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 336.761Judžin Fama
 336.761Lars Peter Hansen
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Nobelova nagrada za 2013.

EFIKASNOST TRŽIŠTA KAPITALA III

Rezime

U 2013. godini Nobelovu nagradu iz ekonomije dobili su američki ekonomisti Judžin Fama, Lars Peter Hansen i Robert Šiler. Monetaristi Fama i Hansen sa Univerziteta u Čikagu i neokenzijanac Šiler sa Jejl univerziteta su, kako je saopštila Švedska kraljevska akademija, ovu prestižnu nagradu dobili za istraživanja koja matematičkim i ekonomskim modelima utvrđuju (ne)pravilnosti u razvoju vrednosti akcija na berzama. Fama je sa kolegama šezdesetih godina ustanovio da je kratkoročno izuzetno teško predvideti cene akcija, pošto nove informacije brzo ulaze u cene. Šiler je, međutim, ustanovio da, iako skoro da nije moguće predvideti cene akcija za period od nekoliko dana, to ne važi za period od više godina. Utvrdio je da cene akcija fluktuiraju znatno više nego dividende korporacija i da odnos cena prema dividendama teži da pada kada je visok, a da raste kada je nizak. Taj obrazac ne važi samo za akcije, već i za obveznice i drugi kapital.

Ključne reči: Nobelova nagrada, 2013. godina, ekonomija, Judžin Fama, Lars Peter Hansen, Robert Šiler, monetarista, Univerzitet Čikago, neokenzijanac, Jejl univerzitet, Švedska kraljevska akademija, akcija, berza, investicioni fondovi, korporacija, dividende, obveznice, kapital

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Lars Peter Hansen
Nobel Prize for 2013

CAPITAL MARKET EFFICIENCY III

Summary

In 2013 the Nobel Prize in Economic Sciences was awarded to the American economists, Eugene Fama, Lars Peter Hansen and Robert Shiller. The monetarists, Fama and Hansen, from the University of Chicago, and the Neo-Keynesian, Shiller, from the Yale University, according to the Swedish Royal Academy, won this prestigious prize for their research providing mathematical and economic models to determine (ir)regularities in the stock value trends at the stock exchanges. With his colleagues, in the 1960s Fama established that, in the short term, it is extremely difficult to forecast stock prices, given that new information gets embedded in the prices rather quickly. Shiller, however, determined that, although it is almost impossible to predict the stock prices for a period of few days, this is not true for a period of several years. He discovered that the stock prices fluctuate much more substantially than corporation dividends, and that the relationship between prices and dividends tends to decline when high, and to grow when low. This pattern does not apply only to stocks, but also to bonds and other forms of capital.

Keywords: Nobel Prize, 2013, Eugene Fama, Lars Peter Hansen, Robert Shiller, monetarist, University of Chicago, Neo-Keynesian, Yale University, Swedish Royal Academy, stock, stock exchange, investment funds, corporation, dividends, bonds, capital.

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Već više godina unazad Nobelovu nagradu iz ekonomije najčešće dobijaju zajedno dvoje ili troje naučnika. U 2013. godini dobili su je američki ekonomisti Judžin Fama, Lars Piter Hansen i Robert Šiler. Monetaristi Fama i Hansen sa Univerziteta u Čikagu nisu pokazali namere da menjaju svet, već samo da ustanove efikasnost tržišta kapitala (Fama) ili statističkog modela „koliko je variranje cena povezano sa neodlučnošću investitora“ (Hansen). Neokenzijanac Šiler sa Jejla, pisac dva bestselera „Životinjske duše“ (*Animal spirits*) i „Iracionalnog optimizma“ (*Irrational Exuberance*), još je 1980. godine otkrio da vrednost akcija raste brže od zarade kompanije.

Kako je saopštila Švedska kraljevska akademija pomenuti ekonomisti su ovu prestižnu nagradu dobili za istraživanja koja matematičkim i ekonomskim modelima utvrđuju (ne)pravilnosti u razvoju vrednosti akcija na berzama. Fama je sa kolegama ustanovio da je kratkoročno izuzetno teško predvideti cene akcija, pošto nove informacije brzo ulaze u cene. Ti nalazi su imali znatan uticaj na istraživanja, ali i na ponašanje na tržištima, pre svega na pojavu takozvanih „indeksnih fondova“, odnosno investicionih fondova koji sačinjavaju akcije svih kompanija s berzanskog indeksa.

Šiler je, međutim, ustanovio da, iako skoro da nije moguće predvideti cene akcija za period od nekoliko dana, to ne važi za period od više godina. Utvrdio je da cene akcija fluktuiraju, znatno više nego dividende korporacija i da odnos cena prema dividendama teži da pada kada je visok, a da raste kada je nizak. Taj obrazac ne važi samo za akcije, već i za obveznice i drugi kapital.

Hansen je razvio statistički metod koji je posebno pogodan za testiranje teorije u analizi cena, navodi se, takođe, u obrazloženju Švedske kraljevske akademije nauka. Nagrađen je zbog svoje statističke metode kojom je testirana njihova teorija a Šiler je u istraživanje bio

uključen jer je još 1980. godine otkrio da vrednost akcija raste brže od zarade kompanija.

Školovanje

Lars Piter Hansen rođen je 26. oktobra 1952. godine u Urbani, Ilinois, SAD. Njegovi preci u Jutu, Amerika došli su iz Danske i Švedske. Majka Ana Lu Riz i otac Gaurt Hansen znali su se još iz detinjstva, a zajedno su i upisali studije na Državnom univerzitetu Jute. Prvo je, posle četiri godine, studije završila njegova majka 1942. godine. Otac je na Univerzitetu Viskonsin doktorirao 1948. godine. Lars je njihov najmlađi sin, najstariji je Rodžer, inženjer, a srednji Ted, genetičar i imunolog.

Kada je Lars imao 16 godina, porodica se vratila u Jutu gde mu je otac postao potpredsednik, a kasnije i rektor Državnog univerziteta Jute. U gimnaziji se Lars nije isticao, ali su profesori o njemu ipak stekli mišljenje koje su pretočili u kratku poruku njegovim roditeljima: „ne poštuje autoritete“. Lars u svojoj autobiografiji objavljenoj na sajtu „Nobelova nagrada“ ističe da su roditelji u njegovom vaspitavanju bili veoma strpljivi, nadajući se uspešnom završetku školovanja.

Državni univerzitet Jute je upisao 1970. godine, izabравši društvene nauke, smer političkih nauka, zajedno sa matematikom. Na iznenađenje roditelja mogao je da plati svoje osnovne studije jer je zaradivao novac radeći u veterinarskoj laboratoriji, na „hobi farmi“ od oko 80 ha svojih roditelja, kao i angažovanošću na biračkim političkim punktovima.

Profesori koji su na njega naročito uticali tokom studija bili su: Majkl Vindhama, Dag Alder i Bartel Jensen. Vindhama mu je pomogao da bolje razume matematiku, a Alder, koji je predavao evropsku istoriju, dao mu je vredan savet koji ga je iznenadio, ali i naterao na razmišljanje: „Larse, ne prati putanju drugih, već pronađi svoje jedinstvene talente i neka ti cilj bude da uradiš nešto



For several years now the Nobel Prize in Economic Sciences has most frequently been shared between two or three scientists. In 2013 it was awarded to the American economists, Eugene Fama, Lars Peter Hansen and Robert Shiller. The monetarists, Fama and Hansen, from the University of Chicago, showed no intention to change the world, but only to determine the capital market efficiency (Fama) or the statistical model “on how the fluctuations of prices are related to investors’ indecisiveness” (Hansen). The Neo-Keynesian, Shiller, from the Yale University, the author of two best-sellers, *Animal Spirits* and *Irrational Exuberance*, back in 1980 discovered that the stock value grows more quickly than the company’s profit.

According to the Swedish Royal Academy, the concerned economists won this prestigious prize for their research providing mathematical and economic models to determine (ir)regularities in the stock value trends at the stock exchanges. With his colleagues, Fama established that, in the short term, it is extremely difficult to forecast stock prices, given that new information gets embedded in the prices rather quickly. These findings have had a considerable impact on further research, and on the market behavior, first of all on the occurrence of the so-called “index funds”, i.e. investment funds holding shares of all companies from the stock exchange index.

Shiller, however, determined that, although it is almost impossible to predict the stock prices for a period of few days, this is not true for a period of several years. He discovered that the stock prices fluctuate much more substantially than corporation dividends, and that the relationship between prices and dividends tends to decline when high, and to grow when low. This pattern does not apply only to stocks, but also to bonds and other forms of capital.

Hansen developed a statistical model which is particularly convenient for testing the theory in price analysis, as stated in the explanation of the Swedish Royal Academy. Hansen was rewarded for his statistical method used to test their theory, whereas Shiller got involved in the research when, back in 1980, he discovered that the stock value grows more quickly than the company’s profit.

Education

Lars Peter Hansen was born on 26 October 1952 in Urbana, Illinois, USA. His ancestors had immigrated to Utah, USA from Denmark and Sweden. His mother Anna Lou Rees and his father Gaurth Hansen knew each other since childhood, and enrolled together at Utah State University. After four years, in 1942, his mother was the first one to graduate. Lars’s father defended his doctoral thesis in 1948 at the University of Wisconsin. Lars is their youngest son, the eldest, Roger, is an engineer, and the middle one, Ted, is a geneticist and immunologist.

When Lars was 16, his parents moved back to Utah where his father was given the opportunity to become first Academic Vice President and later Provost of Utah State University. In high school Lars was undistinguished, but the professors, nevertheless, developed an opinion about him, conveyed in a brief note to his parents: “does not respect authority”. In his autobiography published at the Nobel Prize website, Lars highlighted that his parents had been rather patient with him, hoping that he would eventually complete his education with success.

He entered Utah State University in 1970, where he pursued interests in social science, majoring in political science, along with mathematics. To his parents’ surprise, he was able to pay his way through his undergraduate education, because he worked various jobs, including one in an animal science lab, a political polling venture, and working his parents’ “hobby farm” of about eighty acres.

The professors which particularly influenced him during his studies include: Michael Windham, Doug Alder and Bartell Jensen. Windham helped him better understand and appreciate the field of mathematics, whereas Alder, who taught a European history class, gave him a valuable piece of advice that caught him by surprise and made him think: “Lars, do not just follow the course of others but find your unique talents and aim to do something different.” By the end of his sophomore year, he decided to try combining his interests in mathematics and political science with the field of economics. The third professor, Bartell Jensen, helped him design an accelerated economics curriculum and

drugačije". Do kraja druge godine studija odlučio je da kombinuje matematiku i političke nauke sa ekonomijom. Treći profesor, Bartel, mu je pomogao da osmisli ubrzani obrazovni program iz ekonomije i u pripremama za doktorske studije. Naime, ubrzani nastavni program iz ekonomije omogućio mu je da doktorat nastavi na univerzitetu u Minesoti.

Na ovom univerzitetu imao je dvostruku sreću jer je uspeo da poveća časove ekonomije i upozna svoje intelektualne mentore Krisa Simsa i Toma Sardženta, koji su tada bili mladi naučnici. Tu je počela njihova slavna akademska karijera i tu su postali poznati po svojim naučnim doprinosima na polju makroekonomije i ekonometrije. Zahvaljujući njima naučio je da misli makroekonomski i da oblikuje svoja istraživanja ekonomske dinamike i vremenskih serija. Pod uticajem Krisovih predavanja počeo je da se bavi aproksimacijom velikih uzoraka, i ta istraživanja su delom pretočena u rad na temu generalizovanih metoda procene (GMM). Tom ga je kao studenta angažovao na istraživanjima koja su na njega delovala stimulatивно, i to je preraslo u dugoročnu saradnju. Zajedno su napisali brojne radove, u oblasti ekonometrije racionalnih očekivanja, ravnoteže sadašnje budžetske vrednosti i robustnosti u donošenju odluka.

Nakon postdiplomskih studija počinje da



radi na Karnegi Melon univerzitetu, i kako sam ističe, to je za njega bio prvi, idealan posao. Na njemu je radilo više mladih profesora kojima su povereni doktorski programi i vođenje istraživačkih radionica. Tu je imao prilike da razmeni ideje sa ovim naučnicima, koji su kasnije ostvarili zapažene karijere. Na Karnegi univerzitetu je oblikovao svoja prva saznanja o teoriji cena imovine i počeo da istražuje nove načine empirijskih implikacija ovih modela.

Uspešne čikaške godine

Na Univerzitet u Čikagu Lars je prešao u jesen 1981. godine i tamo ostao do danas. Istorijski posmatrano, okruženje je tamo izuzetno interaktivno u istraživačkom smislu i ekonomija se uzima jako ozbiljno. U Čikagu se upoznao sa starijim kolegama, dobitnicima Nobelove nagrade: Gerijem Bekerom, Džimom Hekmanom i Bobom Lukasom. Iz saradnje sa ovim poznatim naučnicima izdvaja Džima Hekmana sa kojim je tokom godina često razgovarao o širokom spektru tema koje su vezane za ekonomiju.

Na univerzitetu u Minesoti, ali i na univerzitetu u Čikagu, Lars proučava nepravilnosti na tržištu rada i na području međunarodnih finansija. Razvio je ekonomsku tehniku "generalizovanih metoda momenata" (*Generalized Method of Moments*) u kojoj matematičkim modelom dodatno pomaže u određivanju kakva bi najverovatnije mogla biti maksimalna procenjena vrednost gde su uobičajene metode za takvu procenu teške ili neizvodljive.

Sledeći primer svoga oca, Lars je zauzimao različite pozicije u okviru departmana, uključujući i funkciju predsedavajućeg, a bio je i angažovan na pokretanju Milton Fridman instituta koji će kasnije postati Beker Fridman institut za istraživanja u ekonomiji. U tom periodu saradivao je sa mnogobrojnim studentima i bio angažovan u brojnim odborima. Ti studenti danas rade na akademijama, u privatnom sektoru i u vladi sa velikim i širokim spektrom dostignuća. Lars doživljava kao nagradu i priznanje njihov uspeh na poslovnom planu.

Ubrzo po preseljenju u Čikago upoznao je i svoju buduću suprugu Grejs Tsiang,

Ekonomska kriza

Pre godinu dana CNBC je prenela komentar Larsa Petera Hansena zašto je oporavak Sjedinjenih Država nakon velike ekonomske krize spor. Jedan od razloga sporog oporavka Lars vidi u nesigurnosti oko postojeće monetarne regulative. "Previše pažnje je posvećeno monetarnoj politici u ovom trenutku, ali su usled nesigurne regulacije investitori ostali previše oprezni. Njima je neophodno da se uključuju u nove projekte. Pitanje kakvo će biti regulatorno okruženje u narednom periodu previše koči razvoj. Ekonomska politika mora biti veoma precizna kako bi investitori mogli da jačaju."

U drugom intervjuu koji je vodio Kristofer Metjuz za časopis *Tajm* Lars o ekonomskoj krizi izjavljuje: "Mislim da smo pre ekonomske krize mnogo bolje razumeli ulogu monetarne politike u ekonomiji. Finansijska kriza je otvorila nove praznine u znanju i to nam postavlja nove izazove koji nas guraju napred, kao što je često slučaj sa novim dokazima."

Economic Crisis

A year ago CNBC featured a comment of Lars Peter Hansen on why the United States' recovery after the global economic crisis has been so sluggish. One of the reasons for such a slow recovery, according to Lars, is the uncertainty surrounding the existing monetary regulations. "Too much attention has been devoted to monetary policy and uncertainty on regulation has left institutions guessing, which has led to caution among investors. Investors need to "jolt" themselves and get involved in new projects. The question of what kind of regulatory environment there is going to be in the next few years is hindering development. Clarity in economic policy is really critical in terms of getting investment stronger."

In another interview for *Time*, given to Christopher Matthews, Lars stated the following on the topic of the economic crisis: "I think pre-crisis at least, we've understood a lot better the role of monetary policy in the economy. The financial crisis has opened up some new knowledge gaps, and it's giving us some modeling challenges going forward as new evidence often does."

also helped him prepare for a Ph.D. program in a short period of time. The accelerated curriculum in economics enabled him to proceed to the University of Minnesota for a Ph.D.

At Minnesota, Lars was lucky in two ways. First, he was allowed to augment his economics classes, and second, it was there that he met his intellectual mentors Chris Sims and Tom Sargent, when they were young scholars. Both had launched their stellar academic careers and were becoming recognized as major contributors to macroeconomics and econometrics. Thanks to them, he learned how to think in macroeconomic terms and how to shape his research in economic dynamics and time series econometrics. Influenced by some lectures by Chris, Lars also began working on large sample approximation arguments; some of this research grew into his paper on Generalized Method of Moments (GMM) estimation. He found Tom's willingness to engage him in joint research while he was still a graduate student very stimulating, and this grew into a long-standing collaboration. Together they have written many papers on such topics as rational expectations econometrics, present-value budget balance and robustness in decision-making.

After he finished graduate school, Carnegie Mellon University was an ideal first job for Lars. There were several young professors and they were given much responsibility for the Ph.D. program and for running research workshops. He had the opportunity to share ideas with many young scholars who went on to distinguished careers. Carnegie was where he first learned about asset pricing theory and began to explore how to study empirical implications of these models in novel ways.

Successful Chicago Years

Lars transferred to the University of Chicago in the fall of 1981, and has been there ever since. The research environment has historically been highly interactive, with economics being taken very seriously. When he arrived, he had Gary Becker, Jim Heckman and Bob Lucas, all Nobel Prize winners, as senior colleagues. In particular, Jim Heckman and Lars have had many conversations over the years on an extremely wide variety of topics related to economics.

diplomiranog ekonomistu čiji je otac bio, zajedno sa kolegom sa Kornel univerziteta Ta-Čung Liu, ključni ekonomski savetnik tajvanske vlade zaslužan za "tajvansko čudo". Grejs sa kojom se venčao 1984. godine je imala veliki uticaj na njegovu poslovnu karijeru jer je bila stalni izvor podrške i ohrabrenja. Zaslužna je i za objašnjenja zašto su njegovi naizgled apstraktni pristupi ekonomskoj analizi doneli važne praktične uvide. Grejs je imala vodeću ulogu u kreiranju najpopularnijeg dodiplomskog programa na Univerzitetu u Čikagu i pomogla je mnogim studentima da pronađu svoj put do uspeha dizajnirajući im nastavni plan i program koji odgovara njihovim ličnim interesima, ciljevima i sklonostima. Njen primer je pomogao Larsu u njegovom savetodavnom radu sa studentima.

Njihov sin Piter rodio se 1992. godine u Hajd parku u Čikagu gde je smešten fakultet i domovi mnogih koji rade na fakultetu. Porodično, proputovali su po čitavom svetu uživajući u novim saznanjima i provodeći mnogo vremena u dugim zajedničkim razgovorima.

Za časopis *Tajm* svoj doprinos ekonomiji objasnio je na najjednostavniji način: "Radim na granici između ekonomije i statistike u oblasti koja se zove ekonometrija. Deo mog interesovanja jeste razumevanje kako koristiti statistiku na produktivan način analizirajući dinamične ekonomske modele". Tokom svoje bogate profesionalne karijere ostvario je više priznanja od kojih izdvaja: nagradu BBVA Fondacije, članstvo u Nacionalnoj akademiji nauka, nagrada CME grupe, imenovanje za počasnog doktora nauka Državnog univerziteta Jute, Nemers nagradu i Nobelovu nagradu. Želja mu je da i ubuduće nastavi da radi na istraživačkim projektima vezanim za implikacije koncepta neizvesnosti kao pobornik dinamične ekonomije, doprinoseći razvoju ekonometrije. Zadovoljstvo mu predstavlja, kao i do sada, rad sa studentima, i želi da njegova dostignuća podstaknu mlade naučnike da napreduju u istraživanjima u oblastima na kojima je on bio angažovan.

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Both at the University in Minnesota and at the University of Chicago Lars examined irregularities at the labor market and investigated the field of international finance. He developed an economic technique, the so-called Generalized Method of Moments (GMM), in which he deployed a mathematical model to additionally help determine the most probable maximum estimated value, where common methods for such estimation are too difficult or impossible to implement.

With his father as an example, Lars served the department in various capacities, including as its department chair and in helping to launch the Milton Friedman Institute, which eventually became the Becker Friedman Institute for Research in Economics. He also had the opportunity to advise many excellent students and serve on various committees. These former students now hold a wide range of posts in academia, the private sector, and government, with an equally wide range of accomplishments and interests. As Lars himself underlines, it has been rewarding to watch their careers flourish over the years.

Shortly after moving to Chicago, Lars met his future wife Grace Tsiang, a graduate student in economics at the time. Grace's father and his colleague Ta-Chung Liu, both Cornell University economists, were key economic advisors to the Taiwanese government in advance and during the so-called "Taiwan Miracle". Grace, whom he married in 1984, had a major influence on his life and career, as a continual source of support and encouragement. She challenged him to explain why his seemingly abstract approaches to economic analysis delivered important practical insights. Grace played the leading role in building the most popular undergraduate program at the University of Chicago, and has helped many students discover their personal path to success by helping to design a curriculum to suit their personal interests, goals, and strengths. This example has helped Lars in his own student advising.

Their son Peter was born in 1992 in Hyde Park, a local community in Chicago that includes the University of Chicago and home for many of its faculty. The three of them have traveled all over the world, enjoying these family trips and their long conversations together.

For *Time* Lars explained his contribution to the economic sciences in simple words: "I work on the boundary between economics and statistics in this field called econometrics. Part of my interest is understanding how you use statistics in productive ways to analyze dynamic economic models." Over the years, Lars has received much recognition for his professional accomplishments: the BBVA Foundation Frontiers of Knowledge Award, the fellowship in the National Academy of Sciences, the CME Group Prize, the honorary Doctor of Science degree of the Utah State University, the Nemmers Prize and the Nobel Prize. His wish is to continue to investigate a variety of research related to the implications of uncertainty – both as a modeler of dynamic economies and as an econometrician. He looks forward to advising more students and learning from them, at the same time hoping to encourage young scholars to advance research in the fields to which he himself has contributed.

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