0.405
Industry	0.349
Services	0.246

Table 1.12 contains the estimation results of the forecasting model. We note that the maximum R2 is greater than the sector portfolios and the coefficients are no significant which suggests the existence of a low predictability of returns MPP statistically significant.

The evaluation economic significance of predictability is determined in out-of sample. The performance of several strategies is synthesized in the table 1.14.

Table1.13: OLS estimates for the MPP portfolio.

	Constant	*LDR*	*LIP*	*LCP*	*LM1*	R^2
r_t^{MPP}	0.0078*	0.0124	0.016	-0.347	0.286	0.171

Table 1.14: Performance of trading strategies of STI index.

	Active strategy	Passive strategy	Artisans risk
Mean returns (%)	9.1	1.18	0.14
Volatility (%)	2.5	5.1	0.4
Terminal Value (dollar Honkong)	2614.34	1196.5	1091.25

The terminal value is the value for 1000 in October 2008 Singaporean dollar invested in the corresponding strategy in January 2006. We find that the performance of the active strategy is superior to the passive strategy.

It generates the mean return and lower volatility than the passive strategy. We calculated break-even transaction costs to assess the predictability of the MPP passive strategy. The active strategy requires seven changes in the passive strategy:

$$c = \left[1 - \left(\frac{1196.5}{2614.34}\right)^{\frac{1}{5}}\right] \times 100 \approx 14.47\%$$

This break-even transaction costs is greater than this incurred in reality. The implications that our strategy is beneficial and can beat the market and have earnings via abnormal returns of the strategy MPP. Therefore, the economically significant of predictability on the Singaporean stocks and during the period from January 2006 until October 2008.

Financial Analysis of the results: The economic significance of predictability of returns can be traced at least three distinct sources (i) the consequences of economic fluctuations are transmitted to financial markets, (ii) its implications on investment policies and (iii) the implications the efficiency of financial markets. Throughout this chapter, we tried to maximize the predictability of returns by building a portfolio of predictable (MPP). The economic significance of predictability of returns of four emerging Asian markets was evaluated. Test the hypothesis that this predictability is exploited to derive statistically significant abnormal profits was made.

The results of the portfolio analysis of the first principal component provided us with a convincing conclusion that the returns to Korea, Hong Kong and Singapore are predictable and therefore the possibility to implement active management in these markets. For the index JKSE Indonesia, the portfolio returns of the first principal component are unpredictable throughout the study period. The best forecast yields JKSE are unconditional averages. As a result, gains in market timing and active strategy of no value in the Indonesian market. Although this analysis is widely used in the analysis of temporal variation in expected returns, but the analysis of maximum predictability is interesting because it explicitly captures the predictability of returns by their historical and fundamentals. The evaluation of the predictability of returns requires the adoption of an active strategy or naive this brings us to perform the procedure MPP. The empirical relationship between portfolio returns MPP was estimated and the maximum is determined. For each market studied, we find that the maximum is broader than individual portfolios (Finance, Industry and Services) the implications of these three portfolios help maximize the predictability of returns MPP. Referring to the pioneering work of Lo and Mackinlay (1997), this maximum value cannot be compared to a critical value under the null hypothesis of no predictability tabulated by these authors since we used only four proxy variables and three portfolios. This result does not imply the absence of predictability of returns in MPP as the maximum value does not take into account the variability of returns and data mining, and therefore a real MPP is apparent predictability in-sample forecasts. The procedure "Rolling" is adopted and construction of an active strategy is executed by comparing the expected rate of return on a risk-free rate and that for each month of the period runs from January 2006 to October 2008. In each market studied, we obtained a superiority of the active strategy and represents the rate of return as high and low volatility. Since the total yield of the active strategy does not include transaction costs can be substantial and significant, we determined the importance of such costs. Reducing the number of changes (switches) in the passive strategy generates an increase in the level of transaction costs. It is between 1.52% for the Hong Kong market and 23.61% in the Korean market for an active strategy generates the same total returns of a passive strategy. The empirical results suggest a statistically and economically significant predictability of Korean and Singaporean markets while it is insignificant on the Hong Kong market. These results contradicted the serial autocorrelation detected in yields of Hong Kong and Indonesia (in the first chapter): it appears that this is partly spurious autocorrelation induced by infrequent trading of less liquid securities included in the index HSI of Hong Kong and Indonesia JKSE.

The existence of profitable gains in the markets of Singapore and Indonesia, we can see the inefficiency of these markets. The observation of abnormal returns has led us to advance several explanations: first, these positive gains can be caused by the difference in risk between the different strategies. Second, the autocorrelation detected at the level of index returns is able to explain the abnormal gains. Then, a proportion of these abnormal returns can be explained by the transaction cost and the time variation of expected returns. Finally, the integration between these two

markets can explain the existence of profitable gains. This latter explanation is stated by Lam, Cheung and Yeung (2007) Hong Kong market.

CONCLUSION

This paper is intended to evaluate the economic significance of predictability of returns of four emerging Asian markets (Korea, Hong Kong, Indonesia and Singapore). Such predictability is economically significant if and only if it is operated to draw statistically significant abnormal gains. This hypothesis was tested on a number of more liquid securities (ranging from one index to another) of the relevant index and grouped into three sector portfolios (Finance, Industry and Services) for a period-sample from January 2006 until 'in October 2008. The estimated multifactorial model linking yields and macroeconomic variables and the weights of the sector portfolios have been determined and a maximum predictability portfolio (MPP) was constructed. Measuring the economic significance of predictability of returns was done by calculating threshold transaction costs compared to actual cost in providing practical evidence of the existence of investment strategies based on profitable and beneficial predictability market yields Korean and Singaporean.

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UTILIZING SYSTEM DYNAMICS APPROACH TO ANALYZE TRADE-OFF AMONG POSSIBLE STRATEGIC RESPONSES OF KARAZIN HOLDING COMPANY WHILE FACING MARKET RISKS

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A B S T R A C T

Presence of risks and uncertainties in organizations' markets plays significant role in organizations' performance. Thus, there is a considerable need to have an effective risk analysis approach in order to assess the impact of different risks on the organization's success and the outcomes that potential responses may have. A powerful risk analysis approach may consider dynamic nature of risks, as well as accounting for feedback loops affecting the overall risk impacts. This paper presents a new approach to construction risk analysis in which these major influences are considered explicitly. The proposed methodology is a system dynamics based approach in which different risks may efficiently be modeled. To make the concepts more clear, one model is introduced at the final section merely to show one strategic response framework.

Keywords: Risk management, System dynamics, Market risks, Strategic response framework.

INTRODUCTION

Daily, we are exposed to information from a multitude of sources: the news media, newspapers, radio, TV, and the Internet. Generally this kind of information reports events what happened, where, when, how, who was involved, etc. This is a snapshot view of the world because this level of information is very shallow; the reports only touch the surface of what actually happened. For example, the stock market information that is reported daily gives a snapshot of the day's activities. It tells us whether stocks, on average, won average, went up or down (often the index goes both up and down within one day) and by how much. We also get information on the volume of shares traded, the dollar value of stocks traded (capital turnover) and much more. All of this information is at event level.

Sometimes there is commentary about a news item or an issue, and this allows one to look back and examine the trends and patterns of events and data. This provides a richer picture of reality and gives more insight into the 'story'. In the stock market example, this means looking at the trends over past months or years, observing the the fluctuations and trying to explain what caused 'pulses' in the system - for example, news of a merger, a quarterly economic report or a political scandal.

However, it is rare to see a study of how such trends and patterns relate to and affect one another. This represents a much deeper level of thinking that can show how the interplay of different factors brings about the outcomes that we observe. In the stock market example, this would mean trying to relate a host of factors that systemically cause the fluctuating patterns. These factors could be economic, social, political or structural. The critical thing at this level of thinking is to understand how these factors interact.

If a risk analyzer recognizes a fluctuation in a special product price in a period, he uses the first level information to find a risk. If he studies this price fluctuation in a longer period and recognizes its pattern and its main causes, he uses the second level information to determine a risk. But if he compares this issue with other sources of risk and causes of price fluctuations, and furthermore, determines their relationships and connections, he makes deepest analysis to recognize the risk.

In this paper this kind of analysis will be discussed through system dynamics approach.

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RISK MANAGEMENT

Managing risk is one of the primary objectives of firms (Ghoshal, 1987). Risk management is an area with conflicting terms, and there is a widely acknowledged need for a critical reflection of its definitions, core contents, principles and regulation (Aven. T, 2011). The primary purpose of risk management is gaining opportunities and obviating harmful outcomes in risky situations. The processes to manage risks, opportunities, and action items are in some ways interrelated. Managing risks and opportunities often requires certain actions to be performed and tracked. Timely and effective management of program action items supports the reduction of risks and enhances exposure to opportunities.

Figure 1: Interactions among Risks, Opportunities, and Action Items.

Failure to manage action items may lead to risks and the necessity to deal with mitigation actions or corrective actions. Effective management of action items in other cases may lead to opportunities and associated pursuit actions. Some opportunities have risks associated with them and the treatment of risks may uncover opportunities. Figure 1 illustrates the overlaps in these processes.

The term "unpredictability" can be used as a synonym of the term "risk" in management sciences. This usage of risk is consistent with strategy researchers' use of variance (or standard deviation) of accounting-based performance variables such as return on equity and return on assets, stock returns volatility measures (beta and unsystematic risk), and measures of deviations from stock analysts' earnings forecasts as measures of corporate risk. The term "uncertainty" as used in strategic management and organization theory refers to the unpredictability of environmental or organizational variables that impact corporate performance (Miles , 1978) or the inadequacy of information about these variables (Duncan , 1972). Uncertainty about environmental and organizational variables reduces the predictability of corporate performance, that is, increases risk. Uncertainty can arise from exogenous shocks, unforeseeable behavioral choices, or combinations of the two.

Managers take some measures to alleviate the external risk influences. In the other hand, Corporate performance is composed of the separate performances of its business units and how they fluctuate and interact together to shape corporate financial outcome. Then corporations can take external or internal measures to respond to risks. Moreover, since all the measures and their outcomes are interconnected, analyzing the outcome of some measures is not the easy task. Until now, no integrated model has been developed to help managers analyze multilateral dynamic connections between risk sources and outcomes of measures which are taken to respond to those risks. So developing these two dynamic models will be the main purpose of this proposed research.

LITERATURE REVIEW

In the finance and strategic management literatures, business risk has been analyzed from various perspectives, including income stream risk, stock returns risk, and strategic risk (Miller, 1990). Business risk has been captured by different variables, such as the standard deviations of ROA or ROE, the coefficient of variation of stock analysts' earnings forecasts, and the debt-to-equity ratio (a measure of corporate financial leverage reflecting a company's risk of bankruptcy) (Shapiro, 1986).

Although there are a lot of models about corporation risks and their sources and influences, there are few models that are developed to introduce organizing framework for categorizing the range of risks relevant to managerial decision making. As Miller .D, the developer of one of those few models, says, managers may perceive as uncertain (1) general environmental, (2) industry, and (3) firm specific variables (Miller, 1990). Each of these categories encompasses a number of uncertain components. Review of a wide range of literature on uncertainty and risk management (shown in table1) served to identify the specific uncertain components included in this typology.

Table 1: range of corporate risks.

General Environmental Risks	Industry Risks	Firm Risks
Political risks • War • Revolution • Democratic changes • Other political turmoil **Government policy risks** • Fiscal and monetary reforms • Price controls • Trade restrictions • Nationalization • Government regulation • Barriers to earnings repatriation • Inadequate provision of public services **Macroeconomic risks** • Inflation • Changes in relative prices • Foreign exchange rates • Interest rates • Terms of trade **Social risks** • Changing social concerns • Social unrest • Riots • Demonstrations • Small-scale terrorist movements **Natural risks** • Variations in rainfall • Hurricanes • Earthquakes • Other natural disasters	**Input market risks** • Quality uncertainty • Shifts in market supply • Changes in the quantity used by other buyers **Product market risks** • Changes in consumer tastes • Availability of substitute goods • Scarcity of complementary goods **Competitive risks** • Rivalry among existing competitors • New entrants • Technological uncertainty	**Operating risks** • Labor uncertainties • Input supply uncertainties • Production uncertainties **Liability risks** • Product liability • Emission of pollutants **R&D risks** • Uncertain results from research and development activities **Credit risks** • Problems with collectibles **Behavioral risks** • Managerial or employee self-interested behavior

To challenge corporation risks, which introduced above, there are two main measures that will be discussed in following part

Financial Risk Management: The principal financial risk-reduction techniques are purchasing insurance and buying and selling financial instruments (forward contracts, futures contracts, swaps, and options). The nonexistence of markets for hedging exposures to many uncertain environmental contingencies is itself a result of uncertainty (March, 1987).

Strategic Risk Management: While the risk-reduction properties of forward contracts and insurance have been rigorously explored in the finance and insurance literature, the risk management implications of many corporate strategies have received relatively little attention. There are, nevertheless, a number of strategic moves that can potentially mitigate the risks associated with the uncertainties outlined earlier. The five "generic" responses to environmental uncertainties are avoidance, control, cooperation, imitation, and flexibility (Table 2). As mentioned in the title, these kinds of responses (strategic measures) will be considered as a solution in the model of this study.

SYSTEM METHODOLOGY

Systems methodology or the systems approach refers to a set of conceptual and analytical methods used for

systems thinking and modeling. The general methodological approach towards systems thinking and modeling used in this paper is based on the system dynamics method. The field of system dynamics was developed by Jay Forrester:

- the theory of information feedback systems;
- the understanding of decision-making processes;
- the use of mathematical models to simulate complex systems; and
- the development of high-speed electronic digital computers as a means of simulating
- Mathematical models.

Table 2: five generic responses to corporation risks.

Avoidance	• Divestment Delay
	• new market entry
	• Low uncertainty niches
Control	• Political activities
	• Gain market power
	• Exchange of threats
	• Vertical integration
	• Horizontal mergers and acquisitions
Cooperation	• Long-term contractual agreements with suppliers or buyers
	• Voluntary restraint of competition
	• Alliances or joint ventures
	• Franchising agreements
	• Licensing and subcontracting arrangements
	• Participation in consortia
	• Interlocking directorates
	• Interfirm personnel flow
Imitation	• Imitation of product and process technologies
	• Follow other firms in moving into new market
Flexibility	• Diversification
	Product diversification
	Geographic diversification
	• Operational flexibility
	Flexible input sourcing
	Flexible work force size
	Flexible work force skills
	Flexible plants and equipment
	Multinational production

Many other people have contributed to the development of systems thinking and system dynamics including Coyle (1977, 1996), Randers (1980), Richardson and Pugh (1981), Roberts et al. (1983), Senge (1990), Wolstenholme (1990), Richardson (1991), Mohapatra et al. (1994), Morecroft and Sterman (1994), Vennix (1996), Richmond and Petersen (1997), Sterman (2000), and many others! However, several authors have provided definitions of the system dynamics methodology, but we consider the one provided by Eric Wolstenholme (1997) as most appropriate. Wolstenholme's description of the scope of system dynamics is set out below.

What: A rigorous way to help thinking, visualizing, sharing, and communication of the future evolution of complex organizations and issues over time;

Why: for the purpose of solving problems and creating more robust designs, which minimize the likelihood of unpleasant surprises and unintended consequences;

How: by creating operational maps and simulation models which externalize mental models and capture the interrelationships of physical and behavioral processes, organizational boundaries, policies, information feedback and time delays; and by using these architectures to test the holistic outcomes of alternative plans and ideas;

Within: a framework which respects and fosters the needs and values of awareness, openness, responsibility and equality of individuals and teams.

The development of a systems thinking and modeling (Maani & Cavana, 2000) intervention involves five major phases:

1. problem structuring;
2. causal loop modeling;
3. dynamic modeling;
4. scenario planning and modeling;
5. Implementation and organizational learning (learning lab).

These phases follow a process, each involving a number of steps, as outlined in Table 1. However, it must be emphasized that a ST&M intervention does not require all phases to be undertaken, nor does each phase require all the steps listed in Table 1. Rather, these phases and steps are presented as guidelines, and which phases and steps are included in a particular ST&M intervention depends on the issues or problems that have generated the systems enquiry and the degree of effort that the organization is prepared to commit to the intervention. Figure 2 shows the progression of the phases. As mentioned earlier, although these phases can be used individually, their cumulative use adds more value and power to the investigation.

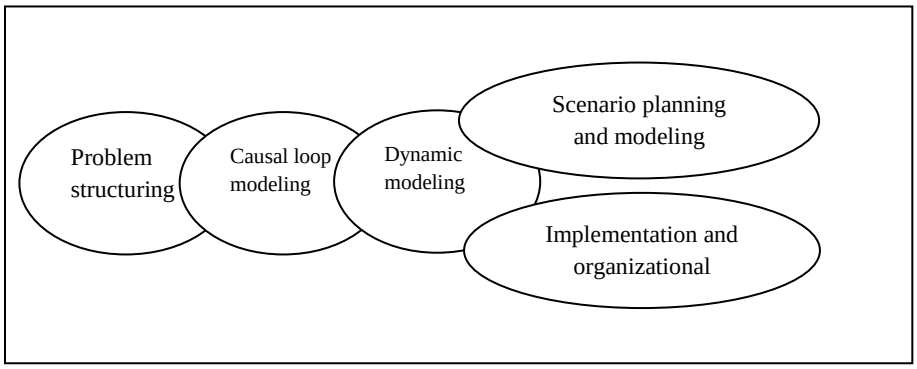


Figure 2: Phases of the systems thinking and modeling methodology.

Table 3: Systems Thinking & Modeling Process.

1. Problem structuring	1. Identify problems or issues of concern to management
	2. Collect preliminary information & data
2. Causal Loop modeling	1. Identify main variables
	2. Prepare behavior over time graphs (reference mode)
	3. Develop causal loop diagrams (influence diagrams)
	4. Analyze loop behavior over time
	5. Identify system archetypes
	6. Identify key leverage points
	7. Develop intervention strategies
3. Dynamic modeling	1. Develop a systems map or rich picture
	2. Define variable types and construct stock-flow diagrams
	3. Collect detailed information and data
	4. Develop a simulation model
	5. Simulate steady-state / stability conditions
	6. Reproduce reference mode behavior (base case)
	7. Validate the model
	8. Perform sensitivity analysis
	9. Design & analyze policies
	10. Develop & test strategies
4. Scenario planning and modeling	1. Plan general scope of scenarios
	2. Identify key drivers of change & keynote uncertainties
	3. Construct forced & learning scenarios
	4. Simulate scenarios with the model
	5. Evaluate the robustness of the policies and strategies
5. Implementation and organizational learning	1. Prepare a report and presentation to management
	2. Communicate results and insights of proposed intervention to stakeholders
	3. Develop a micro world and learning lab based on the simulation model
	4. Use learning lab to examine mental models and facilitate learning in the organization

Problem structuring: In this phase, the situation or issue at hand is defined and the scope and boundaries of the study are identified. This is the common first step in most problem-solving approaches. The problem structuring phase consists of the following steps:

(1) Identification of the problem area or policy issues of concern to management. This step requires that we clearly establish the objectives, taking into account multiple stakeholders and perspectives.

(2) Collection of preliminary information and data including media reports, historical and statistical records, policy documents, previous studies, and stakeholder interviews.

Causal loop modeling : During this phase, conceptual models of the problem, known as causal loop diagrams (CLDs) will be created. This is a major component and the most commonly used part of the systems thinking approach. The following steps are used in causal loop modeling:

(1) Identify main (key) variables.

(2) Draw behavior over time charts (or reference modes) for the main variables.

(3) Develop causal loop diagrams (influence diagrams) to illustrate the relationships among the variables.

(4) Discuss behavior over time of the dynamics implied by the causal loop diagrams.

(5) Identify system archetypes that would describe high-level causal patterns.

(6) Identify key leverage points.

(7) Develop intervention strategies.

Dynamic modeling: This phase follows the causal loop modeling phase. Although it is possible to go into this phase directly after problem structuring, performing the causal loop modeling phase first will enhance the conceptual rigour and learning power of the systems approach. The completeness and wider insights of systems thinking is generally absent from other simulation modeling approaches, where causal loop modeling does not play a part. The following steps are generally followed in the dynamic modeling phase:

(1) Develop a high-level map or systems diagram showing the main sectors of a potential simulation model, or a 'rich picture' of the main variables and issues involved in the system of interest.

(2) Define variable types (e.g. stocks, flows, converters, etc.) and construct stock flow diagrams for different sectors of the model.

(3) Collect detailed, relevant data including media reports, historical and statistical records, policy documents, previous studies, and stakeholder interviews.

(4) Construct a computer simulation model based on the causal loop diagrams or stock flow diagrams. Identify the initial values for the stocks (levels), parameter values for the relationships, and the structural relationships between the variables using constants, graphical relationships and mathematical functions where appropriate. This stage involves using specialized computer packages like STELLA, ithink, POWERSIM, DYNAMO, DYSMAP, COSMIC or VENSIM.

(5) Simulate the model over time. Select the initial value for the beginning of t he simulation run, specify the unit of time for the simulation (e.g. hour, day, week, month, year, etc.). Select the simulation interval (DT) (e.g. 0.25, 0.5, 1.0) and the time horizon for the simulation run (i.e. the length of the simulation). Simulate model stability by generating steady state conditions.

(6) Produce graphical and tabular output for the base case of the model. This can be produced using any of the computer packages mentioned above. Compare model behavior with historical trends or hypothesized reference modes (behavior over time charts).

(7) Verify model equations, parameters and boundaries, and validate the model's behavior over time. Carefully inspect the graphical and tabular output generated by the model.

(8) Perform sensitivity tests to gauge the sensitivity of model parameters and initial values. Identify areas of greatest improvement (key leverage points) in the system.

(9) Design and test policies with the model, to address the issues of concern to management and to look for system improvement.

(10) Develop and test strategies (i.e. combinations of functional policies, for example operations, marketing, finance, human resources, etc.).

Scenario planning and modeling: In this phase, various policies and strategies are postulated and tested. Detail of this phase will be discussed in section5.

Implementation and organizational learning: One of the most beneficial and enduring outcomes of systems thinking and modeling is organizational and team learning. Once simulation models have been developed, they can be enhanced by extending them into a microworld. Microworlds (also known as management flight simulators) provide an interactive and user-friendly interface for managers to experiment with the model. The learning laboratory uses microworlds in a structured process, akin to a scientific environment, to test hypotheses and mental models designed to create individual and group learning. The following steps summarize this phase:

(1) Prepare a report and presentation to the management team and other stakeholders .This should document the background and development of the systems thinking project, the challenges faced and lessons learned.

(2) Communicate results and insights of the study and the reasons for the proposed intervention to all stakeholders.
(3) Develop a microworld and design a learning lab for the simulation model. This involves adding necessary features (i.e. from computer software) to convert the simulation model into an interactive and user-friendly microworld. Then design a learning lab process for the microworld.
(4) Use the learning lab process to diffuse and facilitate learning in the organization.

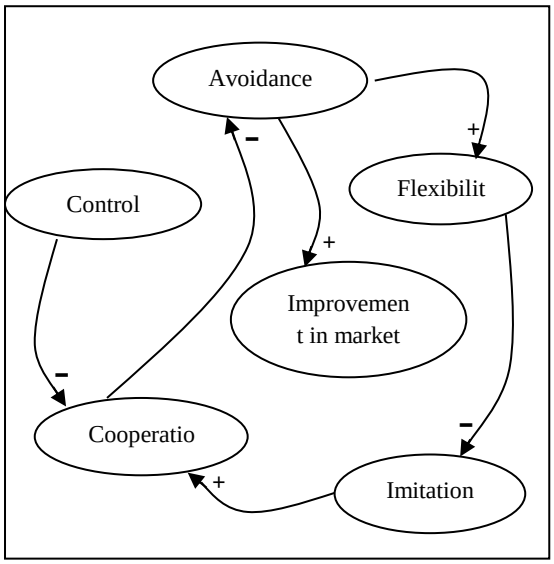
MODELING

As it was mentioned before, while modeling, various policies and strategies are postulated and tested. Here 'policy' refers to changes to a single internal variable such as hiring, quality, or price. Strategy is the combination of a set of polices and as such deals with internal or controllable changes. When these strategies are tested under varying external conditions, this is referred to as scenario modeling:

1. Develop general scope, time frame and boundaries of external environment for scenarios. Prepare stories of possible futures or theme scenarios.
2. Identify key drivers of change, uncertainties and factors that could have a significant impact on the decisions, policies and strategies being evaluated. Determine ranges for external parameters and graphs.
3. Construct forced scenarios by placing all the positive outcomes in an optimistic scenario and all the negative scenarios in a pessimistic scenario. Check the forced scenarios for internal consistency. Modify these scenarios as learning scenarios (based on Schoemaker, 1995).
4. Simulate the scenarios (either the individual scenarios varying the key uncertainties or the learning scenarios) with the model. Redesign scenarios if necessary.
5. Evaluate the performance of the policies and strategies with the model for each scenario. Assess the performance against a range of relevant performance measures for overall robustness. Select the policies or strategies that meet management's objectives for the investigation.

According to literature review and methodology, model for analyze trade-off among possible responses of Karazin holding company, is depicted in figure3 to merely one example of implementation of discussed concepts and illustrations be shown.

Figure 3: Trade off among Karazin Potential response to its market risks.



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