UKRAINIAN BANKS THAT OPERATE AS STOCKBROKERS ON CAPITAL MARKET: DOES IT MAKE ECONOMIC SENSE FOR A NEW BANK TO INVEST INTO OPENING A BROKERAGE?

by

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GLOSSARY

Broker – a legal entity that is authorized and licensed by the NSSMC to trade securities on its own behalf or on the clients' behalf. Requires a specific license that is granted after executing existing conditional requirements. There are 248 registered brokers in Ukraine, with 58 banks among them.

Trader – a person who uses trading terminal to conclude trades. Requires a license that is granted after a paid 2-week course and a subsequent exam.

Custodian – a legal entity that accounts and records securities transaction and keep track on the number of securities owned by a person/entity. Requires a license that is granted after a paid 2 week course and a subsequent exam. There are 190 custodians currently operational and 42 of them are banks.

CSD – central securities depository, a legal entity that serves a main depository and holds accounts for custodians. Meaning that custodians serve proprietary clients, while CSD serves custodians. There are currently 2 CSDs in Ukraine. National Depository of Ukraine – a CSD for equity instruments. Depository NBU – a CSD for government bonds. Given the focus of this paper, only NBU's depository will be analyzed.

CCP and clearinghouse – central counterparty – a buyer to every seller, a seller to every buyer, guarantees settlement, nets transactions and uses novation as a legal tool to ensure anonymity of trading.

Exchange – an organized trading venue that allows for electronic contract conclusion. As close as we can get to a self-sufficient market, where participants quote their bids and asks and conclude transactions that will be then cleared, settled and accounted for. There are four operational exchanges, yet, as previously mentioned we only focus on PFTS.

Segregated account – an account that a broker opens within a CCP specifically for its client.

Aggregated account (Omnibus account) – sometimes called a pot account, where broker aggregates all the cash/securities from participants, conducts trading on all clients' behalf and shares the profit on a pro rata basis.

CHAPTER 1. EXECUTIVE SUMMARY

Traditional development economics theory suggests that all the developed economies went through or are going through the three stages of development – agriculture, manufacturing and services. The development process of the first two areas in Ukraine is up to a significant debate. Yet there are reasons to consider Ukraine an emerging economy. Financial markets started their development right after the proclamation of Ukrainian independence in 1991. No standards were outlined, no regulations defined, no legislation suggested and no technology besides phones and basic computers available. Yet, the first banks realized the massive potential of Ukrainian financial markets and started investing into a semi-brokerage houses that were closely connected with the registrars (that were soon after renamed custodians). First issues of stocks and shares were met with excitement and international partners were keen on purchasing factories for their own benefit (an issue that can be discussed for a while as well). To accommodate for such demand Ukrainian government introduced a legal status for entities that are now known as public joint stock companies. The main idea was to create a legal mechanism that allowed stocks and shares of enterprises to be sold.

With a significant effort Ukraine has adopted various legislations that ultimately introduced a very heavy competition on the financial markets – banks were allowed to become (or better to say create) brokers using their banking capital. Small brokerage firms were gradually pushed out of business given that banks had concentrated liquidity, better risk management mechanisms, benefit from the economies of scale, and ultimately scope. Additionally, with the EU associations agreement the capital markets are to be changed as well from trading and oversight perspectives. This paper's focus is on the industry of financial services that are provided by the banks, particularly the economic and financial expediency of commercial and state-owned banks to invest capital in their own brokerage house

The first part of the paper analyzes the industry, outlines players and describes trading. Specifically defining economic and legislative differences between non-bank brokers and bank-brokers are presented. Firstly, the paper focuses on the main and most liquid securities that are being traded – government bonds. Secondly, it proves that it is cheaper and legislatively easier to create broker based on the existent bank, using the bank's own and/or attracted capital for investment. Finally, there is arguments that prove that investing into brokerage house as well as investing in government bonds for bank's portfolio allows banks to receive more profits.

By using the Porter's five forces approach, one can deduce the market situation for the industry, where banks operate as stockbrokers. The findings indicate the marker is monopolistically competitive due to low barriers for broker banks to enter or exit the market. Brokers can provide various services: dealing, underwriting, asset management, etc. The room for additional profit is present due to the (nominal and current) that exceed general deposit rates. The sole supplier is the government that constantly increases the number of government bonds tradable on the market. Threat of substitution is present, yet, currently insignificant.

PESTLE (political, economical, social, technological, legal and environmental) analysis, however, discusses the environment where the market and the players operate. When discussing government bonds it is very important to analyze the political situation of the economy. Ukraine is on the path of improving macrofinancial stability, which prompted Fitch rating to bump Ukraine up from B- to B[1], thus, decreasing the potential default on payments on the bonds. Nonetheless, the business has received negative reputation due to allegations of using government bonds as money legalization and laundering mechanism (the interest earned from government bonds is untaxable). Economically, government bonds are still a necessary tool for the Ministry of Finance to control and lower the debt to GDP ratio. Although, government bonds' yields and the lack of significant growth in the private center focuses liquidity on the instruments that by themselves do not promote growth, thus, it is hoped that a private sector will increase the pace, hence, will attract liquidity towards the equity and/or commodity markets and other instruments. Finally, technologically, the capital market in Ukraine is underdeveloped, lacks instruments, trading platforms (exchanges) and proper infrastructure. Thus, the development of a private sector must be aligned with the development of the market infrastructure itself.

Overall, the arguments outlined in the paper prove that there is financial and economic expediency to set up a brokerage house on the basis of an operational bank, it can generate profits and will yield even higher profits if the country's economic growth is sustainable and increasing.

[1] Rating Upgrade: Ukraine's rating upgraded to 'B' https://www.fitchratings.com/site/re/10089183

CHAPTER 2. INDUSTRY OVERVIEW

Why can banks be interested in taking part in another market? Is it not enough just to aggregate deposits and give out loans? What is the main advantage of securities market over traditional banking sector? Those are the questions that need to be examined as well. There are two primary reasons for a shift in focus. First and foremost – yields. Crediting now is rather unpopular banking activity, even though there has been some progress over the years. An average interest rate for loans is approximately 22% per annum. While depositing cash within NBU for either one night or two weeks yields from 15% - 17,5% per annum (will be discussed later). Yet when it comes to the securities market, specifically government bonds denominated in UAH, the nominal yield was 19% UA4000201370 and 18.5 UA4000202295 as of 08.01.2019[2] depending on the maturity date. Immediately the second reason – coupon payments are not taxed as an income, hence a broker saves 18% of income tax of earnings and financial services are not a subject of VAT. Therefore, an inclusion of banks into the securities market has allowed banks and private investors alike to enter the market for more profitable and untaxable securities. Having a varied range of financial instruments in different currencies allows banks to diversify, hedge and mitigate risks to a certain extent. Moreover, if we consider the main barrier to entry into trading by either bank or a simple firm wishing to obtain broker's license we will see that the main one is capital requirements. For instance, according to the primary legislation by Verkhovna Rada №2393-VI 11.04.2014: to become a dealer regulatory capital has to amount to 500 000 UAH for dealership services, 1 million UAH for brokerage and 7 million UAH for all of the above plus custodial services, underwriting (issuing corporate debt) and asset management (for instance – pension funds and IPOs). At the same time banks have a regulatory capital requirement of 200 million UAH, hence, the legislation exempts banks from specifically pledging those amounts of cash towards the regulatory capital. Additionally, the commission does not have to oversee the liquidity ratios, since it is being done by the NBU itself every day (statements of N4,5,6 norms of liquidity ratios are submitted daily). This point will be developed further later on.

To analyze the chosen industry, there have to be a couple of points that are to be discussed. Firstly, it is worth mentioning the instruments that are traded the most and estimating the overall market capitalization considering liquidity as well. Secondly, trading procedure will be discussed, which will also serve as a basis for cost calculations. Thirdly, the

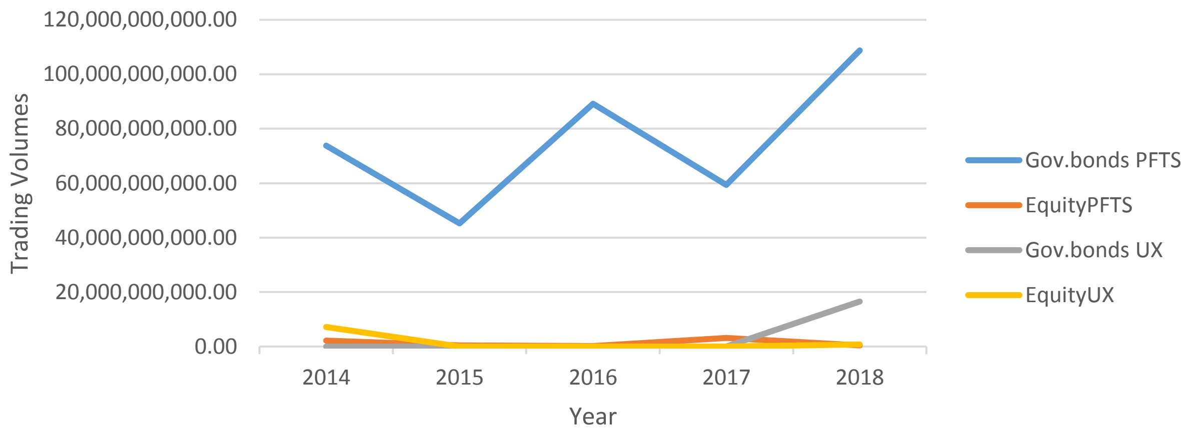
[2] NBU webpage, https://old.bank.gov.ua/control/uk/bonds/list?year=2019&date=08.01.2019&currency=UAH

biggest players will be outlined. Finally, the discussion will be expanded by outlining the range of services that are presented to the final consumers – investors.

2.1. Instruments

To quote Sergii Brodovich, one of the traders in the brokerage firm Task-Broker in Ukraine "the capital market in Ukraine is dead" (Interfax, 2019). No equity is traded and the only focus is government bonds. Partially, this claim is correct. Let us consider the two largest exchanges – Ukrainian Exchange (UX) and First Stock Trading System (PFTS) (at the moment there are 4 operational and licensed exchanges in Ukraine). There are 4 lines on the figure 1 – trading volumes of equities and government bonds.

Trading volumes of equities and gov. bonds (fig. 1)



The highest one is the market capitalization of government bonds market throughout the past 4 years. Market capitalization for other instruments is there, yet pales in comparison.

There are registered derivatives present on Ukrainian market, yet they are incredibly illiquid and have not been traded for a while now, thus is out of scope of this assignment.

All of the data suggests that market liquidity lies within government bonds and the equity market struggles to attract new players. Consequently, for the purpose of this analysis it is worth focusing primarily on government bonds as the main instrument. The reason for said analysis to understand the market size and compare it to the potential one, which will in fact serve as benchmark to further improvements and the expediency of new entries. Additionally, given the existence of 2 depositories, one serves as the depository for government bonds (NBU's enterprise) and National Depository of Ukraine, we therefore, focus on the costs incurred by the brokers from the first depository.

2.2. Market participants

There are 58 registered and licensed broker banks. Nevertheless, it does not necessarily mean that all of them are trading on the regular basis. Secondly, the conventional financial analysis is not viable for the analysis – a bank can be very large, yet it does not mean that they trade government bonds on the market. A good example is PrivatBank. They are the primary dealer (will be further explained later), so they accumulate a very large portfolio of government bonds specifically for their own benefit that they keep instead of actively trading. Nonetheless, given the scope of this analysis it is worth outlining the largest players on the market. The best way of gathering this information is to compare the banks' financial statements with the weekly trading ranking of Settlement Center[3] – a CCP entity that clears and settles transactions, hence, has the best idea and an obligation to disclose the information on active traders. Settlement Center's ranking consists of two indicators – the amount of cash deposited for trading to Settlement Center by a broker and the number of postings throughout a day for a month. The ranking system was introduced in 2018, hence there is data only for one year, which is, however, representative for the entire market nowadays (Appendix 2). By checking the financial statements, however, it will be possible to deduce the saturation of trading, i.e., if a bank places high on the rankings and has a rather small portfolio of bonds, then such a bank broker trades actively. The rankings show there are 13 very active banks that trade on-exchange. The most active players placed in descending order are UkrGasBank, FUIB, AlfaBank, Globus and OTP banks. Further analysis into the financial statements can provide evidence to see whether a bank trades for their own portfolio or sell the bonds to private investors. However, banks sometimes sell the bonds to their clients from their own portfolio, which is untraceable and accounts in P&L as operational revenue. Finally, accounting standards have changed quite a bit in Ukraine and shifted towards international standards. The case used to be when banks accounted for government securities and divided them in three categories – trading portfolio – actively trading securities, portfolio until maturity and portfolio for liquidity control. Nowadays those section names are changed into: "Investments that are accounted using a fair value through another cumulative income" – liquidity control; "Investments that are accounted using fair value through profit and losses" – trading portfolio; "Investments that are accounted using amortized value" – portfolio held until maturity. Those proxies can indicate the volumes of government bonds trading among the top players.

1) UkrGasBank – 18 100 067 thousand UAH or 18 billion UAH – for liquidity control.
2) GlobusBank – 405 570 thousand UAH (405,5 million UAH) – for trading.

[3] Settlement Center official website – settlement.com.ua

3) FUIB – 93 200 thousand UAH (93 million UAH) – for trading and 8 334 691 thousand UAH (8.3 billion UAH) for liquidity control.
4) AlfaBank – 4 271 478 thousand UAH (4.2 billion UAH) for trading and 400 thousand for liquidity control.
5) OTP bank – 1 133 150 thousand UAH (1.13 billion UAH) for liquidity control and 3.677 million UAH kept until maturity.

From this statistics, we can see that AlfaBank is the largest trader, UkrGasBank trades for liquidity control and the only bank who keeps bonds until maturity – is OTP Bank. That provides an estimate to conclude the types of brokers on the market. The given methodology can be extended to all the 58 licensed broker banks, however, when it comes to investigating other financial activities – there are obstacles in the form of a lack of specific legal requirements to report such activity.

The aforementioned paragraph explains the reasons banks hold government bonds for themselves. Ultimately, a financial institution has to have as much access to every possible financial instrument as long as it benefits the end consumer, especially considering the fact that the majority of large market players are the largest banks that are also considered as systemically important, according to the NBU's decree №863 from 25.12.2014.

This section was designed to alter and improve on the understanding of the core business activities and the existing instruments that banks possess. Using both banking and financial instruments banks can diversify investments, maximize yields, mitigate risks and comply with the prudential NBU's and NSSMC's requirements all together.

2.3. Trading procedure

Trading in Ukraine constitutes from three stages: pre-trade, trade, post-trade. All of the stages comply with the best practices seen in Europe and the USA and the standards can be matched with the most significant pieces of respective legislations: European Market Infrastructure Regulation (EU No 648/2012) and Dodd-Frank Wall Street Reform and Consumer Protection Act (US Public Law 111-203-July 21, 2010). Though, technology and processes are outdated as well as the number of financial instruments is limited.

After a broker receives an aforementioned license and meets regulatory criteria, to start trading a broker has to conclude an agreement with all of the aforementioned infrastructure layers. Firstly, an agreement with a respective exchange. Then a broker has to either sign an agreement with a custodian who has an account in CSD or if a broker is also a custodian then open an account within CSD. That is also an issue that will be examined in this paper – whether a broker shall also hold a custodian license or shall it be serviced by a separate custodian. Finally, a broker has to open settlement and clearing account within a CCP.

Every entity has respective fees that are to be collected from every trading participant. Economically speaking those fees along with regulatory requirements constitute a certain barrier to enter the market.

If all of the steps were taken then a broker is allowed to partake in organized on-exchange trading. There is no reason to outline the specificities of trading, since it involves a variety of asset blocking, many accounts and many manual interventions – all of which are a point of criticism to why capital market in Ukraine is regressing.

For the benefit of the paper and the completeness of the argument, this analysis investigates one financial instrument – government bonds and a single type of legal entity – bank with a broker's license. However, it is worth examining particularly those broker banks who are actually operational and actively partake in trading. As discussed any active broker has to have an account within a CCP and a CSD. Yet, given that cash leg of the settlement is being serviced by the CCP it is worth taking CCP's data on the number of active clearing accounts and subaccounts that are held within Settlement Center. By doing so we will see a clear picture of the current state of market participants, mainly their number and the number of their clients who wished to open segregated accounts.

2.4. Services

What is the reason to analyze specifically banks that act as brokers? That is an exciting question. The answer is the followin – banks have a much clearer opportunity costs. The usual perception of banks dictates that banks' primary source of income is crediting. In fact, in the US there is legislative separation between a commercial bank and investment bank (Glass-Steagall Act, 1933). However, in Ukraine there is no such distinction, therefore, to credit – one need to gather deposits to comply with reserves requirements. However, to make banks' life as easy as possible the NBU has issued a monetary instrument - so-called "Certificate of deposit". Ultimately, it means that banks are allowed to leave money overnight or for 2 weeks in the form of deposits within NBU. The interest rates are the following: overnight – interest rate – 2%, or, equivalently, 15.5% (as of 20.10.2019, NBU's interest rate is 16,5%); 2 weeks – NBU's interest rate, currently 17.5%. Bearing that in mind, we shall discuss incentives for banks to partake a role of a stockbroker and investigate whether it is economically expedient to invest in government bonds or is it more profitable just to invest in those certificates of deposit. However, such a service has its cost as well. Currently, according to NBU's decree №48 as of 07.03.2019, the fee for investing in certificates of deposits is 0,00057% from the invested sum (as a reference investing 1 billion UAH, the fee would be 5700 UAH) which is rather insignificant and from the perspective of this paper is assumed to be zero.

In general, the services provided by such entities are divided into a couple of categories: 1) those who execute trade orders by private investors; and 2) banks that are investing own capital and free cash as well as executing trade orders. Moreover, some of the banks participate in a so-called primary distribution, where the ministry of finance sell bonds at a nominal value among the 12 banks, who then sell those bonds to the secondary market – the rest of the brokers and, therefore, benefit for controlling the supply of bonds sold.

For the benefit of this paper, we will assume that a broker bank is capable of providing the two main services – brokerage and custodial services. That is important because this type of activity determines the minimum number of employees that will have to be hired to comply with the legal requirements imposed by the NSSMC on 14.05.2013 №817. Furthermore, assumptions will be made concerning the salaries of those employees and those costs will be evaluated at the barriers to entry section.

2.5. Porter's five forces analysis

By using Porter's five forces analysis, it is possible to estimate the attractiveness and saturation of the government bonds trading among the banks. In other words – does it make economic sense for a new bank to invest into opening a brokerage to trade on the government bonds market? The answer to this question will express the potential of the market, the upside of trading and the relevance in current economic regime. The structure of this part is the following: competitive rivalry, threat of substitution, buyer power, supplier power and threat of new entry.

2.5.1. Competitive rivalry

Firstly, let us discuss the competitive rivalry on this market. There are 77 banks currently operational in Ukraine and 58 of broker banks: 54 brokers and 49 brokers and custodians. If we were to examine the market structure of the industry, the evidence suggests that it can be explained as monopolistic competition. Firstly, obtaining licenses and setting up the operation costs approximately 3 mln UAH a year (detailed calculations are outlined in section 3.5) For a bank that has at least 200 mln UAH of capital, 3 mln UAH spread across the year – may not be considered as a large barrier and, furthermore, as discussed in section 3.5, is worth the cost. Moreover, apart from licensing fee, the only sunk costs are administrative licensing fees, thus exit, in relative terms – free. Secondly, as mentioned above, generally a professional capital market participant can provide 7 distinctive services: underwriting, broker's service, dealer's service, asset management, depository services, mutual fund management. The list of services is not limited to one, thus, products are generally differentiated, yet closely related. Thirdly, 49 firms that are capable of providing at least dealer's service – allows consumers considerable choice. Considering all the points above, a private investor can choose among a variety of firms to fit all the needs.

If we were to consider and compare competitive rivalry not among the bank brokers but rather between the bank brokers and regular brokerage firms one shall consider the ease of doing business. Currently the electronic payment system (EPS) has two regimes – standard with a wire transfer between banks that can last up until 1 hour and an accelerated wire transfer that is processed to up to 5 minutes. Only banks have the capacity to install and maintain the second system, hence, they already have a competitive advantage in that matter. However, empirically speaking, it is not the main determinant.

2.5.2. Quality

From the perspective of servicing private investors the velocity of transfers from a broker bank to an investor is also in question. According to the respective banking legislation (A Law on Payment Systems and Cash Transfers in Ukraine, article 8, paragraph 8.1) a bank has to complete a transfer during one operational day (worth mentioning that if a private investor is being serviced by a broker bank it does not necessarily, mean that such an investor holds a bank account at the very same institution, hence the interbank transfer). However, the very same regulation has a loophole stating that it is possible by a bank to determine the interbank transfer duration while signing the agreement with its client. That, in its turn, allowed at least PrivatBank to increase the duration to up to 3 days, hence, investors choose banks who provide more flexibility and speed to transfers to have the best control over liquidity. Therefore, the quality of servicing in terms of the velocity of transfers is an important estimate for a choice of broker.

2.5.3. Diversity of competition

The stockbroker market is, by legal definition, diversified. Banks can be dealers, brokers, custodians or asset managers. When a bank can provide all the aforementioned services to one client, it already gets an advantage over the competitors who can only partially conduct such activities. Nonetheless, statistics shows us that among 58 broker banks, 49 can provide all the services. Thus, legally – diversification of services is implied, yet the reality is that all of the banks can provide same services that vary in costs and quality. This issue has been discussed in detail in paragraph 3.1.

2.5.4. Switching costs

Now let us move towards switching costs. That aspect implies the ability of a private investor to close down an account within one broker and open another account at a different institution – a regular stockbroker, or simply invest in something else. From the perspective of a private investor, let us break down the aforementioned costs:

1. Close account costs
2. Open an new account costs
3. Open a segregated account within CCP and CSD
4. Commission for money / securities transfer.

Therefore, as we can see, those costs exist and need to be taken into account. However, considering that there is no interest tax and income tax from trading and/or keeping government bonds (which is currently 18%), and the guaranteed yield from the government those costs can be mitigated by an extensive size of investment due to the fixed nature of the costs.

That is, however, a hypothetical cost breakdown. To see the real price competition we shall examine the aforementioned five top players and see the prices on their services. The reason for that is when a private investor opens an investment account within a broker bank – a fee is charged. That fee takes into account the entire infrastructure costs. There are three distinctive fee schedules methodologies; 1) broker bank charges a percentage from the transaction; 2) broker bank charges flat fees for services and account maintenance and 3) a combination of both.

1) UkrGasBank fees – opening clearing subaccount – 300 UAH + 0.01% / 0.02% of a transaction (on-exchange order) but no less than 500/1000 UAH (the difference is whether the account is opened within this bank or another) – for legal entities.
2) First Ukrainian International Bank (FUIB) – 0.1% but no less than 1000 UAH per order (this broker can be used only if an account is opened within the FUIB).

3) OTP bank investment account – minimal entry 100 000 UAH, account opening 750 UAH, fee for buying securities – 200 UAH per trade and 1% for selling securities (400 min, 1000 UAH max).
4) AlfaBank – no information.
5) Globus bank – min 500 UAH per trade, can be bargained upon.

Therefore, if we compare these fees, we can see that a private investor can choose a relevant broker depending on the number of transactions and the cash volume of those transactions. Not all the banks disclose their tariffs, yet the majority does and a client can find a broker that fits the requirements. Furthermore, the aforementioned costs only relate to the broker's services, while there are other professional financial services in place: custodial services, underwriting and asset management. A very large bank can benefit from the economies of scale (the higher the number of clients with cash available – the lower the overhead cost) and scope (aforementioned financial services that are included into the "regulatory" package deal). On the other hand, sometimes a person cannot find information on the tariffs because they can be bargained upon. That connects the aforementioned point on various fee schedules that institutions might have: flat fee to attract as many customers as possible (also consider opening an account fee, transfer fees etc.) or percentage fee that focuses primarily on servicing people with big cash available for investments.

From the point of view of the performance, as mentioned above, the technology is fairly unilateral and common for every participant, hence, the competition lies primarily in the cost of servicing.

2.6. Threat of substitutes

In this industry, the main threat for broker bank is regular brokerage firm. There are 187 of them, with different capacities and range of services. There are primarily focused on attracting cash from as many investors as possible. Yet, they lack in operational speed (cash transfers) are subjects of various scandals and litigations (involving money laundering), the smaller ones lack decent capital. Sources of financing though are outside of this paper's scope, it is assumed that banks always have available cash for trading, whilst the others – usually have many stocks but no cash.

The other substitute is deposits. With the NBU's interest rate at 17,5% per annum, assuming that banks can operate within a corridor, the largest deposit rate is currently 20% by

Bank Alliance[4]. Let us assume that an investor has 1 million UAH available. Investor might either pledge the cash into a deposit – taxed, or invest in government bonds with a nominal yield of 18.5% (matures in a year) untaxed. For the simplicity let us assume that bank costs are 0, while investors goes to FUIB and has to pay 0.1% commission or 1000 UAH. Potential profits: deposit – 200 000 UAH minus 19.5% tax = 161 000 UAH per year; or 185 000 UAH minus commission and military tax = 181 240 UAH. Thus, government bonds have a much greater potential for profit. Additionally, coupons can be reinvested, while, usually deposits with very high interest rates are flat.

Summing up, private investors have other choices when it comes to financial management.

Nonetheless, the argument can be made that such conjecture tends to not last long in countries that undertake proper reforms. According to Jorge Castellanos, former Manager of the Public Debt in Colombia, developing a proper government bonds market is a necessary step that leads to an organic shift towards equities market (Castellanos, 1998). It educates traders and strengthens financial market infrastructure, which is essential for further market growth. No matter what the pros of government bonds are, a target for every government is to induce economic growth, which can be achieved through the growth of private sector. Poland, for instance, through extensive economic reforms managed to secure its place as developed market, the step up from the advanced emerging market category in The Financial Times Stock Exchange 100 index, and currently holds a leading position in the Central European Region (Ramotowski, 2018). That, in turn means, that when a country promotes private sector growth. The proof of this notion can be seen from the Warsaw Stock Exchange data: the total market capitalization of Polish equity market as of September 2019 is 1.4 trillion USD (Appendix 1), while government bonds market capitalization as of September 2019 is 47 billion USD (ex. Rate 1 PLN = 0,26 USD) (BondSpot, 2019). It is also worth mentioning that the average yield from securities is 3,1% and for a 1 year bond – 1,204%, which also makes equities market more profitable (GPW, 2019; World Government Bonds, 2019).

Overall, currently government bonds market is the safest and most profitable choice for domestic and international investors in Ukraine and a threat of substitutes of brokers focusing in equities trading is minimal. However, regardless of how profitable the situation is now, synchronized economic development, successful inflationary targeting and proper reforms can and shall result in gradual shift from the government bonds market towards equities market.

[4] (https://minfin.com.ua/ua/deposits/307-oshchadnyy-oshchadnyy-kapitalnyy-i-progressivnyy/?sku=944)

2.7. Buyer power

Ultimately, the main buyers or in other words clients that are served by the broker banks are the banks themselves, private and public entities and private investors/ entrepreneurs. However, on average the value of initial investment that can be processed by a broker bank is at least one million UAH. Partially, it is determined by the costs incurred by every bank broker, which will be investigated further. Therefore, additional separation is required. It is not allowed, however, to identify any of the market players and their respective trades because it is at least a banking secret. Broker banks usually do not execute trades for private investors. Instead, they accumulate bonds in their own portfolio and then sell it to a private investor from their own portfolio. However, they do provide an opportunity to execute trades on the behalf of the client itself.

2.7.1. Choosing a broker

Regarding the differences in competitors, the analysis is quite straightforward. For every private investor it is vital to have as much security as possible. In this regard, the largest broker banks are the safest choice, which boosted the demand for their services and led to their dominant position on the market. We can compare a very large bank with international capital and a state owned bank: Raiffaisen and UkrGasBank. Both of them have capital that accounts for 11 billion UAH and 5.7 billion UAH respectively. According to their respective P&L statements, UkrGasBank earned 178 million UAH, while Raiffaisen earned almost 5 billion UAH in 2018. Given that the comparison is between a state-owned bank and a commercial bank, we can understand that this difference is not of any significance but the fact that both institutions are either backed up by their capital or by the government. However, if we consider and analyze the financials of a much smaller bank, for instance ¾ (bank three quarters) (capital – 530 million UAH, profit – 47 million UAH) we can see that their current financial position as well as multiple grievances of NBU have a negative impact on their competitive stance, hence is not a very popular broker bank among the investors. Another example is GlobusBank with 300 million in capital yet with almost 21 million in losses in 2018, yet, as mentioned above, the bank places very high in the ranking of active traders, so not always does the capital play a substantial role in the decision making for the clients. Nonetheless, it does not preclude the smaller banks to actively trade for their own benefit with their own banking cash. To sum up, competiveness on the financial markets is mainly driven by the security of capital given by private investors and by the respective costs of services, thus, the wealthier investors prefer a less risky choice, while paying extra for security.

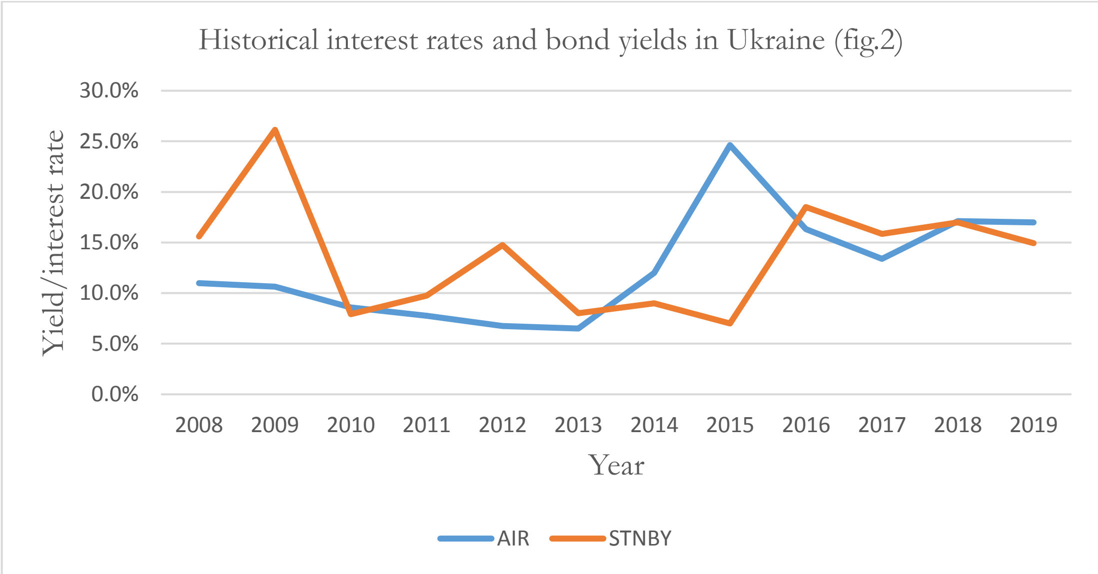
Furthermore, stockbrokers have the power over investors in the form of minimum requirements and minimum fees. For instance, OTP Bank only works with private investors willing to invest at least 100 000 UAH. On the other hand, every bank has a minimum fee for every ordered and executed transaction. Buyers, or, in this case – private investors have to take that into account, because that affects net income that will be gained from the trades.

2.7.2. Information

Banking industry nowadays and any other public joint stock companies are legally obliged to provide quarterly and annual financial reports. Not only those reports include standard balance sheet, P&L statement, cash flow statement and a statement on retained earnings, but also a comprehensive description of what has been accomplished by an entity throughout the year. For a simple bank that seems sufficient. However, given that broker banks are actually regulated by two entities – NBU and NSSMC that have different requirements for reporting. It is certainly inconvenient for the entities themselves, however, private investors have a lot of information to draw conclusions from, which is certainly a plus. Additionally, it is required by the law for those entities to be audited as well and the results to be published on a website, so the potential or existing clients are aware of the state of affairs.

2.8. Supplier power

The main supplier of the securities industry is certainly an enterprise willing to attract more funding. However, given that the instrument in question is government bonds – the sole supplier is the government. Whenever additional bonds are issued, the more business the brokers have. Bond trading in Ukraine follows the same basic principles established in Western Economies. Firstly, it is important to clearly separate the nominal yield of a bond – which is the percentage of a bond's face value that a purchaser would receive at maturity and the current yield, which is then calculated based on the actual price a bond purchaser will have to have paid. According to Securities and Exchange Committee investor bulletin the relationship between interest rates and bond' price are inverse, meaning that when market interest rate rises, the bond price falls (SEC, 2013). Additionally, while choosing a nominal yield, the government shall analyze market interest rates to match and attract more investors, whose opportunity cost would be – investing in stocks or simply depositing free cash into banks. The graph below represents the historical movements between the market interest rates (denominated as AIR – average NBU interest rate) and weighted average market yield for a one year government bond (denominated as STNBY). We can see that generally (apart from the crisis of 2008 and crisis of 2014, where central bank's interest rates grew slower than the market response) the pattern of matching the yields around NBU's interest rates. Hence, as a supplier, Ministry of Finance chooses nominal yield that will be attractive for the market participant and then the market decides whether to purchase the securities at discounts or premiums, hence, adjusting the current yields. Finally, depending on the maturity dates, the demand and, hence, the price of bonds varies.



As mentioned above the yearly government bonds trading volume was around 110 billion UAH on one exchange in 2017. In 2017, the ministry of finance issued 261 100 government bonds attracting almost 250 billion UAH in debt (NBU, the amount of attracted investments into government bonds). Given that the primary dealers tend to keep a large share of those bonds to themselves, the rest is being sold, usually with a premium.

If we focus on the procedure of admission to the list of banks who are permitted to participate in the primary market, then we can have another clear segmentation between the banks. The Ministry of Finance has a comprehensive list of requirements regarding banks who wish to partake in primary auction (currently 12 banks – Ministry of Finance of Ukraine, the list of primary dealers). Apart from ordinary NBU's regulatory capital requirement (200 million UAH), a bank wishing to join the primary auction will have to 10 million EUR of regulatory capital (approximately 300 million UAH) and, what is more important, a note stating that such a bank has held a broker's license and throughout the past operations had a turnover of government bonds that exceeds 1 billion UAH. If there are 58 banks with broker's licenses and 12 of them are the primary auctioneers, then if another bank wishes to join this list, they will not necessarily incur additional cost but rather will have to accumulate or attract a lot more capital, making such an endeavor rather unreachable for smaller banks. Anyways, from a more micro perspective, those 12 banks can control quantities of government bonds being sold on the secondary market (bought by the rest of 36 banks), thus controlling the prices (on the first day of a secondary auction the prices are usually above the nominal value i.e. 1000+ UAH for a unit) on the secondary market, where private investors have the ability to purchase said securities. From the basic financial instruments course we know that an increase in price leads to a decrease in yield to maturity (and vice versa, depends on market demand), which does not benefit the rest of the market but benefits the primary dealers. Overall, government as a supplier is certainly unique. However, having 12 primary dealers induces at least some price competition albeit rather concentrated anyways. Nonetheless, given the limited participation in the primary market, this issue will be discarded from this analysis further on.

Certainly, on macro scale there are numerous other suppliers: gas, electricity, real estate and communications providers. Nevertheless, such expenses are usually a part of the operational capacity and their reduction is not as much a broker's side of the business rather a bank's responsibility.

Considering all of the above, the suppliers are the government and the primary dealers. Primary dealers compete with each other for the best deal to sell securities on the market. It must be noted that it is virtually impossible to see which one of the dealers has shown the best price sensitivity since all the trading is done anonymously.

2.9. Threat of new entry/barriers to entry

Having discussed four out of five Porter's forces we can have a little summary that will be propped up by the essential calculations conducted in this section. Firstly, capital requirements by every brokerage firms are rather universal – at least one million UAH. Secondly, the fees are roughly the same as for opening and maintaining an account and regarding closing down the account. And as stated and outline in paragraph 3.1 the structure of the market is explained as monopolistically competitive. Various firms are attracting customers by either rethinking tariff structure or increasing the potential yield from investments. However, the overall domestic demand on government bonds is not substantial enough to accommodate more big players, however, given that Ukrainian NBU's depository has been linked to international Clearstream depository, the situation might change (NBU's website, news section, 22.05.2019).

Moving on to the threat of new entry. Securities trading is not a cheap business, it requires substantial capital and workforce. Nonetheless, we consider only banks for this paper, therefore, capital requirements is certainly not an issue given that to be a bank an entity has have a regulatory capital of 200 million UAH, whereas the most inclusive broker's license requires only 7 million UAH that banks have to account for but do not have to specifically spend.

To investigate this issue I suggest considering any hypothetical bank that meets all banking and trading capital requirements and has 100 million UAH available for trading (the reason for the need for such arbitrary amount will be discussed further). Firstly, we will break down the cost of actually accommodating a brokerage including the cost of hiring and training certified personnel. Then we will move on to the cost of opening, maintaining and closing down an account. Thirdly, per trade cost has to be calculated and analyzed.

According to the current legislation, the minimal requirement is to have 4 certified specialists for trading activity and at least 3 certified specialists in a separated department, which is, in this case – custodial services (depository accounting). An upper hand that bank brokers have over the simple brokerage firms is that they do not have to hire additional financial monitoring and accounting specialists. That means that we exclude the costs of potential wages paid to those specialists from our analysis. The cost of a certificate that has to be renewed every 3 years is 7 448 UAH. Meaning that the broker bank has to pay at least 7 448*7 = 52 136 UAH to comply with the current legislation. Additional requirements that those main 7 people have to have at least 3 years of professional experience. According to the labor market information regarding the financial sector, the mean wage for those specialists (excluding CEO) is 20 000 UAH per month. The CEO's wages are currently amounting to minimum of 70 000 UAH. So if we assume 1 CEO and 6 certified specialists, one will have to pay: 70 000* 12 + 6*20 000* 12 = 2 280 000 UAH of wages. Additionally, the social insurance is being paid by the employer, which is 22%, so 2 280 000* 1,22 = 2 781 600 UAH minimum in wages. Summing up, the overall cost for the personnel to be certified and hired a broker operating within a bank will have to spend at least 2 833 736 UAH in one year.

When those costs are paid than bank brokers have to opened the following accounts: clearing and settlement accounts within a CCP and a securities account within CSD:

1) Settlement account – 100 UAH
2) Clearing account – 120 UAH
3) Clearing account maintenance – 3000 UAH per month
4) CSD account – 750 UAH

5) Account maintenance – 420 UAH per month

The sum of money that has to be paid for the accounts to be opened: 4 390 UAH.

After this is done, a broker has to conclude an agreement with an exchange. As previously mentioned the chosen exchange is PFTS:

1) Receiving a link to a trading terminal – 2200 UAH (paid once)
2) Maintenance of a trading terminal – 1000 UAH (on a monthly basis).

Thus, a bank will have to pay 3200 UAH to set up the PFTS terminal and start trading.

To move further, I will have to explain the arbitrary amount of 100 million UAH dedicated to trading. Additionally, let us assume that the bonds being purchased are one-year notes with a nominal yield of 18.5%. It is a reasonable assumption given that according to the NBU's issuance statement, the ministry of finance has issued 836 830 of notes with 18.5% yield on the 28th of Man, 2019. Service fees on exchange are on a pro rata basis, meaning that for every trade an exchange charges 0,03% of the transaction sum. Usually, only the primary dealers can purchase government bonds in one trade for 100 million UAH. Given the dynamics on the PFTS exchange, it will be safe to assume that to purchase 100 million UAH worth of government securities a broker will have to conduct 100 trades. Let us assume that those 100 trades take place throughout 20 business days, i.e. 5 trades a day, 1 million each.

1) CSD charges 7.50 UAH for every operation – 750 UAH overall
2) CCP charges 300 UAH for the first 50 operations and the rest are 1 UAH each – 15 050 UAH.
3) Exchange will charge overall 30 000 UAH.

In sum, a broker will have to pay 45 800 UAH for those trades to take place.

Currently, if we add all the aforementioned costs to purchase 100 million worth of government bonds a broker will have to spend 2 887 126 UAH assuming that no further trading will take place (no maintenance fees) and until the maturity of the aforementioned one-year notes.

If a broker bank were to purchase those bonds in one go, the ultimate monetary yield would have been 18 500 000 UAH, less military tax (1,5%) = 18 222 500. We also assume that the dividends are also not reinvested.

However, for the reality of this assignment we will have to draw down the decrease in value for those securities considering that the seller of those bonds is losing the accrued interest, which will be reflected on the price, i.e. every day, a broker will have to pay above the nominal value to compensate the seller for the accrued interest. Let us assume that the basis is 30/360 and coupons are paid quarterly. In appendix a detailed model to determine the everyday transaction price is included. Ultimately, the cost to gather a portfolio that will yield 18,5% at maturity is 650 069,44 UAH. That means, in monetary terms, at maturity, given no volatility on the market, a broker will receive 18 500 000 – 650 069,44 = 17 849 930,56 ₴, less the military tax of 1,5% = 17 582 181,60 ₴.

Now let us subtract costs that will accumulate all together and a broker bank will receive in profits = 14 695 055,60 ₴. On the other hand, a bank could have invested those 100 million UAH in NBU's certificate of deposit that yield 17,5% per annum (as mentioned above, the 2 week long certificates of deposit reinvested every 2 weeks for a year, assuming no yield reinvestment). The monetary reward is, however, taxable, meaning that 17 500 000,00 ₴ in pure yield is less 19,5% (18% income tax and 1,5% military tax) = 14 087 500,00 ₴ in pure profit.

As we see, the profit from operating a broker for a year, given 100 million UAH available for investments is higher than a simple investment into the monetary instrument provided by the NBU. Therefore, the barrier to entry is at least approximately 3 million UAH, which, even for small banks, investing this part of regulatory capital is not a very sizeable investment. If we add up potential cash that can be attracted by the brokers to execute individual orders, provide custodial services, asset management services and underwriting, there is a significant upside for banks to join the industry.

2.10. PESTEL

PESTEL – is analysis that describes macro-environmental factors, it includes: politics, economics, social, technology, legal and environment. It is rather interesting to analyze Ukrainian stock market industry from a variety of points of view, mainly political, legal and economic. From the societal, technological and environmental perspectives, given industry is rather mundane, yet there are a couple of points that have to be outlined.

2.10.1. Political, social and legal factors

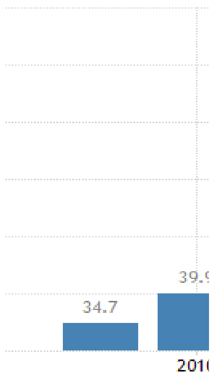
This discussion will be broken down in the following sub-categories: government policy, political stability, corruption, foreign trade, and tax policy and labor law.

1) Government policy towards securities trading is straightforward. For years Ukrainian economy has enjoyed budged deficit that had to be funded by either population

themselves or by foreign investors. Thus, every government bonds issue is vital for the health of Ukrainian economy. In 2018, the budget deficit was 4% of the GDP. With many bonds maturing, the government had to issue quite a substantial debt. Such massive issues are supposed to be serviced by the so-called liquidity centers of Ukrainian economy – banks, therefore, broker banks, especially those who act as primary dealers represent the first hand lenders to the entire country. Then by selling those securities to the secondary market, the population has the right to purchase those securities as well.
Summing up, government policy is the driver of government securities market, keeping track of public policy is an effective way of forecasting market's performance in the future.

2) As mentioned above, government securities market is directly linked with public policy measures, If we compare the sizes of budged deficits and subsequent debts since 2014, as a percentage of a GDP, we see that it has been growing since 2012 and reached its peak in 2016.

Government debt to GDP ratio in Ukraine (fig.3)



Given a peak of political instability and a dire need to finance Ukrainian military and to service both domestic and foreign debt, we see that government bonds denominated in UAH and other currencies were issued in very high quantities and sold on the market. Subsequently, the official position is to pay off foreign creditors, while internal debt is to be refinanced by additional issues. The prices of Eurobonds, as an example are rather unstable and heavily dependent on various political measures and even unsubstantiated claims, as an instance. Whenever political factor goes against the predetermined development path, the market and its participants, mainly liquidity centers and massive bondholders take a substantial hit, which has to be met with appropriate financial choice: either keep the bonds anyways, sell the bonds, or short sell the bonds by borrowing them from the other brokers.

3) This section will combine both the topics of tax law and corruption. Corruption and other illicit activities are closely interlinked with government bonds market as well. The first reason is that yields from government securities are untaxable. Every coupon payment, every trade is untaxable. The reasons for that are quite understandable – raise the attractiveness of market participants without increasing the interest rate. However, there is a major risk associated with such a measure. Enterprises instead of paying income taxes purchase government bonds, inflate their assets and enjoy untaxable income. Additionally, given the imperfection of regulatory oversight, it is easy for people interested in money laundering by using the cyclicality of trading, which was even outlined in NBU's news flash from March 4, 2019[5] and outlined by the National agency of corruption prevention towards, for instance presidential candidates[6]. Untaxable revenue and the ability of investment brokers to gather cash (both real and digital) on Omnibus accounts allows money laundering and tax evasion. Luckily, bank brokers are subject to double regulatory oversight – NBU and NSSMC, hence, the instances of large banks being involved in such schemes is lower, yet existent – Kyiv city prosecutors have handed in a subpoena to the CFO of Oshadbank for scheming 17 million UAH from the bank's cliental[7] using operations with government bonds. Resolving this issue while keeping a healthy demand for such securities is a vital necessity for this country to prosper.

4) Foreign trade seems to be always on political agenda. However, mostly government officials in charge of finance are interested in easing the access for foreign investors to purchase government bonds for such lucrative yield. There is a lot of room for debate to where the foreign trade, mainly export services should be maintained, yet the purpose of this paper is to analyze bank brokers trading government securities. The aforementioned link to Clearstream (European CSD) is supposed to attract foreign investors. The result of this link will be visible once the active trading begins. Moreover, NBU is planning to allow traders all over the globe to trade Ukrainian

[5] NBU recommends banks to increase control over the schematic operations with securities: https://bank.gov.ua/control/uk/publish/printable_article?art_id=89458754&showTitle=true

[6] NAZK finished analyzing the declarations of all 42 presidential candidates: https://nazk.gov.ua/uk/novyny/nazk-zatverdylo-analiz-ostatochnyh-finansovyh-zvitiv-42-h-kandydativ-na-post-prezydenta-ukrayiny/?hilite=%D0%BA%D0%B0%D0%BD%D0%B4%D0%B8%D0%B4%D0%B0%D1%82

[7] Oshadbank's money was laundered by the head of treasury https://dt.ua/UKRAINE/groshi-oschadbanku-vidmivav-direktor-kaznacheystva-prokuratura-272217_.html

bonds through easy, intuitive and universally acclaimed Bloomberg terminal. Nonetheless, such measures have taken place and Ukrainian officials are expecting a decent influx of international capital from foreign investors. As an instance, as of 31.05.2019, international investors hold approximately 42 billion UAH, where 0.865 billion UAH were received after trading on May 29, 2019. Off topic, Ukrainian CSD (NDU) has also launched a service that allows Ukrainians to trade abroad, which has not been very popular as of yet, given the lack of major liquidity that can harmlessly be transferred from Ukraine.

5) Labor law and societal responsibilities are intertwined. Firstly, there are no exemptions from the labor law regarding employees of brokerage houses. They still have to pay taxes and receive salaries twice a month. As mentioned above there are regulations regarding the number of mandatory personnel that has to be employed and certified. Additionally, to have a certificate of a stock trader one has to have a master's degree in economics, finance, law or international economic/legislative affairs. Luckily, those degrees are in demand among Ukrainian youth and, hence, they are eligible to conduct professional trader's activity within a brokerage house. Unfortunately, judging from the websites of the aforementioned bank brokers institutions, one can see that the management consists primarily from the people in their forties, which leads to a conclusion that either youngsters are misrepresented or have not yet achieved specific knowledge to rule such an enterprise. Nonetheless, while browsing the banks' websites one can note that there are corresponding vacancies for students with no work experience. There is no data or evidence that support any similarities between lifestyle attitudes or cultural barriers among various stockbroker employees. From personal experience, I can say that they are usually smart, professional and responsible people, as their job entails.

Summarizing everything above, it can be said that further legislative improvements have to take place and it is expected that it will, given the harmonization of Ukrainian legislation with the EU's legislation. Furthermore, as long as there is corruption in Ukraine the schemes involving liquidity centers such as broker banks and other traders will be prone to heavy, time consuming and costly scrutiny. Societal factor is rather small and uninfluential: people do not like traders for supporting corruption schemes, however, yet stockbrokers are required to hire, keep, educate and certify a certain number of personnel, which might go against business logic but certainly helps the people.

2.10.2. Economic factor

Economic analysis of the issue at hand will be discussed from various points of macroeconomic indicators: interest rate, exchange rate, growth rate and disposable incomes from consumers and enterprises. Interest is considered as income, thus is a subject of income tax, as specified above.

1) Interest rate

As mentioned before banks that operate as brokers are rather versatile in their willingness and capacity to provide various services. Certainly, the main factor of such operations is expected yield to maturity, which directly correlates with the interest rate risk that exists in Ukraine. The NBU revises interest rate every two month, jumps and drops vary, yet for the past previous years every increase or decrease were within the range of 0.5%. It has a direct effect on opportunity costs for new banks who are considering entering the market. As mentioned previously every bank can opt for a cheaper choice – NBU's certificates of deposit. If the yield for those certificates increases, banks might choose to waive their trading licenses (considering the aforementioned costs) and operate primarily as a bank. On the other hand, given that the interest rate is reconsidered every two months by NBU, with a decrease in interest rate, banks risk losing some of the interest income in comparison to the government bonds market. Nevertheless, certificates of deposit are subject to income tax, therefore, every yield will be 19.5% lower (18% income tax and 1.5% military tax, which is by the way applicable to government securities trading as well). Furthermore, 2019 and 2020 are the years with peak payments that have to be made at least to international creditors – IMF. According to the statement issued by the Head of NBU – Ukraine is scheduled to pay 12 billion USD in 2019 and 2020, which requires another cheap loan from IMF. If IMF refuses to provide the cash, Ukrainian government will have to either significantly cut budget deficit even further or issue new debt securities with even higher than current (Ministry of Finance: 18%) YTM. That will only increase our debt-to-GDP ratio, however, market players will have more incentive to invest and attract private investors' funds. Additionally, NBU recalculates the fair value of government bonds every day

2) Exchange rate

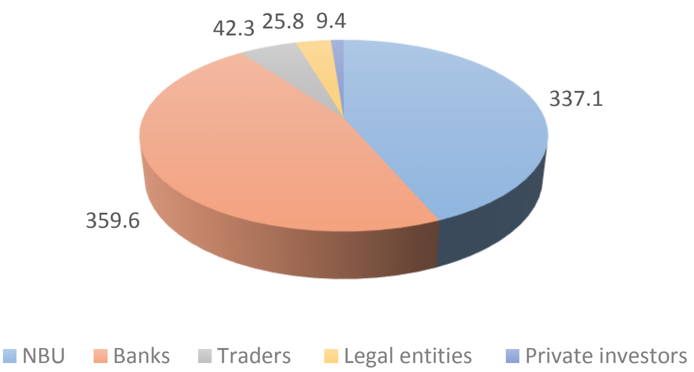
Exchange rates are certainly an important factor in the decision of government securities trading. There are various types of bonds with different maturities and currencies, primarily USD and EUR. Those bonds are usually sold abroad with a smaller yield – max yield for USD denominated bonds – 7.5% issued on the 04.12.2018 and max 4.6% in EUR[8]. Those instruments are also traded on PFTS and stockbrokers use those securities to mitigate exchange rate risks, meaning if UAH depreciates, EUR and USD bondholders will receive higher return. From the perspective of potentiality of new entrants, such a measure is a benefit. It increases the range of marketable instruments that attract both current market players and potential.

3) Disposable income

Disposable income is certainly the driving factor of a decision to invest in government security. After receiving income and paying off taxes, people and enterprises make decisions on where to invest their spare cash.

We live in an ever-growing technological world, where securities trading shifted from mail and handwritten documentation to electronic contracts and algorithmic (robot) trading. Even PrivatBank has launched (31.05.2019) an online system for people to purchase government securities on their synthetic investment account, although, from Privat's own portfolio. According to NBU's statistics, legal entities hold 25.8 billion UAH in government securities, while people hold 9.4 billion UAH in bonds.

Nominal value of bonds held in Ukraine (bln. UAH) fig.4



Let us conduct this analysis under the assumption that all the entities and people purchase said securities with their clean and free cash. The overall monetary amount of government securities issued currently is 774,2 billion UAH, meaning that entities with disposable income hold 4.5% of Ukrainian debt. It also must be noted that NBU owns 337.1 UAH worth of bonds and banks overall – 359.6 billion UAH (including almost 160 billion UAH of bonds at PrivatBank). Consequently, a conclusion can be drawn

[8] Issuance results 30.10.2018: https://bank.gov.ua/control/uk/bonds/list?year=2018&date=30.10.2018&currency=EUR

that ultimately people opt for safer and cheaper choice – deposits, even though according to the commercial website MinFin.ua the largest interest rate for deposits is currently 17.5% per annum. Another explanation is the choice to reinvest all the business proceeds back into production. Overall, the demand for government securities is low and with the expected growth rate of 2.7%[9] with potential simultaneous increase in utilities payment lead to believe that private entities will not be investing more into bonds, hence, potentially new banks will not be capable of enjoying a piece of profits. On the other half, there is a concern that in case Ukraine does show such a relative GDP growth, there will be a necessity to issue more bonds that will be sold inside and outside of Ukraine, giving banks more business to attend to.

2.10.3. Environmental factor

Environment does not necessarily have the largest effect on this industry. Most of the trading and documentation is done online and on the computers, although, regulators do require certain documents to be printed out, which has a negative impact on the environment. On the other hand, UkrGasBank, being one of the top traders according to Settlement Center's weekly ranking, has an eco-bank initiative that allows for cheaper and larger loans to the corporate clients for environmentally positive businesses. The information provided claims that those eco-loans have reduced C02 emissions by 1203 thousand tons, which is certainly a very positive development. It can be assumed that the proceeds that the bank receives from securities trading is partially distributed towards such eco-loans.

Overall, environment does not affect the industry, yet some of the market players invest in saving the environment nonetheless because they see it as a positive social service for the population. As the industry and reporting moves further away from the paper form and transforms into a purely electronic form – the faster the environment benefits from the industry.

2.10.4. Technological factor

Technology is one of the most vital factors influencing almost every industry there is. Stock exchange trading is not an exception. Western countries have accepted the rise of the so-called algorithmic trading. An inclusion of "a robot" into the trading world in the early 2000s revolutionized the industry by allowing computers to enter transactions in milliseconds, depending on any market movements. Such high frequency trading as of 2009 accounts for 73% of equity transactions (Andrew Haldane: Patience and

[9] Ministry of Economic Development and Trade, economic growth forecast: http://www.me.gov.ua/News/Detail?lang=uk-UA&id=1c3eb5fc-44fd-4bf3-b614-2821558ef9d6&title=MinekonomrozvitkuOpriliudniloPrognozniMakroekonomichniPokaznikiKonsensusprognozuNa2019-2022-Roki

finance, Bank of England, September 2010). Such technology is heavily used by market makers and the research shows that the existence of algo-trading has narrowed the spreads on the market, as any entity with such tech installed momentarily reacts on any market movement (Geoffrey Rogow, Wall Street Journal, 2009).

Alas, such type of trading is absent in Ukraine. There is no liquid equity market and the government bonds market does not require such sophisticated technology in place. The only entity within the entire trading chain to have a modern and up-to-date soon to be installed is National depository of Ukraine, which is a CSD for equities.

Consequently, exchanges have stagnated as well. Suffice to say that two of the largest exchanges in Ukraine are based on Russian IT software. For that, UX has lost its exchange and clearing license, while PFTS is under heavy scrutiny by the NSSMC. Unless trading becomes technological or straight through (STP) there will not be any decrease in costs. Moreover, technology allows for significant economies of scale, which is beneficial for the market participants. That is exactly the reason why market participants, legislators and infrastructure have to be cooperating to the fullest and not working against each other.

There is a lot of room to debate on the issue. Some might say that if the infrastructure and exchanges update technology, the market players will be more satisfied and they will enter in more transactions, knowing that there are no technological risks involved. The other opinion is that there is no market, hence, no demand for new technology. I stand together with the second camp of thought. Only market can drive any changes, there has to be more instruments and the corresponding liquidity on the market for anything to happen. When traders and specifically banks, being primary liquidity holders, see more opportunities, they will definitely participate and, potentially, will invest in further stock market's technological improvements.

All in all, considering everything above, the existence of online real time trading is already a huge achievement in Ukraine. Unfortunately, as the time goes by there were merely a couple of loud technological improvements on the stock market that, nonetheless, failed to make a splash and have a significant effect on the industry and its players.

CHAPTER 3. CONCLUSIONS AND RECOMMENDATIONS

It is an unfortunate fact that the capital market is stagnating. Equities market is tiny due to a lack of incentives for new businesses to go for an IPO and due to fierce regulatory requirements. Nonetheless, given the current need for the government to attract financing through issuing debt securities – the government bonds market is on the rise both domestically and internationally. The overall size of the market is debatable. Some of the players tend to keep the bonds, hold and reinvest coupon payments (OTP Bank), while the others actively trade on the daily basis (AlfaBank), thus, control their liquidity (UkrGasBank), earnings and take advantage from the market movements. Both positions are understandable and benefits the business and the current state of Ukrainian economy (though in a relatively short term). Additionally, different maturities and currencies allow banks to create a diversified portfolio to mitigate any risks. From the regulatory standpoint, for a bank to obtain a brokerage license is easier than for any other legal entity. The overall calculated cost for a bank to become a broker (under various assumptions mentioned above) is approximately 3 million UAH. Potential earnings depend mostly on the bank's ability to contribute its own capital or attract significant financials from the outside private investors. Given the regulatory capital requirements for any Ukrainian bank that amounts to at least 200 million UAH, it is safe to say that for a bank with healthy credits and pledged reserves, investing a large share of its capital – is not in question. By increasing the number of clients a bank broker can divide the costs for accounts maintenance, hence, decrease their service fees – a competitive advantage of economies of scale. Furthermore, well-capitalized banks benefit also from the economies of scope, as one license (that requires 7 million UAH in capital) allows providing all the possible financial services in Ukraine. For any other legal entity, investing 7 million in cash and hiring, educating and certifying three people for each activity (broker, custodian, dealer and asset manager) is substantial. From the economic standpoint, given the current projections towards Ukrainian economic growth (2.9% - 2019) and no apparent desire to implement contractionary fiscal policy (more information will be known when the budget for 2020 is published), the government will have to issue more debt to cover deficits and refinance previous obligations. That, in its turn, is an indicator of the potential increase in supply, hence, market size. If the volumes of government bonds are substantial, then the nominal yield for the bonds will increase as well, hence, more earnings. So there is definitely an upside potential in this market, if an existing bank or a bank that is considering entering the market overall wish to extend their services, then they can certainly obtain a license and start trading.

On the other hand, alas, there are multiple disadvantages when it comes to providing brokerage services. Firstly- the lack of instruments. Purely trading government bonds is a way to nowhere. There must be enterprises that are operational enough to attract financing through stocks, there must be a commodity market that uses derivatives to hedge risks, and so on. A lack of instruments decreases the desire for more participants to enter the market, evolve and develop trading strategies that will yield maximum returns. Secondly, Ukraine is a volatile country, there are many threats outside and inside to the Ukrainian economy. That means that inflating one's portfolio with government bonds is a risk on its own, in this case – a default risk that cannot be hedged or mitigated. Thirdly, government bonds traders are under a microscope due to various scandals involving government bonds traders, where entities, people and politicians launder money and avoid taxes. Thus, this activity exposes brokers towards the reputational risk that not every institution can bear. Finally, lack of instruments, domestic and international liquidity and stable demand – all contribute towards the total lack of technological developments on Ukrainian stock market. Software on exchanges and at infrastructure institutions is severely outdated, no algo-trading, etc. All of that decreases the potential upside that market participants could have been a part of.

All in all, there are certainly advantages and disadvantages in this industry. However, the analysis proves that the market is monopolistically competitive, the overall wealth of Ukrainians is increasing (GDP growth of 2019 is 3%, IMF world outlook). Considering ambitions plans of the current cabinet of ministers to reach 7% GDP growth, conclude judicial, land, privatization and capital/commodity market reforms, if successful, will deliver further foreign direct investments, which will motivate market participants to compete even harder, exchanges to come up with new instruments and traders to shift gradually from government bonds to equities. Relatively risk-free and untaxable yields are present, less investment into risk management is required as well. Therefore, currently, there is economic and financial expediency for a bank to set up and operate brokerage firms to allow banks invest their own capital as well as provide dealer services for the private investors. Yet, to induce trustworthiness it is, however, very advisable for a bank to be diligent, have no ties with politicians or oligarchs, and accumulate decent capital size while complying with every primary and secondary piece of legislation.

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APPENDIX 1:

WSE Statistic Bulletin, source https://www.gpw.pl/pub/GPW/statystyki/statystyki_miesieczne/201909_GPW.pdf

ISSN 1731 - 920X

Biuletyn statystyczny GPW
WSE Statistic Bulletin

Wrzesień 2019 ***September 2019***

Kapitalizacja spółek/Market capitalization	Spółki krajowe *Domestic equties*	Spółki zagraniczne *Foreign equities*	Razem *Total*	Spółki krajowe (mln PLN) *Domestic equties (PLN mil.)*	Spółki zagraniczne (mln PLN) *Foreign equities (PLN mil.)*	Razem (mln PLN) *Total (PLN mil.)*	Spółki krajowe (mln EUR) *Domestic equties (EUR mil.)*	Spółki zagraniczne (mln EUR) *Foreign equities (EUR mil.)*	Razem (mln EUR) *Total (EUR mil.)*
RAZEM w tym/TOTAL of which:	409	49	458	551 131,17	561 525,53	1 112 656,70	126 013,16	128 389,78	254 402,94
debiuty/new listings	0	0	0	0,00	0,00	0,00	0,00	0,00	0,00
wycofania/delistings	1	1	2	93,62	4 888,69	4 982,31	21,41	1 117,77	1 139,18
rynek podstawowy/main market	309	40	349	537 283,24	560 228,18	1 097 511,42	122 846,91	128 093,15	250 940,05
rynek równoległy/parallel market	100	9	109	13 847,93	1 297,35	15 145,28	3 166,25	296,63	3 462,89
Wskaźnik CWK/PBV ratio	1,06	0,67	0,82	---	---	---	---	---	---
Wskaźnik CZ/PE ratio	14,8	8,2	10,5	---	---	---	---	---	---
Stopa dywidendy (%)/Dividend yield (%)	3,1	3,0	3,1	---	---	---	---	---	---

APPENDIX 2:

Trading day	1	2	3	4	5	6	7
Government bonds in a portfolio	5	10	15	20	25		
Date of issue	28.05.2019	28.05.2019	28.05.2019	28.05.2019	28.05.2019	28.05.2019	28.05.2019
Date of maturity	06.06.2020	06.06.2020	06.06.2020	06.06.2020	06.06.2020	06.06.2020	06.06.2020
Date of transaction	29.05.2019	30.05.2019	31.05.2019	01.06.2019	02.06.2019	03.06.2019	04.06.2019
Coupon rate	18,50%	18,50%	18,50%	18,50%	18,50%	18,50%	18,50%
Nominal value	1 000,00 ₴	1 000,00 ₴	1 000,00 ₴	1 000,00 ₴	1 000,00 ₴	1 000,00 ₴	1 000,00 ₴
Accrued interest	0,513888889	1,027777778	1,541666667	1,541666667	2,055555556	2,569444444	3,083333333
Dirty price of a bond	1 000,51 ₴	1 001,03 ₴	1 001,54 ₴	1 001,54 ₴	1 002,06 ₴	1 002,57 ₴	1 003,08 ₴
Market value of purchased bonds	5 002 569,44 ₴	5 005 138,89 ₴	5 007 708,33 ₴	5 007 708,33 ₴	5 010 277,78 ₴		

Trading day	6	7	8	9	10	11	12
Government bonds in a portfolio			30	35	40	45	50
Date of issue	28.05.2019	28.05.2019	28.05.2019	28.05.2019	28.05.2019	28.05.2019	28.05.2019
Date of maturity	06.06.2020	06.06.2020	06.06.2020	06.06.2020	06.06.2020	06.06.2020	06.06.2020
Date of transaction	03.06.2019	04.06.2019	05.06.2019	06.06.2019	07.06.2019	08.06.2019	09.06.2019
Coupon rate	18,50%	18,50%	18,50%	18,50%	18,50%	18,50%	18,50%
Nominal value	1 000,00 ₴	1 000,00 ₴	1 000,00 ₴	1 000,00 ₴	1 000,00 ₴	1 000,00 ₴	1 000,00 ₴
Accrued interest	2,569444444	3,083333333	3,597222222	4,111111111	4,625	5,138888889	5,652777778
Dirty price of a bond	1 002,57 ₴	1 003,08 ₴	1 003,60 ₴	1 004,11 ₴	1 004,63 ₴	1 005,14 ₴	1 005,65 ₴
Market value of purchased bonds			5 017 986,11 ₴	5 020 555,56 ₴	5 023 125,00 ₴	5 025 694,44 ₴	5 028 263,89 ₴

Trading day	13	14	15	16	17	18
Government bonds in a portfolio			55	60	65	70
Date of issue	28.05.2019	28.05.2019	28.05.2019	28.05.2019	28.05.2019	28.05.2019
Date of maturity	06.06.2020	06.06.2020	06.06.2020	06.06.2020	06.06.2020	06.06.2020
Date of transaction	10.06.2019	11.06.2019	12.06.2019	13.06.2019	14.06.2019	15.06.2019
Coupon rate	18,50%	18,50%	18,50%	18,50%	18,50%	18,50%
Nominal value	1 000,00 ₴	1 000,00 ₴	1 000,00 ₴	1 000,00 ₴	1 000,00 ₴	1 000,00 ₴
Accrued interest	6,166666667	6,680555556	7,194444444	7,708333333	8,222222222	8,736111111
Dirty price of a bond	1 006,17 ₴	1 006,68 ₴	1 007,19 ₴	1 007,71 ₴	1 008,22 ₴	1 008,74 ₴
Market value of purchased bonds			5 035 972,22 ₴	5 038 541,67 ₴	5 041 111,11 ₴	5 043 680,56 ₴

Trading day	19	20	21	22	23	24	25	26
Government bonds in a portfolio	75			80	85	90	95	100
Date of issue	28.05.2019	28.05.2019	28.05.2019	28.05.2019	28.05.2019	28.05.2019	28.05.2019	28.05.2019
Date of maturity	06.06.2020	06.06.2020	06.06.2020	06.06.2020	06.06.2020	06.06.2020	06.06.2020	06.06.2020
Date of transaction	16.06.2019	17.06.2019	18.06.2019	19.06.2019	20.06.2019	21.06.2019	22.06.2019	23.06.2019
Coupon rate	18,50%	18,50%	18,50%	18,50%	18,50%	18,50%	18,50%	18,50%
Nominal value	1 000,00 ₴	1 000,00 ₴	1 000,00 ₴	1 000,00 ₴	1 000,00 ₴	1 000,00 ₴	1 000,00 ₴	1 000,00 ₴
Accrued interest	9,25	9,763888889	10,27777778	10,79166667	11,30555556	11,81944444	12,33333333	12,84722222
Dirty price of a bond	1 009,25 ₴	1 009,76 ₴	1 010,28 ₴	1 010,79 ₴	1 011,31 ₴	1 011,82 ₴	1 012,33 ₴	1 012,85 ₴
Market value of purchased bonds	5 046 250,00 ₴			5 053 958,33 ₴	5 056 527,78 ₴	5 059 097,22 ₴	5 061 666,67 ₴	5 064 236,11 ₴

Presented above is the schedule of approximating the market price that a buyer will have to pay a seller including the accrued interest.

APPENDIX 3:

Cumulative ranking of bank brokers by Settlement Center in 2018:

№	Name	№ of times mentioned
1)	UkrGasBank	45
2)	FUIB	44
3)	Alfa Bank	37
4)	Globus Bank	34
5)	OTP Bank	32
6)	Avangard Bank	26
7)	Raiffaisen Bank Aval	15
8)	International Investment Bank	5
9)	UkrSocBank	2
10)	Citibank	2