CONSUMER CONFIDENCE AND HOUSEHOLD DEPOSITS

by

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Abstract

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This study examines the long-run relationship between household deposits and consumer confidence in Ukraine over period from December 2004 to December 2013 using cointegration analysis. We find that consumer confidence and household deposits share long-run equilibrium. The empirical result in most cases shows negative relationship between consumer confidence and household deposits, which corresponds to the Hall's (1978) mathematical version of permanent income hypotheses. Our findings also shows that consumer confidence index may be used by regulator for predicting deposit flows.

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GLOSSARY

Consumer confidence index (CCI). The indicator which measures consumer confidence and defined as a degree of optimism on current situation in the economy that consumers are expressing through their consumption and savings.

Consumer price index (CPI). The measurement of the price level in the economy.

Chapter 1

INTRODUCTION

For a long time economists have tried to describe how agents manage their incomes and savings over the time. One of the fundamental works in this field is Milton Friedmen's (1957) permanent income hypothesis, which suggests that current consumption, and therefore saving, should be determined by the expected income ("permanent income"), but not just by the income itself. Later Friedmen (1983) finds that individuals tend to save more in the money form, when there is great uncertainty about the future. Ando and Modigliani (1963) propose their famous life-cycle hypothesis, which states that agents plan their savings and consumption over their life-cycle. The works of Friedman and Ando-Modigliani are the basis for a number of studies about individual's consumption and savings, which use consumer confidence as a measure of expectation about the future. For example, Ewing and Payne (1998) show that "consumer sentiment and the personal savings rate share a long-run equilibrium", they also show that when consumer confidence is low, households increase their savings. Dees and Brianca (2001) further suggest that the consumer confidence index (CCI) can be a good predictor of consumption.

However, among for numerous works devoted to consumer confidence and its' effect on various economic parameters, there are no studies about its' implementation to banking sector, specifically its' impact on future household deposits, but this information is very important for the regulator. Knowing future deposit inflows and outflows dynamics may help the government prepare for different shocks and create conditions for sustainable economic growth, which is extremely important for the weak

and shaky economy like Ukraine. If regulator knows future deposits dynamics, it can adjust its' policy (e.g. to conduct the policy of "expensive money" or otherwise) in order to mitigate the shock.

From the academic point of view this research contributes to both literature on the permanent income hypothesis and the literature on the life-cycle hypothesis, because it serves as an evidence of the fact that consumer confidence index is a good measure of individuals expectation, and it can be used for the future empirical studies. For example, the fact that present change in consumer confidence index leads to the future deposits inflow/outflow shows that people are tend to save more or less based on their expectations about the future which fits to the permanent income hypothesis.

The question to be brought up is whether consumer confidence affects strongly the household deposits in Ukraine and if so, how powerful this effect is?

In order to answer the main question, we use the error-correction model, where the dependent variable is the change in household deposits and independent variables are consumer confidence index. We show that consumer confidence index and household deposits are not stationary, that they are cointegrated (i.e. a stable long-run relationship between variables exists), and We thus use the error-correction model in order to determine effect of CCI. Also we use several specifications of the model which includes additional variables: central banks' discount rate, real average monthly wage and UAH/USD official exchange rate.

To perform these calculations we use monthly data for household deposits from the National Bank of Ukraine for the period December 2004 to

December 2013 and monthly data for consumer confidence index from GfK Ukraine for the same period of time. As there are several threshold in the data we drop several observations. Discount rate and exchange rate are available at National Bank of Ukraine web-page, average monthly wage is published at State Statistics Service of Ukraine web-page.

We expect to obtain strong relations between consumer confidence and change in deposits. We also expect that the increase in consumer confidence will lead to the decrease in future deposits.

The rest of the paper is structured in the following way: chapter 2 describes related literature, chapter 3 provides the employed methodology, chapter 4 describes the data, chapter 5 contains empirical results, and chapter 6 summarizes all findings.

LITERATURE REVIEW

The section is organized the following way. First, we review Ando-Modigliani's (1963) life-cycle hypothesis and Friedmen (1957) permanent income hypothesis, on which most related literature is based. Second, we give the overview of the empirical literature, which can be divided into the next parts: the first part studies the impact of consumer confidence on consumption, the second one – on savings, and the rest of the chapter devoted to the literature which describes factors affecting savings.

Friedman's (1957) permanent income hypothesis states that changes in permanent income drives the change in household consumption. Using time-series for the postwar United States Hall (1978) supports a modified version of the permanent income hypothesis. He also derives mathematical version of permanent income hypothesis and shows that people save more when they expect future decline in income. Later Hall and Mishkin (1982) analyzing the data for 2000 households and come to the conclusion that consumption responds much stronger to permanent income (an anticipated income) than to transitory income (unexpected income). Bernanke (1984) also tests the permanent income hypothesis. He uses the panel data on automobile expenditure and confirms Friedman's hypothesis for durable goods.

Ando-Modigliani (1963) life-cycle hypothesis states that people plan their savings and consumption over their life-cycle. They also claim that individuals keep their consumption levels approximately the same in each period. Ando and Modigliani claim that young people borrow more and

hence consume more, than middle-age people, who have higher incomes and savings with lower consumption. Old people live on savings from the middle-age period of their life, so they consume more, like young people. In order to test the theory Ando and Modigliani use annual data of private wealth and income for the United States from 1900 to 1958. As a result, they find that "life cycle model accounts remarkably well for the observed behavior of aggregate wealth".

The previous two theories pushed researchers to further study of households consumption and saving behavior. There are many papers which show that consumer confidence is a very important factor affecting on people's propensity to consume (or save).

Dees and Brinca (2001) study the connection between consumer sentiment and consumption expenditures for the Euro area and the United States. They use quarterly data from the first quarter of 1985 to the second quarter of 2010. Using this data they estimate the simple model with the change in consumption at the left-hand side and the change in confidence indicator at the right-hand side. Then they compare this model with alternatives, which include the past change in consumption, the past change in real disposable income, change in wealth and so on. As a result, they conclude that consumer confidence index may serve as a good predictor for consumption. Moreover, they find that the U.S. confidence indexes affect consumer confidence in the Euro area.

Bram and Ludvigson (1998) paper also examines the impact of consumer confidence on household expenditures. They make the analysis for the United States and compare the forecasting power of two different consumer confidence indexes: the University of Michigan's Index of Consumer Sentiments and the Conference Board's Consumer Confidence Index.

These two indexes structured differently, that's why, they assume that they may have somewhat different predicting power. At the beginning they use a simple model that does not include consumer confidence and show that a long-run impact of the most variables has the expected sign. Then they add consumer confidence to the baseline equation. Both indexes are significant at the 5 percent level. As a result, they find that forecasts of total personal consumption may be made more accurate by using the Conference Board's Consumer Confidence Index. This occurs because lagged values of the Conference Board Consumer Confidence Index gives information on the future path of spending, while the Michigan Index of Consumer Sentiment does not. This result does not contradict Carroll, Fuhrer, and Wilcox (1994), who find that the University of Michigan Index includes little additional information.

Wilcox (2007) suggests that depending on questions in the household survey of consumer attitudes precision of forecast may change. He also documents that measures of consumer confidence are especially predictive at 4-quarter-ahead horizon. "Out-of-sample forecasts for the 2000-2005 period further substantiate that measures of consumer sentiment can reduce consumption forecasting errors appreciably".

Kwan and Cotsomitis (2006) show how well index of consumer attitudes (or consumer confidence index) forecasts Canadian household national and regional spending. Their results indicate that regional indexes predict worse than national indexes, but overall, consumer confidence index is a good predictor of household spending in Canada.

In particular, several papers describe the great importance of consumer confidence in predicting economy recessions and recoveries.

For example, Haugh (2005) suggests that consumer confidence index should be very helpful when there are economic or political shocks. Carrol et al. (1994) say that consumer confidence is a leading reason for the United States 1990-91 recession.

Desroches and Gosselin (2002) show how useful is consumer confidence index for predicting aggregate consumption spending in the United States. This paper suggests that economists should pay attention to consumer confidence in periods of political uncertainty.

Howrey (2001) shows that consumer sentiment index is a statistically significant predictor of the future real GDP rate of growth. He also finds that the index is a statistically significant which points to the fact that it can forecast personal consumption expenditure growth rate, but the relationship between monthly values is very noisy. He also shows that using quarterly data both lagged and current monthly consumer sentiment indexes are statistically significant, but the standard error of forecasts of quarterly consumption is still high.

By contrast, Fuhrer (1993) suggests that "sentiment's predictive power arises primarily from its ability to forecast real income, rather than from a direct link between consumption and the independent information in sentiments". So consumer sentiment is a bad predictor for future economy, it better reflects current conditions. Throop (1992) argues that despite the fact that consumer sentiment is generated by current conditions, it gives the useful information about future consumption.

Unfortunately, there are not many works that study the impact of consumer confidence on savings. My study is based on one of the few.

Ewing and Payne (1998) using cointegration analysis examine the long-run relationship between consumer confidence index and personal savings rate in the United States over the 1959-1997 period. Their analysis shows that when consumer sentiment is high household savings decrease. According to their study personal savings rate and consumer sentiment are cointegrated, which is consistent with the life-cycle and permanent income hypotheses. They use an error-correction model, where the dependent variable is personal savings rate and the independent variables are index of consumer sentiment, real disposable income and interest rate. Controlling for real disposable income and the interest rate makes a long-run equilibrium relationship hold. This study also shows that "a higher interest rate is associated with higher personal savings rates while increases in real disposable income are associated with declines in the savings rate". So even if real disposable income increases, households may keep savings in the same amount. They get very important results for financial planners, who using their findings can give households better advices in making financial decisions.

The rest of the chapter describes the factors affecting savings. For example, Smith (1989) reviews the literature on different factors which affect savings. He considers affect of the next factors: real rates of return, allocation of savings between corporations and individuals, income redistribution, inflation, energy prices and many other. He concludes, that factors, such as the level of social security wealth and the rate of return may be used by policymakers in order to regulate personal savings. On the other hand, different forms of sheltered savings enhance total savings, but the use of such tools is very limited.

Lehmussaari (1990) examines the saving behavior in the Nordic countries. He finds that "wealth effect has played an increasing role in household savings decision".

Chamon and other (2010) explain significant savings rate increase in China since mid-1990s. Using a panel of Chinese households for the period 1989-2006 they find that a substantial increase in income uncertainty and pension reforms explain change of savings rate. Specifically, they conclude that "rising income uncertainty and pension reforms can account for over half of the increase in the urban household savings rate in China since mid-1990s as well as the U-shaped age-profile of savings".

As can be seen, there are a lot of papers about consumer confidence index and its impact on consumption and savings, but there is lack of such studies for Ukraine. Also, the existing literature does not show the relations between consumer confidence index and household deposits in Ukraine. So this thesis can make a notable contribution to the studies about people's behavior and banking system in Ukraine, as well as an evidence of the fact that consumer confidence index is a good measure of individuals expectation.

METHODOLOGY

According to the Hall (1978) infinitely lived household has expected utility:

$$E \sum_{t=0}^{\infty} \beta^t u(c_t) \qquad (1)$$

where $u(c_t)$ is utility from consuming c_t at time t, β^t is the discount factor (lies between 0 and 1).

Individual have capital income $y_{kt}=rA_t$ (r is interest rate and A_t is assets) and labor income y_{lt}. Hence total income is $y_t=y_{kt}+y_{lt}$. Household can also save $s_t=y_t-c_t$. As a result:

$$A_{t+1} = A_t + s_t = (1+r)A_t + y_{lt} - c_t \qquad (2)$$

An individual can also borrow, but the borrowing constrained in the long-run:

$$\lim_{t\to\infty} \frac{A_t}{(1+r)^t} = 0 \qquad (3)$$

Using (3) as terminal condition we can solve equation (3) in order to show that individual repays any debt by setting future consumption below future income:

$$A_t = \sum_{j=0}^{\infty} \frac{c_{t+j}-y_{lt+j}}{(1+r)^{j+1}} \qquad (4)$$

Taking into account expectation E_t. Equation (4) implies:

$$A_t = \sum_{j=0}^{\infty} \frac{E_t c_{t+j}}{(1+r)^{j+1}} + \sum_{j=0}^{\infty} \frac{E_t y_{lt+j}}{(1+r)^{j+1}} \tag{5}$$

Now maximize utility (1) using Euler's equation:

$$u'(c_t) = \beta(1+r)E_t u'(c_{t+1}) \tag{6}$$

If me assume that $\beta = \frac{1}{1+r}$ and individual has quadratic utility, than $c_i = E_t c_{t+1}$. So present consumption depends on expectation about future consumption. This results also implies that for $c_i = E_t c_{t+j}$ for $j=0,1,2...$. Equation (5) can now be transformed to:

$$c_t = rA_t + \frac{r}{1+r}\sum_{j=0}^{\infty} \frac{E_t y_{lt+j}}{(1+r)^j} \tag{7}$$

Using $s_t = y_{t-}c_t$, $y_{kt} = rA_t$ and $y_t = y_{kt} + y_{lt}$ we see that equation (7) can be rearranged to:

$$s_t = -\sum_{j=1}^{\infty} \frac{E_t \Delta y_{lt+j}}{(1+r)^j} \tag{8}$$

This is Hall's result – households save more when they expect future decline in its labor income. He question is how can we measure people's expectation? In order to managed with this we use Consumer Confidence Index (*CCI*). To define CCI respondents are asked different questions about their expectations (future financial standing, economic condition in the country, etc.).

We use volume of deposits in banks as a measure of households' savings. Based on literature review we know that wealth is very important factor, so me use average monthly wage (*wage*) as one of the explanatory variables. Also interest rate is a price for deposits, so higher interest rate (*rate*) force

people to save more. We use central banks' discount rate, because it is landmark fore all interest rates in the economy. Very important variable is exchange rate (*exchange*), because it effects on flows between deposits in local currency and foreign currency deposits.

Base on all the above we have the next equation:

$$deposit_t = \alpha + \beta_1 CCI_{t-1} + \beta_2 wage_t + \beta_3 discount_t + \beta_4 exchange_t + \varepsilon_t \quad (9)$$

where α is the constant term, β is slope and ε_t the is error term.

As we have a multiple time-series, we can't use OLS. In order to say that current deposits are related with lagged CCI, we should use error-correction model.

First, we check whether the time series are stationary using unit a root test. For this study we use the augmented Dickey-Fuller (ADF) test, which allows to detect the presence of unit roots. For ADF test we use the next model:

$$\Delta z_t = \alpha + (\delta - 1)z_{t-1} + \gamma t + \sum_{i=1}^{m} \beta_i \Delta z_{t-i} + \varepsilon_t \quad (10)$$

where γ is the coefficient on time trend, z is the individual time series, t is the linear time trend, Δ is the first difference operator.

The null hypothesis is $\delta - 1 = 0$ (y is nonstationary) against the alternative hypothesis $\delta - 1 < 0$.

If some linear combination of two or more nonstationary time series is stationary, then these time series are cointegrated and a stable long-run

relationship between variables exists, in our case - between household deposits and consumer confidence index. The existence of cointegration of these variables would mean that prediction is possible.

If there is cointegration, then we use the error-correction model:

$$\Delta deposit_t = \alpha + \sum_{i=1}^{m} \beta_i \Delta deposit_{t-i} + \sum_{j=1}^{n} \alpha_j \Delta CCI_{t-j} + \gamma u_{t-1} + \varepsilon_t \quad (11)$$

where α is the constant term, D_t is the volume of deposits (in overall economy and each bank separately), CCI_t is the consumer confidence index, u_{t-1} is the error correction term (measures deviation from long-run equilibrium), ε_t is the error term.

The error correction term coefficient should be $0 < \gamma < 1$ in order for the series to converge to a long-run equilibrium. If $\gamma = 0$ then there is no cointegration.

Including other explanatory variable:

$$\Delta deposit_t = \alpha + \sum_{i=1}^{m} \beta_i \Delta deposit_{t-i} + \sum_{j=1}^{n} \alpha_j \Delta CCI_{t-j} + \sum_{k=1}^{l} \alpha_k \Delta wage_{t-k}$$
$$+ \sum_{p=1}^{r} \alpha_p \Delta discount_{t-p} + \sum_{q=1}^{z} \alpha_q \Delta exchange_{t-q} + \gamma u_{t-1} + \varepsilon_t \quad (12)$$

Chapter 4

DATA DESCRIPTION

To estimate the relationship between consumer confidence index and household deposits in Ukraine we use monthly data from several sources.

The data set on the consumer confidence index (*CCI*) is obtained from GfK Ukraine. The CCI is determined based on the random survey of Ukrainian households. The survey includes 1,000 people older than 16. The sample is representative by gender and age, urban and rural population, and size of the settlement. Index value may ranges from 0 to 200: 200 if all respondents positively assess the economic situation and less than 100 indicates that negative evaluation prevalence. From June 2000 to December 2005 it is computed every three months, from December 2005 to December 2008 it is computed every two months, and from December 2008 to December 2013 we have monthly data. In total, there are 83 observations with mean 81.47, standard deviation 13.40, minimum value 41.8 and maximum 107.3.

Data set on the household deposits in local currency (*depuah*) is obtained from the National Bank of Ukraine. It is monthly data which includes period from December 2004 to December 2013 and measured in USD bn. There are 83 observations with mean 131.09 UAH bn and standard deviation 13.40 UAH bn. Data set on the household deposits in foreign currency (*fcydeposit*) has mean 117.71 USD bn and standard deviation 49.73 UAH bn.

From Figure 1 and Figure 2 we can see that there are negative relationship between deposits and CCI, but for foreign currency deposits effect is stronger.

Average monthly wage (*wage*) in UAH for the period from December 2004 to December 2013 we get from State Statistics Service of Ukraine.

We also have data provided by National Bank of Ukraine:

• central banks' discount rate for the period from December 2004 to December 2013;

• official UAH/USD average monthly exchange rate for the period from December 2004 to December 2013.

Table 1 gives the information about key variables. As there are gaps in the data, we consider only period from December 2004 to December 2013 and drop periods without no data available.
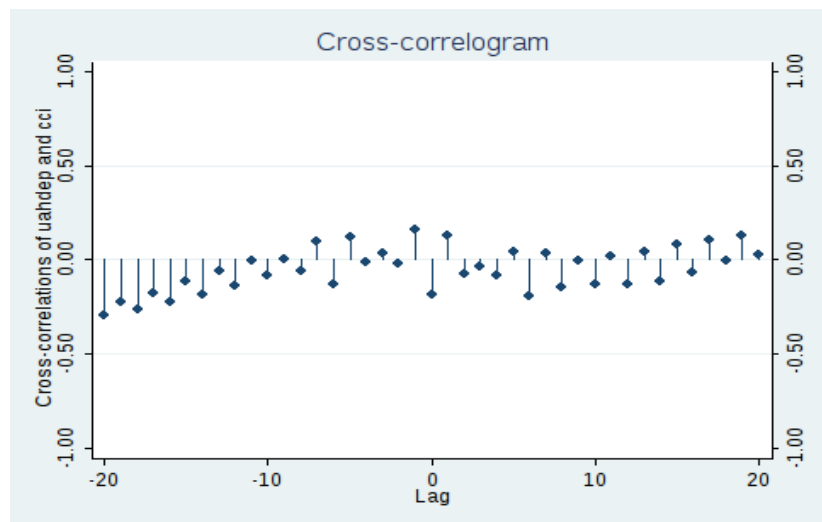

Figure 1. Cross-correlogram for deposits in UAH and CCI.
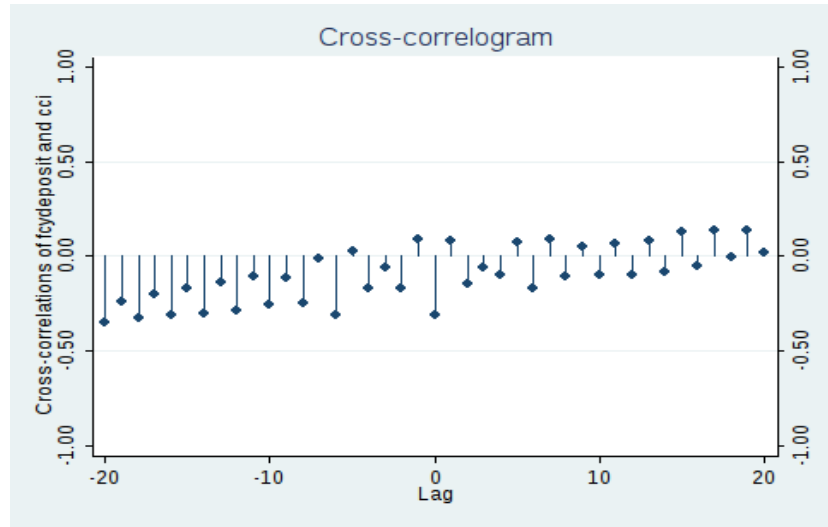
Figure 2. Cross-correlogram for deposits in foreign currency and CCI

Table 1. Descriptive statistics of the key variables

Variable	Obs	Mean	St. Dev.	Min	Max
Deposit, UAH bn	83	131.9	57.3	22.2	253.6
Deposit, USD bn	83	117.7	49.7	19.5	186.6
CCI	83	81.5	13.4	41.8	107.3
Wage, UAH	83	2253.6	776.2	703.8	3619
Disc. rate	83	8.8	1.6	6.5	12
Exch. rate	83	6.9	1.4	4.9	8

Also we adjusted household deposits in national currency and average monthly wage for inflation. To do this we use the next formulas:

$$adjdeposit_t = \frac{deposit_t}{\prod_{i=1}^{t} CPI_i} \qquad (13)$$

$$adjwage_t = \frac{adjwage_t}{\prod_{i=1}^{t} CPI_i} \qquad (14)$$

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where *adjdeposit$_t$* is adjusted for inflation deposit volume at time t, *adjwage$_t$* is adjusted average monthly wage in Ukraine at time t and *CPI$_t$* is monthly (mom) consumer price index at time t provided by state State Statistics Service (CPI=1 means that price level does not change, CPI>1 means that price level increases and CPI<1 corresponds to decrease in price level).

The descriptive statistics for adjusted data and CPI is in Table 2.

Table 2. Descriptive statistics of adjusted data and CPI

Variable	Obs	Mean	St. Dev.	Min	Max
Deposit, UAH bn	83	129.9	57.9	21.6	251.8
Wage, UAH	83	2231.6	788.2	676.5	3593.8
CPI, %mom	83	1.007	0.01	0.987	1.031

As the inflation is low during during the period from December 2004 to December 2013 (on average less then 0.7% mom) the difference between adjusted data and not adjusted data is not very big.

EMPIRICAL RESULTS

We use Stata program for empirical part of work. First we check for stationarity using augmented Dickey-Fuller unit root test. Table 3 provides results of unit root test. As was expected almost all variables are not stationary at levels, but become stationary after first difference. Only exchange rate is stationary at levels.

Table 3. ADF Unit Root Test

Variable	Levels	1-st Differences
Deposit, UAH bn	3.637	-3.878***
Deposit, USD bn	0.187	-4.633***
CCI	-2.474	-7.233***
Wage, UAH	-0.532	-11.434***
Disc. rate	-1.856	-5.760***
Ex. rate	-2.978**	-13.492***

*** p<0.01, ** p<0.05, * p<0.1

Johansen-Juselius test for CCI and deposits in local currency suggests that there is one cointegrating equation (Table 4), so these variables share a long-run equilibrium.

Table 5 provides the test results for all variables (CCI, deposits, wage, discount rate and exchange rate). And it shows that there is two cointegrating equation.

Table 4. Johansen-Juselius Cointegration Test Results for CCI and Households Deposits in Local Currency

Hypothesized # of cointegrating equations	Trace statistic	5% critical value
None	18.26	15.41
At most one	0.47*	3.76

* the number of cointegraited equations corresponds to this row

Table 5. Johansen-Juselius Cointegration Test Results for CCI, Households Deposits in Local Currency, wage, discount rate and exchange rate.

Hypothesized # of cointegrating equations	Trace statistic	5% critical value
None	76.46	68.52
At most one	47.92	47.21
At most two	24.48*	29.68
At most three	9.54	15.41
At most four	0.01	3.76

* the number of cointegraited equations corresponds to this row

For the deposits in foreign currency the result differs. Johansen-Juselius test for CCI and FCY deposits suggests that there is no cointegrating equation (Table 5).

Table 6. Johansen-Juselius Cointegration Test Results for CCI and Households Deposits in Foreign Currency

Hypothesized # of cointegrating equations	Trace statistic	5% critical value
None	13.86*	15.41
At most one	1.50	3.76

But cointegration test for all variables shows three cointegration equations (Table 7).

Table 7. Johansen-Juselius Cointegration Test Results for CCI, Households Deposits in Foreign Currency, wage and discount rate.

Hypothesized # of cointegrating equations	Trace statistic	5% critical value
None	88.92	68.52
At most one	57.76	47.21
At most two	31.53	29.68
At most three	10.94*	15.41
At most four	1.91	3.76

* the number of cointegraited equations corresponds to this row

Table 8 provides different model specifications for LCY deposits.

Table 8. Normalized Cointegrating Equations for LCY deposits

	(1)	(2)	(3)	(4)
Deposit	1	1	1	1
CCI	-195.15*** (44.02)	3.69*** (.74)	-3.28*** (0.62)	5.86*** (1.43)
Wage, UAH	-	-.10*** (0.01)	-.08*** (.02)	-.09** (0.04)
Disc. rate	-	-	18.17*** (6.32)	-22.93 (16.33)
Ex. rate	-	-	-	-36.28 (22.13)

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

The simplest model (1) shows that consumer confidence index negatively related with deposits and the coefficient is statistically significant, but it has huge affect on deposits, which makes no sense, so it is economically insignificant. Adding average monthly wage to the equation (2) makes the effect much smaller, but coefficient becomes positive and still significant.

Wage is statistically significant and has negative sign, so when monthly wage increases people start to consume much more then wage increase and there is deposits outflow. Model (3) which also includes discount rate lowers the effect of consumers confidence index and the coefficient becomes negative which corresponds to our expectations. Wage still has negative effect and significant. Discount rate positively related with deposits, which is quite logical, because when discount rate increases the interest rate increases too so price of deposits go up. The model with exchange rate (4) makes effect of consumer confidence index positive. Discount rate becomes negative and insignificant.

The models with LCY deposits as dependent variable have strange and contradiction results, so in the Table 9 given results of different models with FCY deposits as dependent variable. The simplest model (5) confirms our expectation – household deposits and consumer confidence index are negatively related. The effect is reasonable and variable is quite significant. Adding average monthly wage (6) makes CCI insignificant at 5% level. In model (7) CCI is significant and negative, as well as the wage. Discount rate is negative and significant too, which makes senci because when discount rate increases the hryvnia deposits become more attractive (they have higher return than foreign currency deposits) and people transfer money from FCY deposits to LCY deposits. Model (8) shows almost the same results, but exchange rate is not significant, probably because exchange rate is not change much during the reporting period.

It is also interesting how effect will change if we adjust data for inflation rate. The test shows that real UAH deposits and real average wage are not significant, but first-difference significant. There is still co-integration between CCI and real UAH deposits and there is only one cointegrating equation in the model with real average wage and discount rate.

Table 9. Normalized Cointegrating Equations for FCY deposits

	(5)	(6)	(7)	(8)
Deposit	1	1	1	1
CCI	-6.05*** (1.38)	-.23 (.15)	-.43*** (0.14)	0.45** (.25)
Wage, UAH	-	-.06*** (0.01)	-.06*** (.01)	-.07*** (0.01)
Disc. rate	-	-	-5.51*** (1.61)	-8.51*** (2.95)
Ex. rate	-	-	-	.63 (4.05)

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

The normalized cointegrating equations for variables in real terms provided in Table 10. The results are the same as in case without adjusted data.

Table 10. Normalized Cointegrating Equations with adjusted variables

	(9)	(10)	(11)	(12)
Deposit	1	1	1	1
CCI	-125.39*** (29.59)	5.27*** (1.19)	3.42*** (.80)	6.83*** (2.22)
Wage, UAH		-.10*** (0.02)	-.07*** (.02)	-.07 (.06)
Disc. rate			28.18*** (7.90)	43.48** (24.01)
Ex. rate				-52.06 (33.14)

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Chapter 6

CONCLUSIONS

This thesis examines the long-run relationship between household deposits and consumer confidence in Ukraine over period from December 2004 to December 2013 using cointegration analysis. Using monthly data we document cointegration between consumer confidence index and deposits in local currency as well as in foreign currency, so a long-run relationship exists.

Our results suggest that household save more in foreign currency when consumer confidence index decreases, which means that the degree of optimism on the state of economy goes down. This result is consistent with Hall's (1978) mathematical version of permanent-income hypothesis. The long-run equilibrium relationship holds when we control for average monthly wage and central bank's discount rate.

Model with deposits local currency and CCI shows that the coefficient is statistically significant, but not economically significant, as the effect is too big. Controlling for only average wage decreases effect significantly, but the coefficient is positive, which does not fit to the theory. Controlling for both average wage and discount rate improves our model – all coefficients are significant and have expected signs.

In general, our findings suggest that CCI may be used by regulator for forecasting deposits inflow and outflows in order to be prepared for future shocks and handle with them. However there should be much more

observations and a huge work have to be done in order to develop CCI with greater predicting power.

This thesis shows that CCI may serve as a good measurement of peoples' expectations and this finding may be used for future investigations of individual consumption and savings behavior in Ukraine as well as in other countries.

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