Covenant Based Credit Capacity Model for Real Estate Capital Groups: Evidence from Poland

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Abstract:

Purpose: The study aims to specify the form of the model used to determine the ability to obtain external financing (net debt) by real estate capital groups. The study also focuses on verifying the covenant function as a tool to limit the scale of projects implemented by real estate holdings.

Approach/Methodology/Design: The analysis was carried out based on consolidated financial data of all (residential, commercial, and residential/commercial) real estate capital groups whose bonds are listed on the Catalyst bond in Poland. However, the said model is universal. The paper uses a method of examining documents, a method of analysis, and logical and qualitative construction to formulate new hypotheses, which can then be verified using a quantitative approach based on a larger sample. The Pearson correlation coefficient determined the relationship strength among covenants' pairs and between covenants and sensitivity ratio for the sample and the significance by the statistics t.

Findings: The initiative to select covenants and determine their levels lies with issuers rather than investors. The inclusion of ND/EBITDA covenant in 75% of cases would mean an important reduction in credit exposure. The significant correlation among covenants identified in the study means duplication of information about the issuer's risk.

Practical Implications: This study's conclusions can be used in the process of structuring the terms and conditions of corporate bond issues and provide important and new information primarily for bondholders in the context of leverage potential and the possibility of risk monitoring using covenants. The application contribution refers to the conclusions from the analysis of the monitoring potential of financial covenants and the influence of covenants on the change in the potential of capital groups due to the tightening of banks' credit policy at the level of special purpose vehicles.

Originality/Value: The results of the analysis and theoretical considerations in this article complement existing research in the field of covenants' application by different stakeholders of bond issue programs.

Keywords: Corporate bonds, financial covenants, credit risk, monitoring.

JEL classification: G23.

Paper Type: Research study.

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1. Introduction

Covenants are financial ratios (financial covenants) and management's promises, which serve as an instrument for allocating control rights between lenders and borrowers. The financial covenant's main role is to reveal the performance of the company as well as create a premise for private benefits of the debtor's owner if they are met (Aghion and Bolton, 1992; Achleitner *et al.,* 2009). Financial covenants serve as tools (Niedziółka, 2014; Niedziółka, 2015) for (i) monitoring key parameters describing the debtor's financial situation (debt level, profitability, debt service capacity, working capital management), (ii) adjusting the pricing of financing to the current level of risk, (iii) limiting the spectrum of actions that may lead to a change in the debtor's risk profile, (iv) controlling the degree of coverage of credit exposure by collateral, (v) activating or deactivating financing.

This study aims to define the form of the model used to determine the ability to obtain financing by capital groups of real estate companies. The model is based on financial covenants typical for real estate activity introduced into contracts at holding structure levels. Based on the author's own covenant model of capital groups' credit displacement, with design and causal-descriptive features, maximum leverage levels of capital groups present on the public capital market were determined, the sensitivity of the scale of external financing to the tightening of banks' or bondholders' credit policy was determined. The research is also aimed at obtaining an answer to the question about covenants' function as tools to limit the scale of projects implemented by real estate companies.

Once the sensitivity coefficient of the potential scale of the implemented projects to the tightening of credit policy by banks or bondholders was determined, the relationship between the value of the indicators on which the covenants were based and the value of the sensitivity coefficient was examined. Another issue examined in this study is the correlation relationship between indicators acting as financial covenants. It has been assumed that a significant correlation means de facto duplication of information about the issuer's credit risk. Hence the introduction of simultaneously highly correlated covenants means only an additional burden for the issuer, without affecting the control function's extension from the creditors' perspective.

2. Literature Review

Brycz *et al.* (2015) examined the types of covenants used for corporate bonds listed on Catalyst. The subject of this analysis was the degree of restriction of covenants in the context of conflicts of interest of shareholders and bondholders. At the same time, the aforementioned authors concluded that the terms and conditions of corporate bond issues in Poland relatively rarely contain limitations in the form of financial covenants, and the case of covenants' implementation, they mostly concern maximum debt level and, as it has been proved, neither the number of covenants nor the space for additional financing, which leaves covenants, are correlated with the

size of the issuer and its financial leverage. Ismail (2014) attempted to identify the factors determining the types and levels of financial covenants in contracts to which French listed companies were parties. The analysis covered the period from 2003 to 2009. Ismail concluded that covenants are being introduced into agreements with profitable companies with good growth prospects, which applies mainly to syndicated loans. The author also checked whether the implementation of the covenants is affected by the characteristics of the debt while at the same time establishing that this dependence is significant. The study was carried out based on private debt, for which the funds came from bank loans.

Reisel (2014) focuses on whether financial covenants can be an effective tool for agency problems. The author also raises an important problem related to the increase in debt resulting from agency problems. The study, carried out based on public bonds data, concludes that the restrictions on CAPEX and additional senior debt about current exposure reduced the cost of financing by approx. 35 to 75 bps. This means that investors see covenants as important tools for reducing agency problems. Simultaneously, relatively rarely covenants are applied to companies with a low probability of default and companies with strong growth trends. Królikowska and Sierpińska-Sawicz (2016) point out that the economic and financial situation of the issuer and the financial covenants significantly affect the success of the bond issue. In the case of bank loans, the covenants are more restrictive than those specified in the bond issue's terms and conditions. Conservatively defined covenant levels make it difficult to meet the issuance targets. The authors also note that the implementation of covenants and their types and levels depend on the industry's risk. Another issue remains the degree of precision of the covenants. In the case of the investigated companies (coal companies), the authors concluded that the highest degree of precision concerned the covenants describing the maximum level of debt, debt service capacity, and rules of disposal of assets.

Demiroglu and James (2007) examined the factors determining the levels of financial covenants set out in the loan agreements and the information that the covenants' selection and assumed threshold values provide. The above-mentioned authors have shown that companies with higher risk and low investment potential are characterized by covenants established in a relatively more restrictive way. Furthermore, it was concluded that covenants' breaches have a significantly smaller impact on the CAPEX and the issuance of new debt in the case of tightly set covenants than when a relatively large headroom was used. Paglia and Mullineaux (2006) highlight financial covenants' role in reducing potential agency problems, information asymmetries, and their application when monitoring needs to be stepped up. Based on data from 1992-1994 and 28 different covenants, the above-mentioned authors also noted that in the case of high-risk exposures, a wider range of covenants is used in addition to protection. The breadth of covenants (in terms of numbers and types of indicators) depends on the scale of the information problems and whether the exposure is collateralized. Collateralized exposures are treated as those with increased risk, but at the same time, the establishment of collateral is less restrictive as regards capital covenants. An interesting conclusion of this study is

that there is a negative correlation between the breadth of covenants and the scale of share in the exposure, which is left in the arranger's books. Also, the greater the number of lenders, the greater the breadth of covenants and their restrictions.

Covenants are also used relatively less frequently about companies with strong growth trends and companies with a high transparency level. Bozanic *et al.* (2018), using the uncertainty measure, Loughran and McDonald's, to transform soft information into credit-risk relevant information, concluded that the level of contractual uncertainty is positively correlated with the amount of the original credit margin and the use of covenants, the level of which determines the funding price. Billet *et al.* (2007) explored the possibilities for companies' development depending on the level of leverage, debt maturity, and the level of financial covenants. This study shows that financial covenants may weaken the negative correlation between the level of leverage and development potential. The study carried out by Demerjian (2007) shows that for companies with strong cash flow, high profitability, and low-income volatility, cash flow-based covenants are more frequent. On the other hand, about companies reporting losses, low profitability, and high variability of income, covenants referring to equity or net worth are relatively more common. In contracts with companies with a high level of working capital, the current ratio is quite common. The type and level of covenant used serve as information on credit risk.

Bradley and Roberts (2015) concluded that the covenant structure is determined by macroeconomic factors and the characteristics of the debtor and the lender. Covenants are more frequent in small companies with significant growth potential or relation to entities with high leverage. Exposures arranged by investment banks and syndicated loans more often contain covenants than other types of loans. Covenants are used more often in times of recession than expansion and for debtors with high credit spreads. The study fills a gap in the literature on the use of financial covenants, addressing their impact on the scale of external financing and their use in the risk reduction process in the sense of a monitoring tool.

3. Materials and Methods

The analysis subjects were the annual audited financial statements and terms and conditions of issues of all real estate capital groups that bonds are listed on Catalyst. As of 15 June 2020, out of 24 capital groups, 21 published audited consolidated statements for 2019, while for 3 capital groups, the results for 2018 were based. Due to the seasonality of operations, the interim data for 2019 were not used. Consolidated results were analysed as financial covenants are constructed based on such data (Annex 1). The choice of consolidated data can be justified by the intention to indirectly control and monitor the entire capital group's debt, where the funds from the bond issue obtained by the holding company are allocated to equity or corporate loans to special purpose vehicles. The analysis of bond issue conditions allowed to identify the following most common types of financial covenants: Net Debt/EBITDA (ND/EBITDA), Net Debt/Equity (ND/E), Net Debt/Total Assets (ND/TA), Net Debt/(Net Debt + Equity): ND/(ND + E), Debt/Total Assets (D/TA),

Equity/Debt (E/D). On the other hand, covenants that only occur in single emission programs include Loan-To-Value (LTV), The Over-collateralisation ratio (total value of real estate/nominal value of bonds), Net Debt/Equity (ND/E) – standalone figures, Net Debt/Inventories, Not encumbered fixed assets/ Nominal value of bonds plus interest, Total Liabilities/Total Assets (Annex 2). Due to their rarity, lack of data (property value), or adaptation to the specific characteristics of exposure, the above-mentioned covenants have not been further analysed. The number of financial covenants in individual emission programs varied. However, in no case was it more than three. Their verification usually took place once every three months, as confirmed by the compliance certificates verified within this study. By selecting the covenants whose breach is identical to obtaining an index value at a level higher than that specified in the covenant, the following formula describing the maximum scale of financing of the group (net debt) can be determined:

$$ND_{MAX} = \frac{\left[\frac{\alpha}{\gamma}\right]_C \cdot \gamma_{t-1} + \Delta\alpha_{t-1,t} + \left[\frac{\alpha}{\gamma}\right]_C \cdot \Delta\gamma_{t-1,t}}{1 - LTC_{AV}} \cdot LTC_{AV} \cdot k \qquad (1)$$

where:
ND_{MAX} – maximum net debt capacity
α -Net Debt or Debt
γ – Equity or Total Assets or (Net Debt+ Equity)
$\left[\frac{\alpha}{\gamma}\right]_C$ – level of the covenant set in the terms and conditions of bond issuance programme,
LTC_{AV} – average level of Loan-To-Cost Ratio (for projects carried out in SPVs)
$\Delta\gamma_{t-1,t}$ – change of γ between t-1 and t
$\Delta\alpha_{t-1,t}$ – change of α between t-1 and t (because of valuation of projects).

$$k = \frac{\gamma_{t-1}}{\frac{\left[\frac{\alpha}{\gamma}\right]_C \cdot \gamma_{t-1} + \Delta\alpha_{t-1,t} + \left[\frac{\alpha}{\gamma}\right]_C \cdot \Delta\gamma_{t-1,t}}{1 - LTC_{AV}} \cdot LTC_{AV} \cdot \frac{1}{\left[\frac{\alpha}{\gamma}\right]_C} - \Delta\gamma_{t-1,t}} \qquad (2)$$

The formulas presented above refer to a typical structure of financing based on a bond issue. According to it:

- the holding company issues bonds which are not secured or are secured on assets (real estate) which are not encumbered in projects carried out by the special purpose vehicles,
- the level of the group's indebtedness is controlled by means of a covenant defined based on consolidated data,
- the funds obtained by the holding company through the issue of bonds supply the special purpose vehicles in the form of equity and/or subordinated loans,
- at the level of the special purpose vehicles, covenants are defined (usually DSCR, LTV, LTC). In addition to the covenant operating under the terms of the

bond issue, the LTC level determines the scale of leverage of equity and the total value of project budgets.

Based on the covenants existing in the terms and conditions of the issue, the maximum scale of credit exposure of each issuer, and the group's balance sheet's sensitivity to a tightening of the credit policy in the form of a 1pp reduction of the required LTC. The sensitivity index was determined according to the formula below:

$$SR = \frac{\Delta ND_{MAX}}{TA} \qquad (3)$$

where:
ΔND_{MAX} – change of ND_{MAX} because of diminishing of required LTC ratio by 1pp.
TA – total assets.

Then, based on selected covenants (most frequently occurring in the terms and conditions of bond issuance programs), a change in the maximum scale of credit exposure was determined, assuming average values of indicators. The relationship between the values of the indicators that act as covenants in each bond issue program and the sensitivity coefficient was also analysed. Mutual correlations between the indicators that act as covenants were also examined. In both analyses, a two-dimensional distribution parameter in the form of Pearson correlation coefficient defined as below was used (Jóźwiak and Podgórski, 2012):

$$r = \frac{\frac{1}{n-1}\left(\sum_{i=1}^{n} x_i \cdot y_i - n \cdot \bar{x} \cdot \bar{y}\right)}{s_x \cdot s_y} \qquad (4)$$

r – correlation coefficient from the sample:
n- number of observations,
x_i, y_i –the ratio acting as a covenant or SR for the capital group i,
s_x, s_y - standard deviations of indicators acting as covenants or SR.

At the same time, it was assumed that the surveyed capital groups constitute a random sample from a certain population of capital groups implementing development projects and financing themselves with bond issues. This is a conservative and restrictive approach, but it allows for more cautious and thus more credible conclusions. The above assumption results in the necessity to verify whether t statistics' value differs from zero. If it does not differ (is not larger), the hypothesis of no correlation between the variables should be taken. The statistic t can be written as (Jóźwiak and Podgórski, 2012):

$$t = \frac{r}{\sqrt{1-r^2}} \cdot \sqrt{n-2} \qquad (5)$$

r –correlation coefficient from a sample with a t-Student distribution of n-2 degrees of freedom (Annex 3).

4. Results and Discussion

A survey of covenants occurring in the bond issue conditions of all real estate capital groups listed on Catalyst allows states that the most frequent of the monitored categories is net debt, which is then compared with equity or total assets. At the same time, such covenants are among those that are much easier for groups to meet than if the rather typical ND/EBITDA ratio for non-financial holdings were implemented. From this, it can be concluded that the initiative to select a covenant and determine its level lies with the issuer and not the bondholders. The inclusion of the ND/EBITDA covenant, which is quite typical for corporate finance in 75% of cases, would mean a significant reduction in credit exposure (taking as a threshold a rather moderate threshold f 2.0 - this is at the same time the average of the current ones) (Annex 4).

Therefore, the ND/EBITDA is the least favorable covenant from the point of view of bond issuers. On the other hand, implementation at an average level of E/D covenant would increase leverage potential in 87.5% of cases. The a/m data are presented in Annex 4. It has been assumed that a significant correlation means duplication of information about the issuer's risk. Hence the introduction of highly correlated covenants simultaneously means only an additional burden for the issuer without affecting the expansion of the control function from the perspective of the bondholders.

Among the most common financial covenants used in connection with the issue of corporate bonds, only in two cases, i.e.: (i) ND/EBITDA and ND/E, and (ii) ND/EBITDA and ND/(ND+E), a significant correlation between the indicators were identified (t statistics at (-) 2,514 for ND/EBITDA and ND/(ND+E) and 7,609 for ND/EBITDA and ND/E) for a materiality level of 0,05 respectively. This means that the use of only one of a given pair of covenants (or its inverse) brings similar monitoring benefits.

Therefore, if the ND/EBITDA ratio is at a moderate level (analysis of the results shows that this is the case for the sample tested the 75th percentile of the ratio is 3.34 and the 9th decile is 5.14 respectively), the introduction of ND/EBITDA covenant does not bring additional benefits. Nevertheless, its omission is connected with three types of risk factors: (i) the risk of manipulation of the amount of equity as a result of the revaluation of real estate and shares in special purpose vehicles, (ii) the risk of the issuer losing its bankability if a typical indicator describing creditworthiness exceeds the level considered acceptable by banks, (iii) the risk of omitting the issue of adjusting the exposure scale to the cash flow generated by the capital group, which may create unmonitored liquidity problems.

Finally, the demonstrated lack of correlation between the current value of the index based on which the covenant was defined, with the sensitivity coefficient, can be interpreted as the lack of influence of the covenants imposed on the bond issuers on the exposure scale understood as the sum of the budgets of projects implemented by a given capital group on the real estate market. Simultaneously, the analysis confirms that the number of covenants and the space for additional funding is not linked to the issuer's size and its leverage, as demonstrated by Brycz *et al.* (2015). For each of the surveyed capital groups, some form of debt ratio was used, which is in line with the survey results conducted by Demerjian (2007).

5. Conclusions

This study's conclusions can be used in the process of structuring the terms and conditions of corporate bond issues and provide important and new information primarily for bondholders in the context of leverage potential and the possibility of risk monitoring using covenants. The covenant credit capacity model for real estate capital groups is a theoretical contribution. The application contribution refers to the conclusions from the analysis of the monitoring potential of financial covenants and the influence of covenants on the change in the potential of capital groups due to the tightening of banks' credit policy at the level of special purpose vehicles. In the applied approach, there are certain limitations, which include:

- a relatively small number of real estate capital groups whose bonds are listed on the public market in Poland,
- diversification of business models and funding models of real estate capital groups in Poland,
- large variety of definitions of covenants used in the conditions of bond issues,
- failure to consider changes in the value of indicators at different phases of the business cycle, which may be important in the context of the impact of COVID-19 on the real estate market in Poland and other countries.

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Annex 1:

List of surveyed real estate capital groups (in alphabetical order)
1.   Atal S.A.
2.   BBI Development SA
3.   Capital Park SA
4.   Develia SA
5.   Dom Development SA
6.   Echo Investment SA
7.   Geo, Mieszkanie i Dom sp. z o.o.
8.   Ghelamco Invest Sp. z o.o.
9.   Globe Trade Centre SA
10.   Griffin Real Estate Invest SA
11.   HB Reavis Finance PL 2 sp. z o.o

12.	i2Development SA
13.	Inpro SA
14.	JHM Development SA
15.	JW Construction Holding SA
16.	Lokum Developer SA
17.	Marvipol Development SA
18.	MLP Group SA
19.	Polnord SA
20.	Polski Holding Nieruchomości SA
21.	Robyg SA
22.	Ronson Development SE
23.	Vantage Development SA
24.	Victoria Dom SA

Annex 2:

	ND/EBITDA	ND/TA	ND/E	ND/(ND+E)	D/TA	E/D	Sensitivity Ratio
ND/EBITDA	1,000	0,274	0,851	-0,472	0,245	0,233	-0,297
ND/TA	0,274	1,000	0,033	0,656	0,820	-0,550	-0,259
ND/E	0,851	0,033	1,000	-0,703	0,097	0,307	-0,180
ND/(ND+E)	-0,472	0,656	-0,703	1,000	0,500	-0,679	-0,068
D/TA	0,245	0,820	0,097	0,500	1,000	-0,742	-0,077
E/D	0,233	-0,550	0,307	-0,679	-0,742	1,000	0,046
Sensitivity Ratio	-0,297	-0,259	-0,180	-0,068	-0,077	0,046	1,000

Statistics t

	ND/EBITDA	ND/TA	ND/E	ND/(ND+E)	D/TA	E/D	Sensitivity Ratio
ND/EBITDA		1,339	7,609	-2,514	1,186	1,121	0,000
ND/TA	1,339		0,010	0,688	0,883	-0,252	-1,259
ND/E	7,609	0,010		-0,677	0,067	0,286	-0,857
ND/(ND+E)	-2,514	0,688	-0,677		-0,677	0,067	-0,322
D/TA	1,186	0,883	0,067	-0,677		-0,420	-0,362
E/D	1,121	-0,252	0,286	0,067	-0,420		0,217
Sensitivity Ratio	-1,461	-1,259	-0,857	-0,322	-0,362	0,217	

Annex 3: *Sensitivity Ratio*
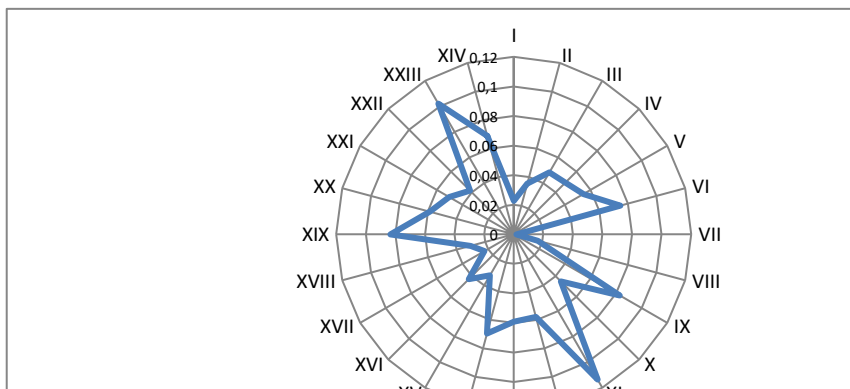
Annex 4: Credit capacity as a function of a covenant (CC – Credit Capacity; AD - Additional Debt; Delta – AD/CC)

Covenant	I CC	AD	Delta	II CC	AD	Delta	III CC	AD	Delta	IV CC	AD	Delta	V CC	AD	Delta	VI CC	AD	Delta	VII CC	AD	Delta	VIII CC	AD	Delta
ND/EBITDA	631	-149	-24%	154	-326	-212%	1084	8	1%	1791	-1225	-68%	3367	-1873	-56%	148	-156	-106%	352	-215	-61%	1216	383	32%
ND/TA	631	694	110%	154	17	11%	1084	544	50%	1791	-6	0%	3367	-722	-21%	148	-23	-15%	352	293	83%	1216	456	38%
ND/E	631	158	25%	154	-25	-16%	1084	0	0%	1791	-298	-17%	3367	-1805	-54%	148	-148	-100%	352	374	106%	1216	378	31%
ND/(ND+E)	631	114	18%	154	-6	-4%	1084	-217	-20%	1791	-223	-12%	3367	-1110	-33%	148	-122	-83%	352	393	112%	1216	517	43%
D/TA	631	604	96%	154	0	0%	1084	468	43%	1791	10	1%	3367	-710	-21%	148	-32	-22%	352	208	59%	1216	267	22%
E/D	631	715	113%	154	55	36%	1084	779	72%	1791	811	45%	3367	-508	-15%	148	-135	-92%	352	780	222%	1216	1313	108%
Minimum			-24%			-212%			-20%			-68%			-56%			-106%			-61%			22%

Covenant	IX CC	AD	Delta	X CC	AD	Delta	XI CC	AD	Delta	XII CC	AD	Delta	XIII CC	AD	Delta	XIV CC	AD	Delta	XV CC	AD	Delta	XVI CC	AD	Delta
ND/EBITDA	6446	-4651	-72%	1341	-753	-56%	1489	-293	-20%	369	-174	-47%	235	-44	-19%	814	-413	-51%	280	-192	-69%	855	-77	-9%
ND/TA	6446	-537	-8%	1341	-200	-15%	1489	-311	-21%	369	87	23%	235	-5	-2%	814	-261	-32%	280	238	85%	855	467	55%
ND/E	6446	-1938	-30%	1341	-402	-30%	1489	-248	-17%	369	92	25%	235	-93	-40%	814	-465	-57%	280	70	25%	855	-78	-9%
ND/(ND+E)	6446	-2822	-44%	1341	-170	-13%	1489	-684	-46%	369	-6	-2%	235	-84	-36%	814	-318	-39%	280	23	8%	855	-182	-21%
D/TA	6446	-706	-11%	1341	-305	-23%	1489	66	4%	369	152	41%	235	-18	-8%	814	-330	-41%	280	262	93%	855	749	88%
E/D	6446	1291	20%	1341	184	14%	1489	982	66%	369	479	130%	235	8	3%	814	-254	-31%	280	368	131%	855	845	99%
Minimum			-72%			-56%			-46%			-47%			-40%			-57%			-69%			-21%

Covenant	XVII CC	AD	Delta	XVIII CC	AD	Delta	XIX CC	AD	Delta	XX CC	AD	Delta	XXI CC	AD	Delta	XXII CC	AD	Delta	XXIII CC	AD	Delta	XIV CC	AD	Delta
ND/EBITDA	1370	-982	-72%	441	-170	-39%	728	-402	-55%	220	-134	-61%	230	-25	-11%	564	-446	-79%	143	-132	-92%	483	-179	-37%
ND/TA	1370	712	52%	441	-62	-14%	728	190	26%	220	61	27%	230	120	52%	564	-257	-46%	143	14	10%	483	218	45%
ND/E	1370	913	67%	441	-73	-17%	728	0	0%	220	147	67%	230	98	43%	564	-322	-57%	143	76	53%	483	0	0%
ND/(ND+E)	1370	793	58%	441	-136	-31%	728	-155	-21%	220	74	34%	230	39	17%	564	-259	-46%	143	21	15%	483	18	4%
D/TA	1370	517	38%	441	-10	-2%	728	132	18%	220	21	10%	230	76	33%	564	-310	-55%	143	11	8%	483	267	55%
E/D	1370	2272	166%	441	237	54%	728	483	66%	220	348	158%	230	287	125%	564	-194	-35%	143	214	150%	483	425	88%
Minimum			-72%			-39%			-55%			-61%			-11%			-79%			-92%			-37%