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Intellectual Capital In Development and Investment Banks of Turkey

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Abstract

In today's competitive banking sector, banks need to increase the diversity of their services and the value added by those services. Intellectual capital has a high impact on service quality of banks. In this study, VAIC™ has been used to compare the development and investment banks in Turkey in terms of intellectual capital performance for the years 2003-2007. Generally it can be said that for most of the banks examined there is a decreasing trend for all type of efficiencies and VAIC™ beginning mostly in 2003. This decreasing trend began to go slightly upward again in years 2005 and 2006.

Keywords

VAIC™, banking sector, development and investment banks

1. Introduction

Traditional accounting systems do not fully reflect the success of a company. Each company's unique knowledge, skills, values, and solutions can be transformed into value in the market, which may in turn affect the competitive advantage, and increase the productivity and market value [1]. These intangible assets define intellectual capital [2]. Intellectual capital is an 'intellectual material, knowledge, information, intellectual property, and experience that can be put to create wealth' [3].

Several successful companies realize the importance of investing in intellectual capital for their business, to create high value products and services [4] from the company's physical assets [5]. However, establishing an evaluation system, which also focuses on value creation and not only on cost, is a challenge for many companies [6]. Several methods have been developed to measure intellectual capital, such as, market capitalization approach, direct intellectual capital measurement approach, scorecard approach, economic-value added approach, and VAIC™ [7]. In this study, the authors have used VAIC™, developed by Pulic in 1998 [8], to calculate the intellectual capital performance of development and investment banks in Turkey. This method provides a standardized and consistent measure that can be used to compare banks [9].

2. Intellectual Capital in Banking Sector

Financial sources are essential for all sectors in a country's economy, so banking sector is indispensable for a sustainable economical growth. In order to keep up in today's competitive banking sector, banks need to offer more value added and more diversified services [10]. As the service quality of banks highly depends on intellectual capital, banking sector provides a great research opportunity for intellectual capital studies. In addition to that, regularly declared financial reports of banks supply reliable data for these studies [10, 11].

There is a growing body of research, which uses VAIC™ as a performance measure for the comparison of companies and as a predictor for company performance [2, 7, 9-20]. However, only a small part of the studies have analyzed the intellectual capital performance of the banking sector. Pulic has assessed intellectual capital performance of Austrian banks [21] in a period of 1993-1995 and Croatian banks [22] in a period of 1996-2000 using VAIC™. Appuhami [15] has investigated the impact of intellectual capital efficiency on the investors' capital gains, by collecting data from 33 banking, insurance, and finance companies in Thailand for the year 2005. Mavridis [19] has analyzed the intellectual and physical capital of the Japanese banking sector for the financial period 1 April 2000 to 31 March 2001, and has discussed their impact on the banks' value-based performance. Goh [10] has

measured the intellectual capital performance of commercial banks in Malaysia, for the period 2001 to 2003, by using VAIC^{TM}, and has compared domestic and foreign banks in terms of intellectual capital performances. Kamath [11] has analyzed the intellectual and physical capital performance of the Indian banking sector by using VAIC^{TM} for the five-year period, and has then discussed the impact of intellectual and physical capital performance on value-based performance. Yalama and Coskun [2] have analyzed the intellectual capital performance of the quoted banks on the Stock Exchange Market in Turkey for the period 1994 to 2004 using VAIC^{TM}.

Banking sector is one of the fastest growing sectors in Turkey. Banking sector in Turkey consists of three types of banks; deposit banks, development and investment banks and participation banks. By the end of 2007 there were 50 banks in Turkey, where 13 of them were development and investment banks.

The aim of this study is to analyze how well the development and investment banks in Turkey take advantage of their intellectual capital during the period 2003 to 2007. For this purpose 6 development and investment banks, whose audited financial reports can be reached on Turkish Banking Regulation and Supervision Agency's website, were evaluated in terms of their intellectual capital usage capability.

3. Metodology

In this study VAIC^{TM} was used to calculate the intellectual capital performances of the development and investment banks in Turkey. VAIC^{TM} measures the 'efficiency of physical capital and intellectual potential' [8], and indicates 'corporate value creation efficiency of tangible and intangible assets within a company during operations' [6, 16]. Ease of data acquisition and conducting data analysis on other data sources are some of the advantages of the Pulic's method. Data needed to derive the components of VAIC^{TM} are standard financial numbers derived from audited financial reports of companies [16].

The Pulic's method suggests that human capital efficiency (HCE), structural capital efficiency (SCE), and capital employed efficiency (CEE) are the components of VAIC^{TM}. Therefore, VAIC^{TM} is calculated by the sum of these components and defined as (1):

$$VAIC^{TM} = HCE_i + SCE_i + CEE_i \quad (1)$$

where, VAIC^{TM} = the sum of value added for the company i, HCE_i = human capital efficiency of the company i, SCE_i = structural capital efficiency of the company i , CEE_i = capital employed efficiency of the company i.

To calculate these components, first on has to find out 'how competent a company is to create Value Added (VA)'. The aim is to 'create as much value added as possible with a given amount of financial and intellectual capital' [6]. The calculation of VA_i (the sum of value added for company i) is defined as follows [2] (2):

$$VA_i = I_i + DP_i + D_i + T_i + M_i + R_i + WS_i \quad (2)$$

Where, I_i = interest expenses for company i, DP_i = depreciation expenses for company i, D_i = dividends for company i, T_i = corporate taxes for company i, M_i = equity of minority shareholders in net income of subsidiaries for company i, R_i = profits retained for company i, WS_i = the sum of wages and salaries for company i.

In this formula, employees are not taken as costs, but taken as an investment for companies [1]. CEE is the ratio of total VA divided by the total amount of capital employed (CE). CEE is defined as (3):

$$CEE_i = VA_i / CE_i \quad (3)$$

where, CEE_i = capital employed efficiency of the company i, VA_i = the sum of value added for the company i, CE_i = book value of net assets for the firm i.

HCE is the ratio of total VA divided by the total salary and wages spent by the firm on its employees. HCE shows how much VA created by a unit of money is spent on employees [16]. HCE is defined as (4):

$$HCE_i = VA_i / HC_i \quad (4)$$

where, HCE_i = human capital efficiency of the company i, VA_i = the sum of value added for the company i, HC_i = total salary and wage expenditure of the company i.

SCE is the ratio of structural capital (SC) divided by total VA. The structural capital includes proprietary software systems, distribution networks, supply chains, brand, organization management process, and customer loyalty [10, 28]. The structural capital is the difference between a company's total value added and its human capital. The calculation of SC_i and SCE_i can be defined as follows (5-6):

$$SC_i = VA_i - HC_i \quad (5)$$

$$SCE_i = SC_i / VA_i \quad (6)$$

where, SC_i = structural capital of the company i, HC_i = the total salary and wage expenditure of the company i, SCE_i = structural capital efficiency of the company i, VA_i= the sum of value added for company i. The abbreviations for the formulas can be seen in Table 1.

Table 1: Abbreviations and their description

Abbreviation	Description
HCE_i	Human capital efficiency for company *i*
SCE_i	Structural capital efficiency for company *i*
CEE_i	Capital employed efficiency for company *i*
VA_i	The sum of value added for company *i*
I_i	Interest expenses for company *i*
DP_i	Depreciation expenses for company *i*
D_i	Dividends for company *i*
T_i	Corporate taxes for company *i*
M_i	Equity of minority shareholders in net income of subsidiaries for company *i*
R_i	Profits retained for company *i*
WS_i	The sum of wages and salaries for company *i*
CE_i	Book value of net assets for firm *i*
HC_i	Total salary and wage expenditure for company *i*
SC_i	Structural capital for company i

4. Results

Table 2 shows the performances of banks in terms of VAIC^{TM} values. For all years except 2003 Turkiye Sinai Kalkinma Bankasi A.S. has the highest VAIC^{TM} values with a continuous increase from year to year. Second highest place is occupied by two banks for different years. While Taib Yatirim Bank A.S., which occupies the first place in 2003 and last place in 2007, has the second highest VAIC^{TM} values for years 2004 and 2005, for years 2006 and 2007 Bankpozitif Kredi ve Kalkinma Bankasi takes the second place in the list for VAIC^{TM} values. For the first two years evaluated Turkiye Kalkinma Bankasi A.S. has the worst VAIC^{TM} values, while Merrill Lynch Yatirim Bank A.S. takes its place in the years of 2005 and 2006. All banks except Turkiye Sinai Kalkinma Bankasi A.S. have a sudden drop in their VAIC^{TM} values from year 2003 to 2004.

Table 2: VAIC™ values of the development and investment banks in Turkey

VAIC						
NO	BANK	2003	2004	2005	2006	2007
1	NUROL YATIRIM BANKASI A.S.	4.18057	2.56677	2.11813	2.56495	3.50371
2	TURKIYE SINAI KALKINMA BANKASI A.S.	4.95524	6.53401	9.41061	10.74756	14.27262
3	BANKPOZITIF KREDI VE KALKINMA BANKASI	4.81876	2.30519	3.88279	5.27556	6.12843
4	MERRILL LYNCH YATIRIM BANK A.S.	3.35280	2.08192	1.50617	2.37210	2.80634
5	TAIB YATIRIM BANK A.S.	5.69469	5.05811	5.20203	3.25986	1.94953
6	TURKIYE KALKINMA BANKASI A.S.	2.44098	1.72142	1.87180	4.20138	3.81058

In terms of human capital performance, all banks have relatively higher human capital efficiency than structural capital and capital employed efficiencies. Among the banks, Turkiye Sinai Kalkinma Bankasi A.S. tops the list with the highest HCE scores from 2004 to 2007 (Table 3). In 2003 it has the second place following again Taib Yatirim Bank A.S.. For every year examined the last places are occupied by the same banks as for VAIC™; for years 2003 and 2004 Turkiye Kalkinma Bankasi A.S., for years 2005 and 2006 Merrill Lynch Yatirim Bank A.S. and for year 2007 Taib Kalkinma Bankasi, which was number one bank in 2003 listing for HCE performance, have the lowest HCE values.

Table 3: HCE values of the development and investment banks in Turkey

HCE						
NO	BANK	2003	2004	2005	2006	2007
1	NUROL YATIRIM BANKASI A.S.	3.22844	1.94504	1.63903	2.00033	2.76866
2	TURKIYE SINAI KALKINMA BANKASI A.S.	4.15009	5.66289	8.47243	9.77609	13.25235
3	BANKPOZITIF KREDI VE KALKINMA BANKASI	3.98415	1.79988	3.11290	4.39702	5.23849
4	MERRILL LYNCH YATIRIM BANK A.S.	2.67901	1.64286	1.25926	1.65689	2.19219
5	TAIB YATIRIM BANK A.S.	4.61606	3.40182	4.20656	2.55459	1.50162
6	TURKIYE KALKINMA BANKASI A.S.	1.86949	1.37325	1.48389	3.37967	3.00869

The same situation repeats for structural capital efficieny; although Taib Yatirim Bank A.S. is the number one bank in terms of SCE in 2003, Türkiye Sinai Kalkinma Bankasi A.S. has the best performance for SCE in the last 4 years evaluated (Table 4). Again the pattern for worst scores in terms of VAIC™ and HCE performance repeats itself for SCE; for years 2003 and 2004 Turkiye Kalkinma Bankasi A.S., for years 2005 and 2006 Merrill Lynch Yatirim Bank A.S. and for year 2007 Taib Kalkinma Bankasi, which was number one bank in 2003 listing for SCE performance, have the lowest SCE values. In contrast to this results, in terms of CEE scores, Türkiye Sinai Kalkinma Bankasi A.S. occupies much lower places in the rankings for the years evaluated, which means that Turkiye Sinai Kalkinma Bankasi A.S. creates a high level of value added with its personnel, but compared to its net assets, value added it has created is relatively small. For the first 3 years Taib Yatirim Bank A.S., for 2006 Merrill Lynch Yatirim Bank A.S. and for 2007 Türkiye Kalkinma Bankasi A.S. are occupying the first place in the CEE rankings.

Table 4: SCE values of the development and investment banks in Turkey

SCE						
NO	BANK	2003	2004	2005	2006	2007
1	NUROL YATIRIM BANKASI A.S.	0.69025	0.48587	0.38988	0.50008	0.63881
2	TURKIYE SINAI KALKINMA BANKASI A.S.	0.75904	0.82341	0.88197	0.89771	0.92454
3	BANKPOZITIF KREDI VE KALKINMA BANKASI	0.74901	0.44441	0.67876	0.77257	0.80911
4	MERRILL LYNCH YATIRIM BANK A.S.	0.62673	0.39130	0.20588	0.39646	0.54384
5	TAIB YATIRIM BANK A.S.	0.78337	0.70604	0.76228	0.60855	0.33405
6	TURKIYE KALKINMA BANKASI A.S.	0.46510	0.27180	0.32609	0.70411	0.66763

Table 5: CEE values of the development and investment banks in Turkey

CEE						
NO	BANK	2003	2004	2005	2006	2007
1	NUROL YATIRIM BANKASI A.S.	0.26187	0.13586	0.08922	0.06454	0.09623
2	TURKIYE SINAI KALKINMA BANKASI A.S.	0.04610	0.04770	0.05621	0.07376	0.09573
3	BANKPOZITIF KREDI VE KALKINMA BANKASI	0.08561	0.06090	0.09114	0.10596	0.08083
4	MERRILL LYNCH YATIRIM BANK A.S.	0.04706	0.04776	0.04103	0.31875	0.07031
5	TAIB YATIRIM BANK A.S.	0.29526	0.95024	0.23319	0.09673	0.11386
6	TURKIYE KALKINMA BANKASI A.S.	0.10640	0.07637	0.06182	0.11759	0.13427

The results show that HCE and SCE scores, which are related to personal wages and salaries that banks discharge, have higher impacts than CEE on VAIC™ values of the development and investment banks in Turkey. As a result of that HCE, SCE and VAIC™ listings show similar results, while CEE listing gives a totally different order.

Generally it can be said that for most of the development and investment banks examined there is a decreasing trend for all type of efficiencies and VAIC™ beginning mostly in 2003. This decreasing trend began to go slightly upward again in years 2005 and 2006, especially for HCE, SCE and VAIC™. It can be concluded that the development and investment banks in Turkey got over the negative effects of the economical crises of 2001 and began to gather strength.

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