

Credit Risk Management in Trade and Investment:

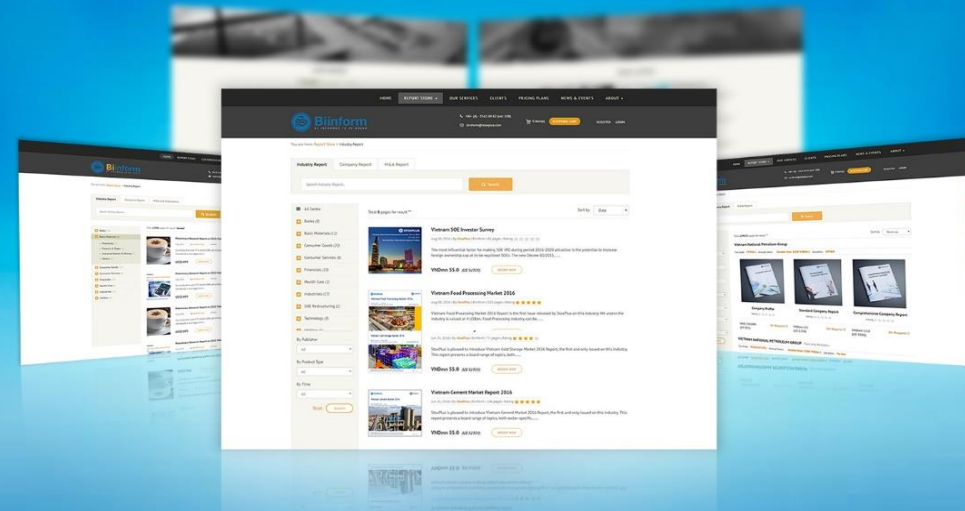
Improving the Quality of Enterprise Financial Information to Strengthen the Investment Environment in Vietnam

11 January 2018 | Lotte Legend Hotel

Presented by: Nguyen Quang Thuan, CEO, StoxPlus

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1 Financial Data and Trade Credit Risks

2 Corporate Database System in Vietnam

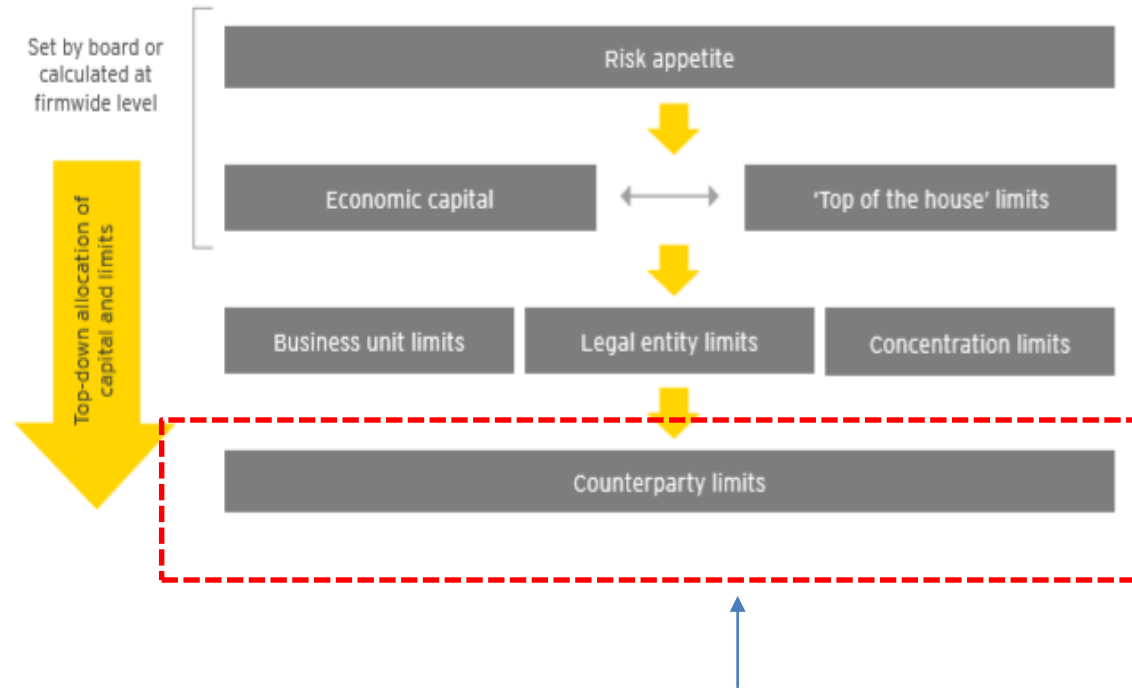
3 Quality of Financial Information in Vietnam

4 How your Measure your Trade Credit Risks

Credit risk is not only the core heart of banking industry but also becoming more important in investment and trade by foreign investors with Vietnamese counterparts

1. Credit Risk Management is normally referred to its meaning in banking industry as core heart by credit institutions. However, in this presentation, we will discuss this in a broader context: credit risk for trade and investment activities rather than just focusing on for lending activities by banks.
2. We will discuss how the corporate database infrastructure of Vietnam ready for an effective risk management framework. This is the most important element of data input in addition to the transactional data generated by firms themselves as part of their business
3. In addition, the reliability of data inputs in Vietnam is still weak given the fragmented data source infrastructure in Vietnam, poor financial reporting environment. This make data validation as huge work in applying any credit risk model for Vietnam.
4. Discussing measures for credit risk management, we will highlight important considerations when assessing Vietnamese counterparts. The measures are not sophisticated IT models but our findings and experience in dealing with data inputs and validation.

A Credit Risk Management Framework



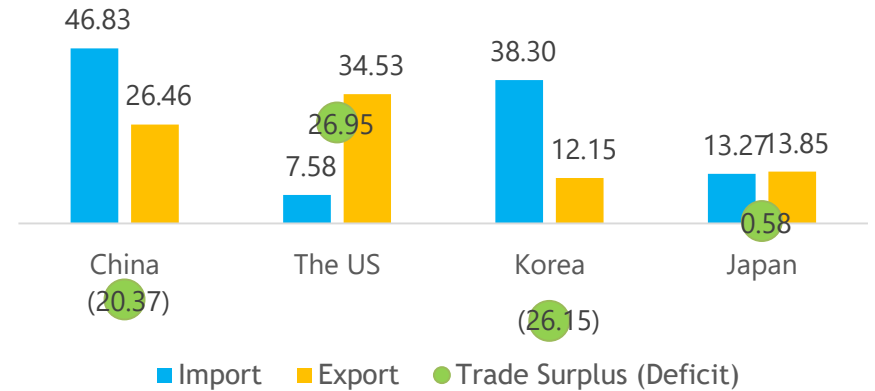
The focus of this presentation

The significance of foreign trades by Vietnam requires a trade credit risk practice by foreign investors

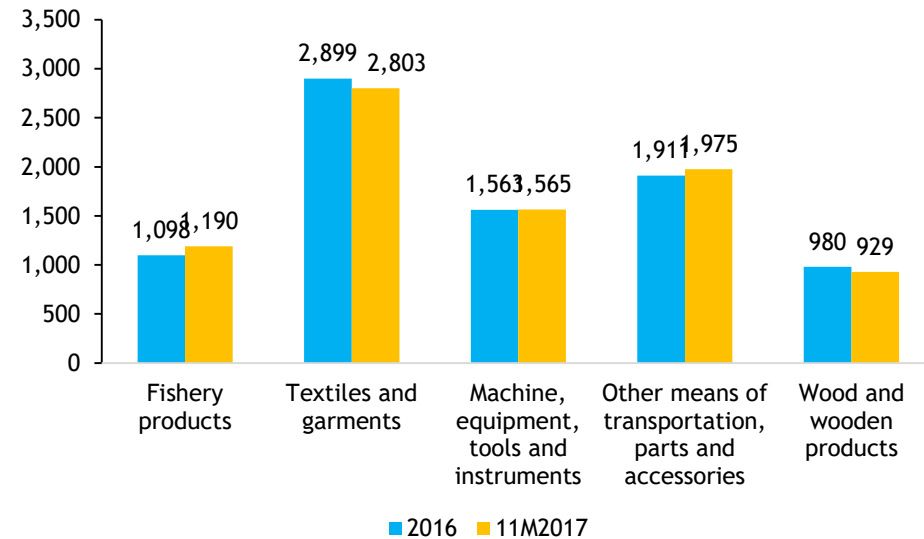
Vietnam Trade Balance (US\$ bn), 2012 - 10M2017



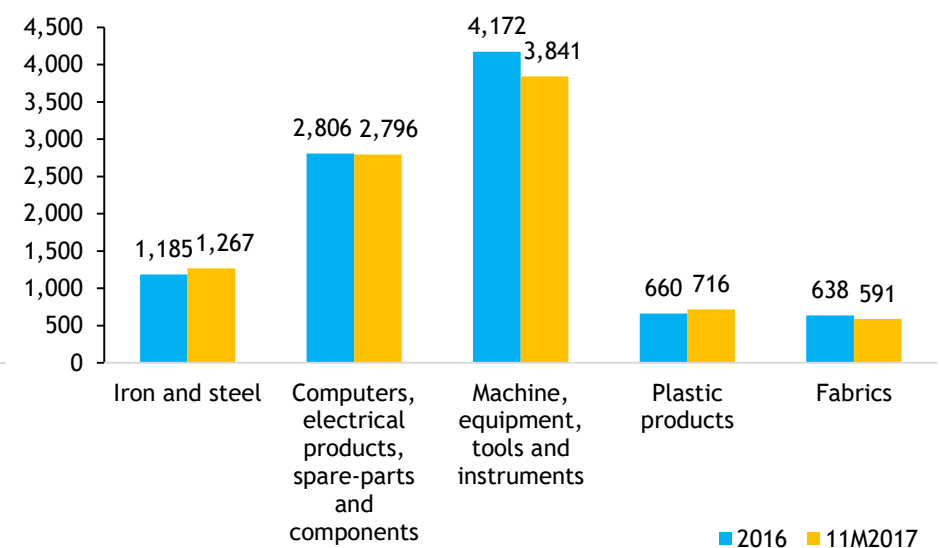
Vietnam Trade Balance with major partners (US\$ bn), 10M2017



→ **Top 5 items exporting to Japan (US\$m)**



→ **Top 5 Items import from Japan in (US\$m)**



Trade Credit Risk or Counterparty risk management has a significant impact to the profitability of your business

1. Every year there are thousands of companies declared as **dissolution, suspension and bankruptcy**. This tends to increase recent years

2. Actual figures would be significantly higher than declared as this is “**the tip of the iceberg**” only

3. **Business Information infrastructure** including corporate financial data has not yet developed and still fragmented

4. **Insufficient transparency and business insights** on stakeholders especially customers and suppliers at the time of economic downturn

5. **Poor Quality of financial information** in Vietnam even for public companies with audited financial statements



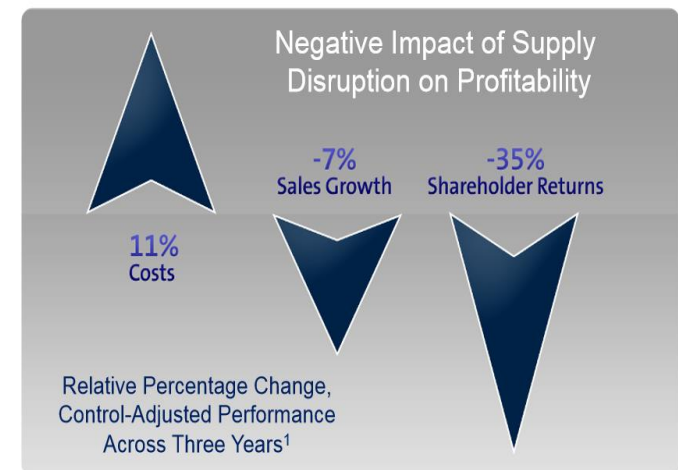
If your company's profit margin is 5% and one of your buyers defaults on a debt of \$100,000, then you will have to produce additional sales worth \$2,000,000 to make up for lost profits.

Increased risk in Debtors/Accounts Receivable

Increased risk in Buyer supply chain

NAGATIVE IMPACT ON PROFITABILITY

[An example with a study of losses from supplier disruption]



Source: Procurement Strategy Council; CFO Executive Board, Safeguarding Supply: Protecting the Enterprise from Unforeseen Supply Chain Risks, Washington, D.C.: The Corporate Executive Board Company, 2009.

1 Financial Data and Trade Credit Risks

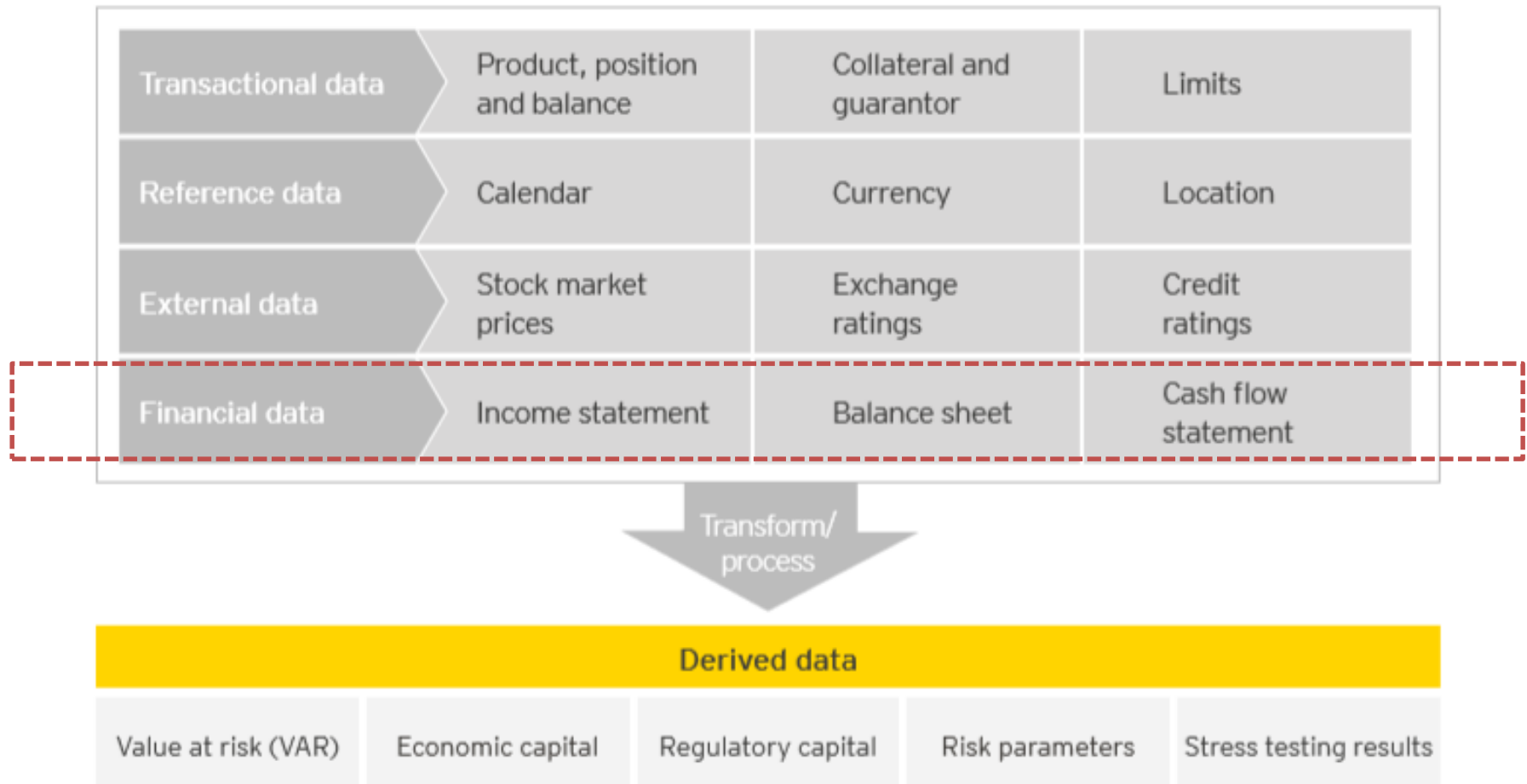
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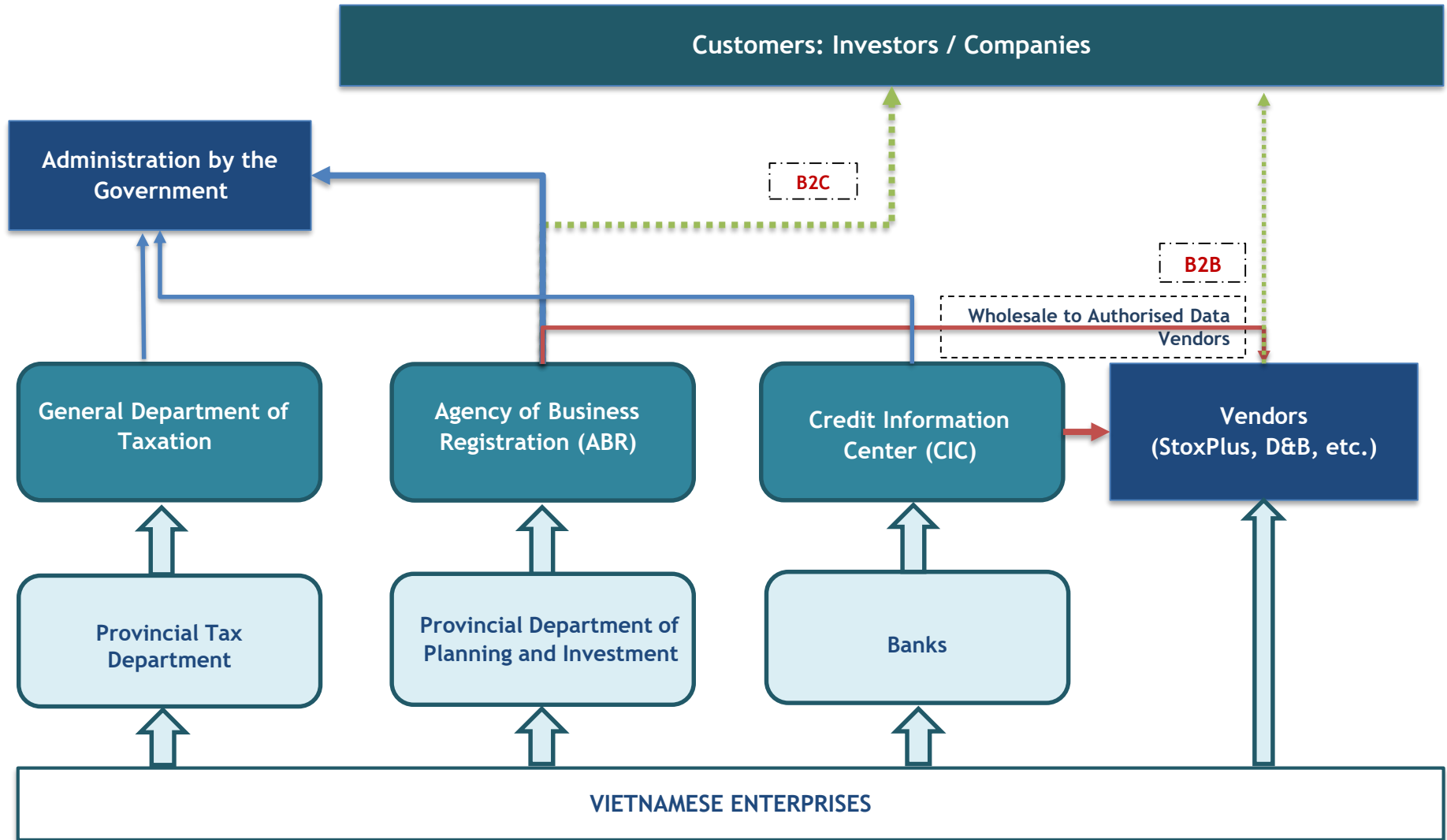
4 How your Measure your Trade Credit Risks

For any risk model, leveraging the data and analytics to enhance risk management process are so critical. Unfortunately, financial data in Vietnam is not yet a ready-to-use quality for risk models

Data required for an effective credit risk model

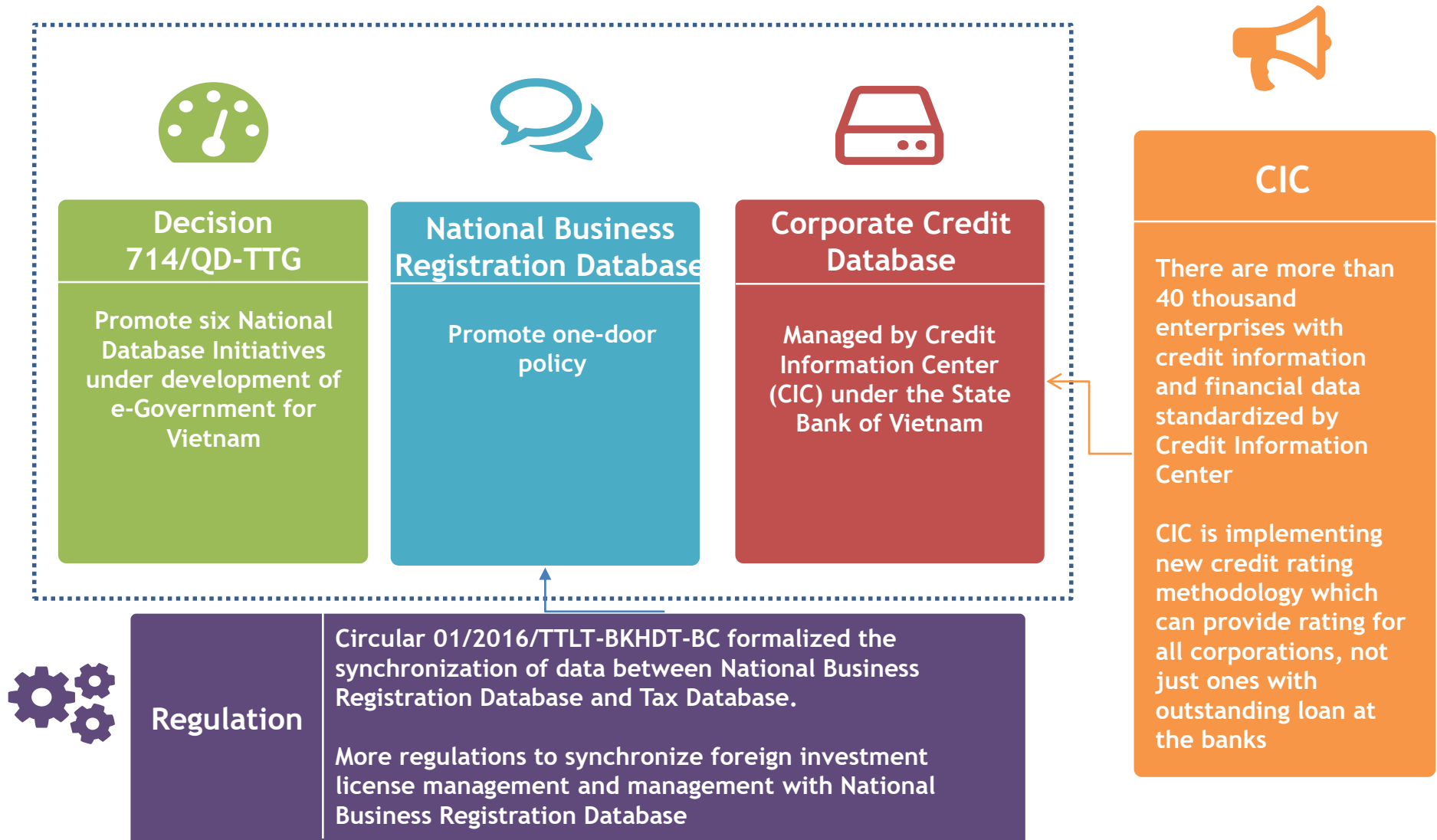


Corporate Information infrastructure in Vietnam is yet to be further developed



Recent regulatory developments

The Government has implemented policy to develop an electronic system connecting all government e-document, and data from central to the provincial and communal level, providing all public services online, and developing a single public service portal on the internet.



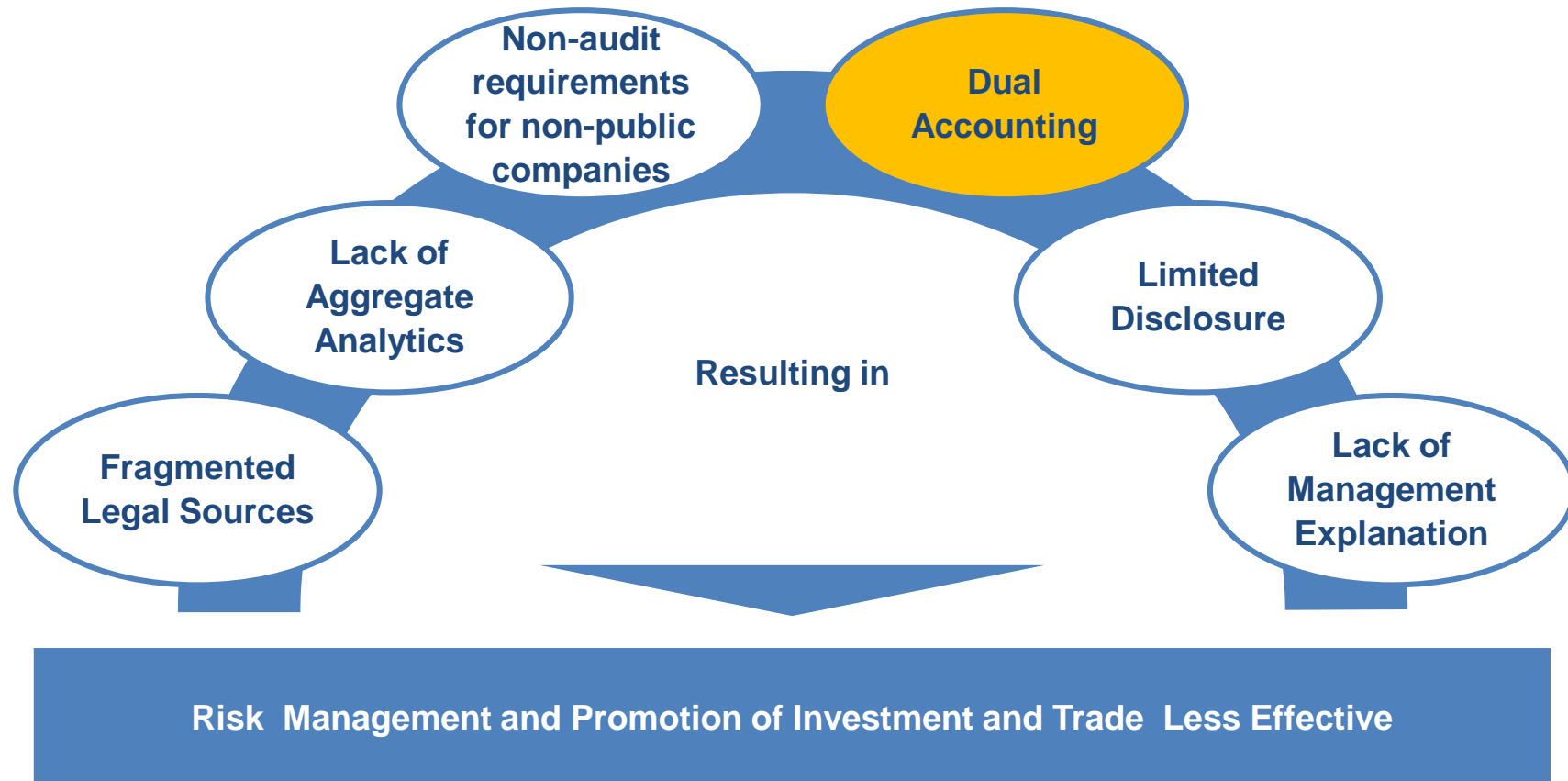
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Major issues in the quality of corporate information in Vietnam



Dual accounting is a common issue in Vietnam. It causes difficulties in assessing the counterparty risks

- It is normal to have financial statements different from financial statements filed to Tax Authority. However, we observed in many cases that it is significant and unusual.
- For example, in some retail businesses, where the company sells computers to retail customers and the companies may not issue tax invoices. As such, the company did not records it revenue accordingly in the financial reports for tax purposes to avoid Business Income Tax while it would have recorded revenue in the financial statements submitting to the bank for credit purposes!

Dual accounting cases

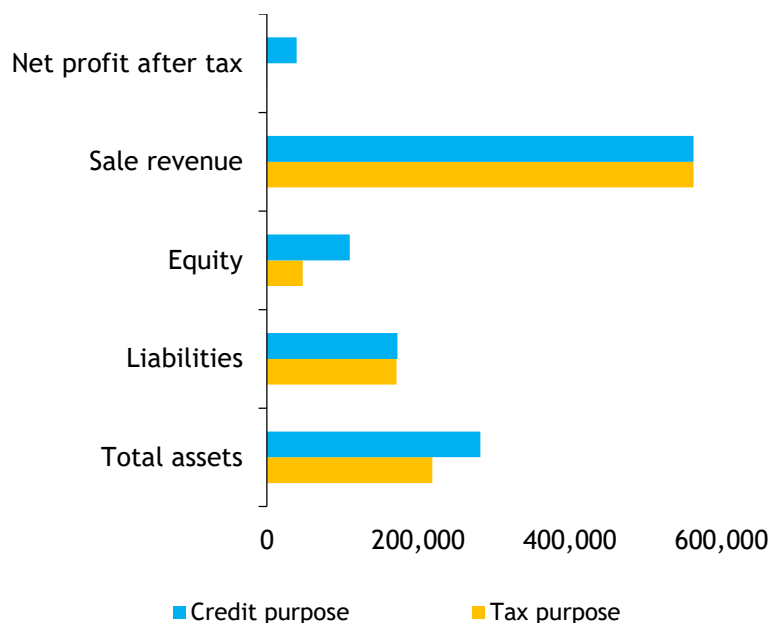
Company	Total assets		Dif.	Liabilities		Dif.	Equity		Dif.	Sale revenue		Dif.	Net profit after tax		Dif.
	Tax purpose	Credit purpose		Tax purpose	Credit purpose		Tax purpose	Credit purpose		Tax purpose	Credit purpose		Tax purpose	Credit purpose	
A	70,904	100,023	(29,119)	70,213	70,997	(784)	691	29,026	(28,335)	336,391	336,391		651	651	-
B	1,069,058	1,074,932	(5,874)	559,037	563,653	(4,616)	510,022	511,279	(1,257)	991,438	754,213	237,225	453	617	(164)
C	169,652	192,364	(22,712)	96,447	111,189	(14,742)	73,205	81,175	(7,970)	538,797	538,797		1,392	8,268	(6,876)
D	360,485	369,611	(9,126)	172,292	153,313	18,979	188,193	216,298	(28,105)	2,377,790	2,377,790		161,518	189,158	(27,640)
E	235,718	234,965	753	66,601	66,240	361	169,117	168,725	392	379,567	379,567		(1,591)	(1,541)	(50)
F	288,187	307,482	(19,295)	222,250	149,932	72,318	65,938	157,550	(91,612)	1,085,737	1,401,921	(316,184)	4,176	40,808	(36,632)
G	16,210	17,209	(999)	14,640	14,022	618	1,570	3,187	(1,617)	16,782	16,782		270	1,887	(1,617)
H	132,436	209,920	(77,484)	117,954	144,250	(26,296)	14,482	65,670	(51,188)	106,971	336,035	(229,064)	67	18,821	(18,754)
I	2,879,168	2,934,678	(55,510)	2,617,682	2,614,490	3,192	261,485	320,188	(58,703)	335,331	335,314	17	(273,301)	(214,598)	(58,703)
K	218,228	281,860	(63,632)	170,836	172,462	(1,626)	47,391	109,398	(62,007)	563,123	563,123		267	39,250	(38,983)

Source: StoxPlus

A Case Study: Dual Accounting in a Plastic Company in Vietnam

Company Profile

- Established in 2006, Company K operates in the field of manufacturing Polypropylene (PP) bags with charter capital of VND40 billion.
- As for quality of the Company's financial statement, it should be noted that there was existing 02 reports the Company submitted to tax department and bank.
- The differences in 02 reports influenced on most the Company's financial indicators, especially efficiency indicators - ROE & ROA, and Z-score which can be shown in the following tables:



Indicators	Tax purpose	Credit purpose	
Z-score	T1	-0.09	0.10
	T2	0.02	0.24
	T3	0.01	0.16
	T4	0.28	0.63
	T5	2.58	2.00
	Z	2.66	3.03
Scoring		Grey	Safe
Financial Health Ratios	Cash Ratio	0.05	0.05
	Quick Ratio	0.70	0.70
	Current Ratio	0.89	1.17
	Debt/Equity	0	0
	Total Liabilities / Equity	3.60	1.58
	Total Liabilities / Total Assets	0.78	0.61
Management Efficiency Ratios	ROE	0.56%	35.88%
	ROA	0.12%	13.93%
Profitability Ratios	Gross Profit Margin	8.24%	15.99%
	EBIT / Revenue	0.24%	7.81%
	Operating Profit Margin	0.04%	7.76%
	Net Profit Margin	0.05%	6.97%

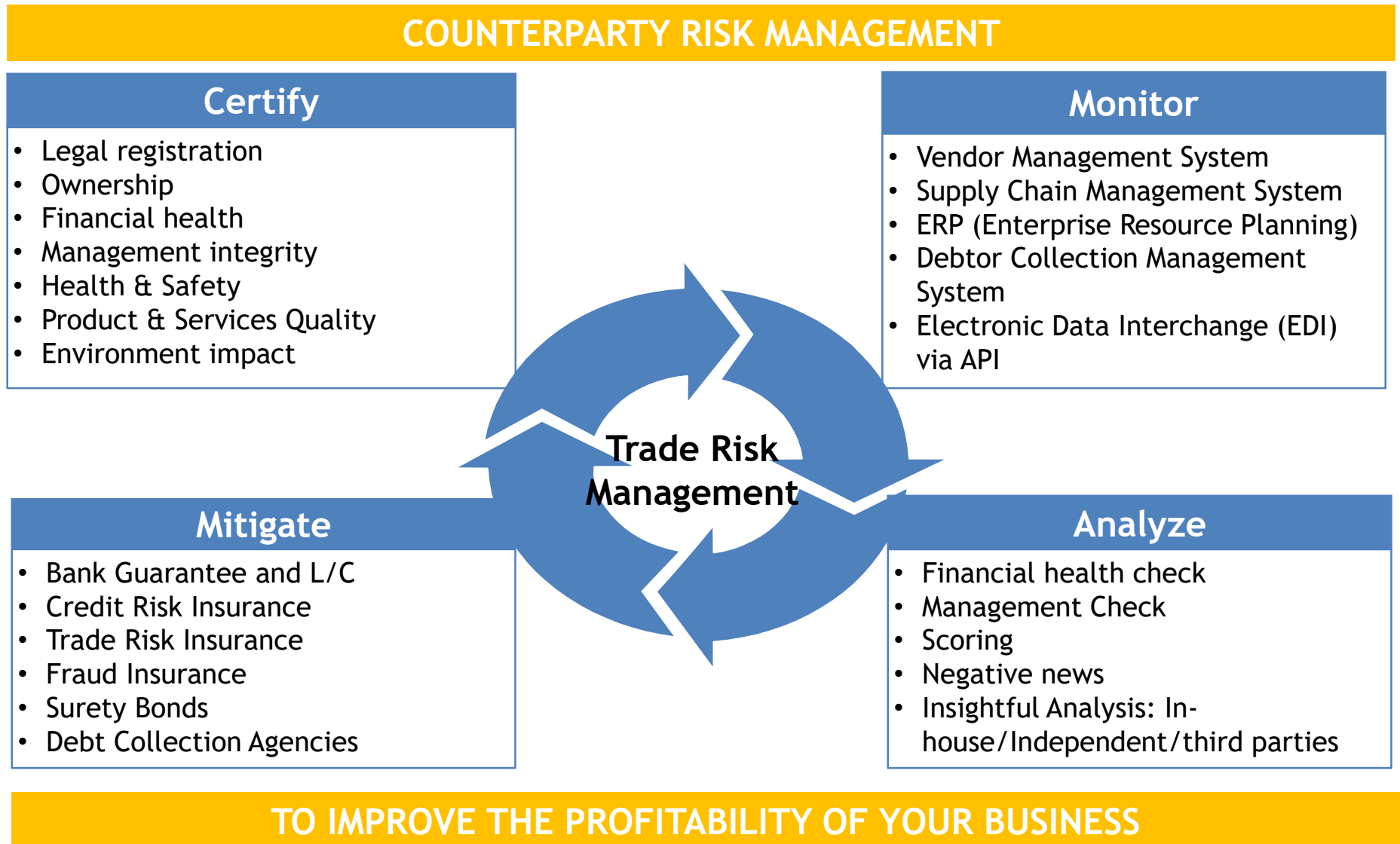
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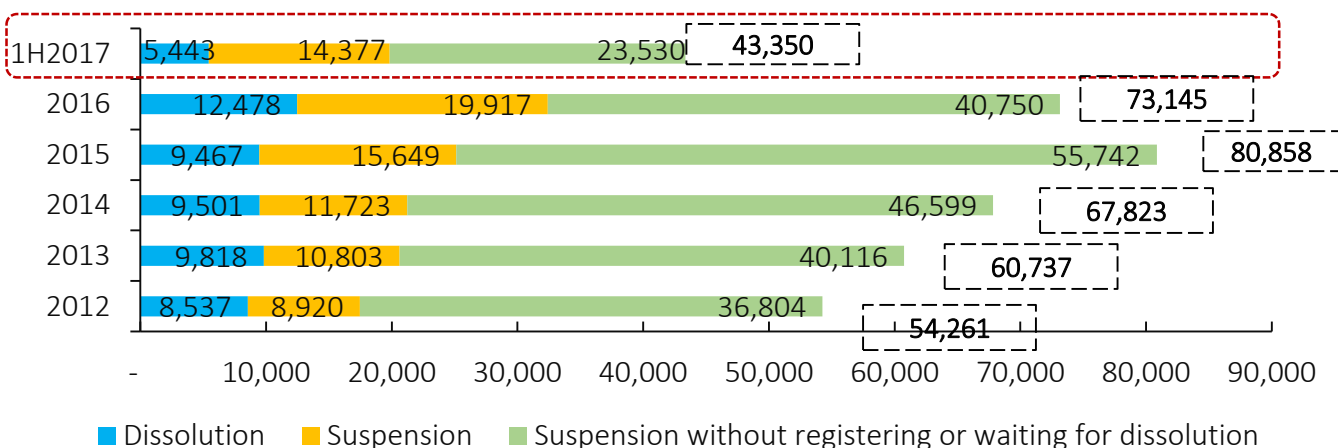
Trade Credit Risk Management: the framework



Why Certify needed?

- Corporate insolvency in Vietnam are significant! It is explained by the number of enterprises in suspension and dissolution.
- However, enterprises declared as bankrupt in Vietnam is very rare while we observe is it not uncommon especially in economic downturn

Number of closed firms in Vietnam (2012 - 1H2017)



Suspension of enterprises:

- Decide purely by shareholders
- Pay debts and obligations during the suspension period
- Business can be resumed

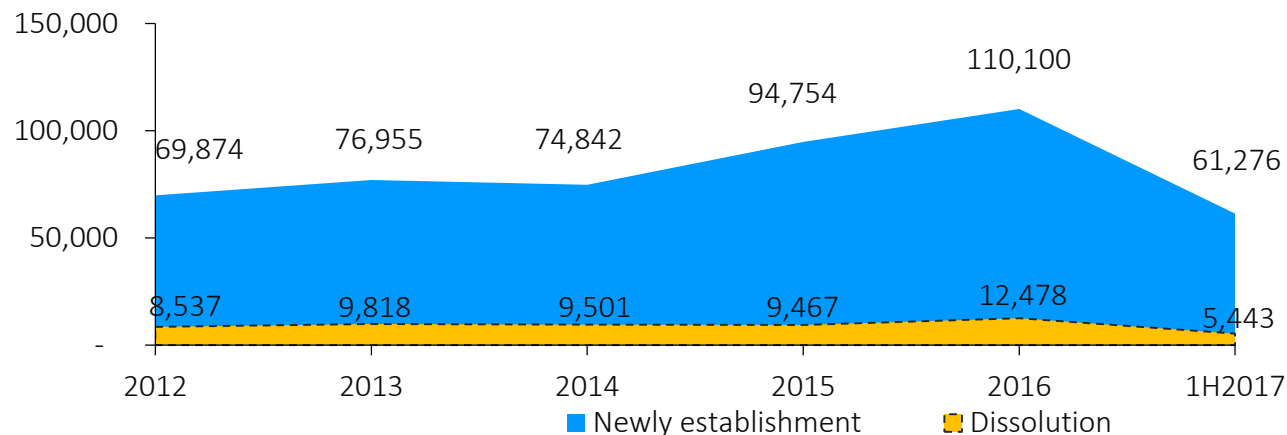
Dissolution of enterprises:

- Decide by shareholders or authorities
- Must clear all liabilities before being dissolved
- Governed by Company Law
- Tax and Registration Number closed completely

Bankrupt enterprises

- Insolvent
- Legal proceedings with the court
- Governed by Bankruptcy Law
- Still available for M&A

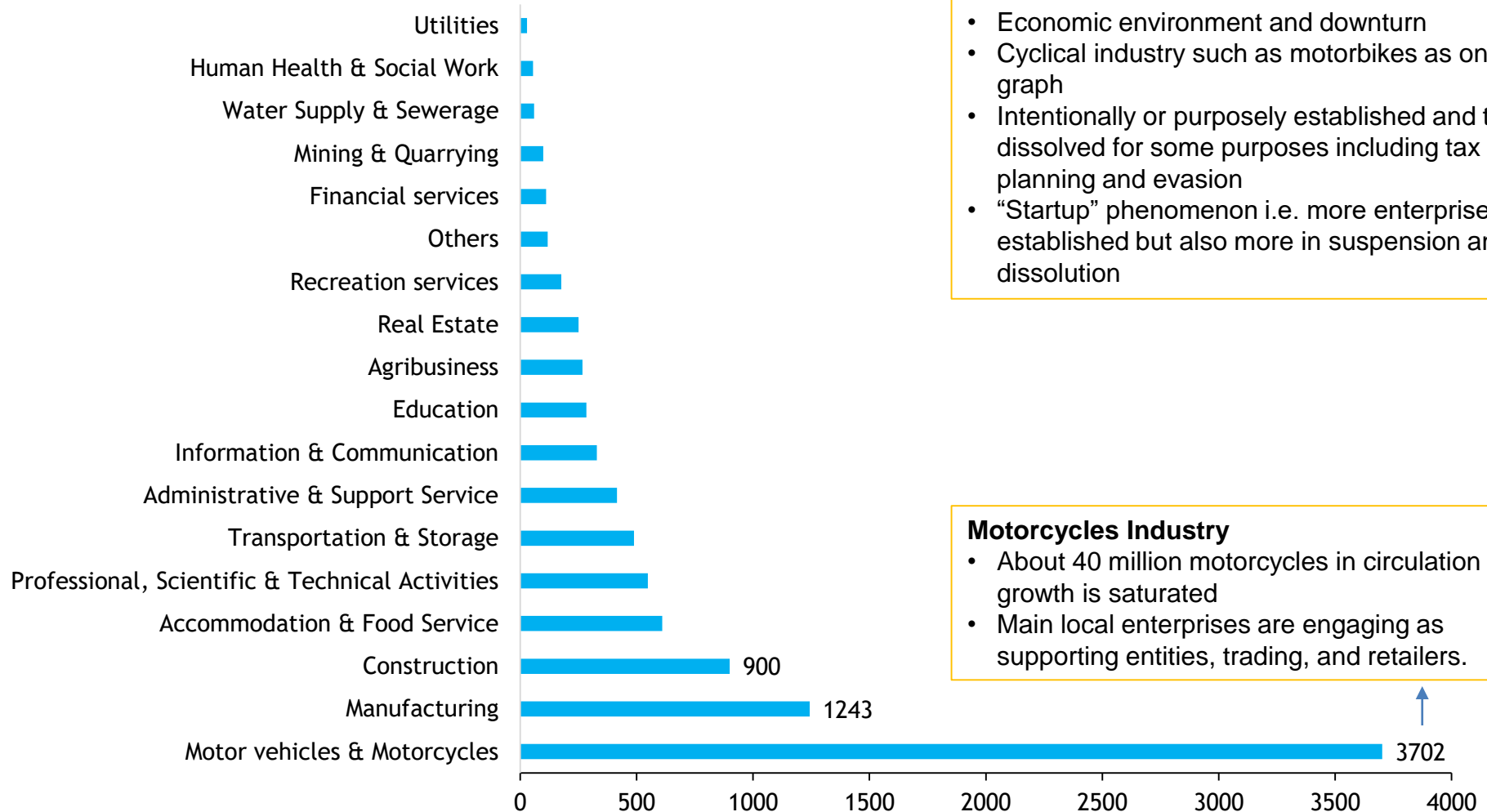
Number of newly establishing & dissolving firms in Vietnam (2012 - 1H2017)



Source: StoxPlus, Agency of Business Registration

Corporate insolvency: Happened in various industries also depending on industry growth cycle

Number of dissolved firms by sectors (2017)



Possible reasons for dissolution of business:

- Economic environment and downturn
- Cyclical industry such as motorbikes as on the graph
- Intentionally or purposely established and then dissolved for some purposes including tax planning and evasion
- “Startup” phenomenon i.e. more enterprises established but also more in suspension and dissolution

Motorcycles Industry

- About 40 million motorcycles in circulation but growth is saturated
- Main local enterprises are engaging as supporting entities, trading, and retailers.

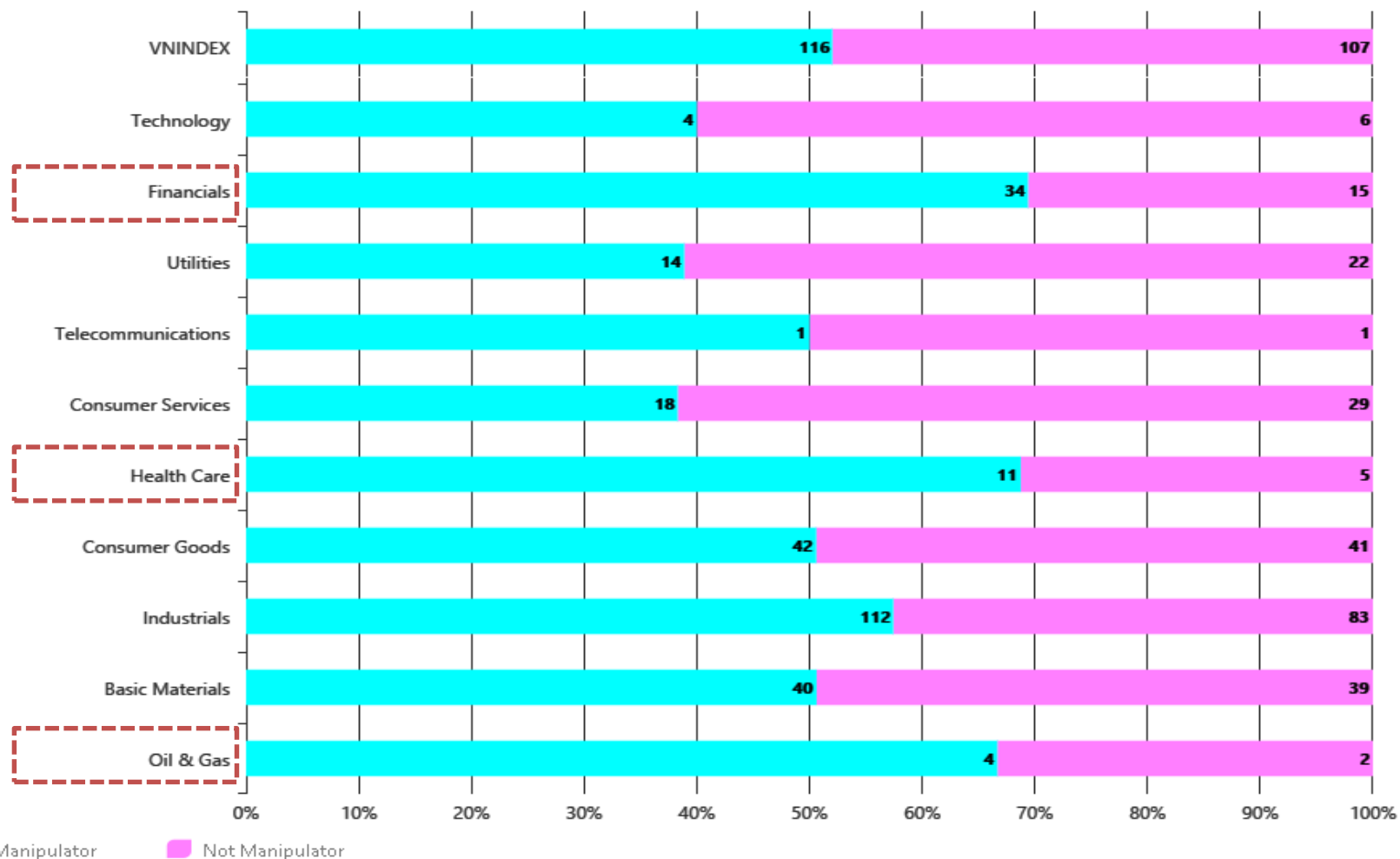
Source: StoxPlus, Agency of Business Registration

We used proven models to predict the probability of a company will go into bankruptcy and misreporting their earnings for Vietnamese companies

	Beneish M-score	Altman Z-score			
Usage	The Beneish model is a statistical model that uses financial ratios calculated with accounting data of a specific company in order to check if it is likely (high probability) that the reported earnings of the company have been manipulated.	The Z-score formula for predicting bankruptcy was published in 1968 by Edward I. Altman. The formula may be used to predict the probability that a firm will go into bankruptcy within two years. Z-scores are used to predict corporate defaults and an easy-to-calculate control measure for the financial distress status of companies in academic studies. The Z-score uses multiple corporate income and balance sheet values to measure the financial health of a company.			
		1. Public companies		2. Private companies	
Formula	$M\text{-Score} = -4.84 + 0.92 \times DSRI + 0.528 \times GMI + 0.404 \times AQI + 0.892 \times SGI + 0.115 \times DEPI - 0.172 \times SGAI + 4.679 \times TATA - 0.327 \times LVGI$			2a. Private manufacturing companies	2b. General companies
		$Z\text{-Score} = 1.2T1 + 1.4T2 + 3.3T3 + 0.6T4 + 0.999T5$		$Z\text{-Score} = 0.717T1 + 0.847T2 + 3.107T3 + 0.420T4 + 0.998T5$	$Z\text{-Score} = 6.56T1 + 3.26T2 + 6.72T3 + 1.05T4$
Forecast	Not manipulator: $M < -2.22$	"Safe" Zone	$Z > 3.0$	$Z > 2.9$	$Z > 2.6$
	Manipulator: $M > -2.22$	"Grey" Zone	$1.8 < Z < 3.0$	$1.23 < Z < 2.9$	$1.1 < Z < 2.6$
		"Distress" Zone	$Z < 1.8$	$Z < 1.23$	$Z < 1.1$

M-Score applied for public companies: Companies in Financials, Health care and Oil & gas sectors have the highest probability to manipulate their reported earnings. Why?

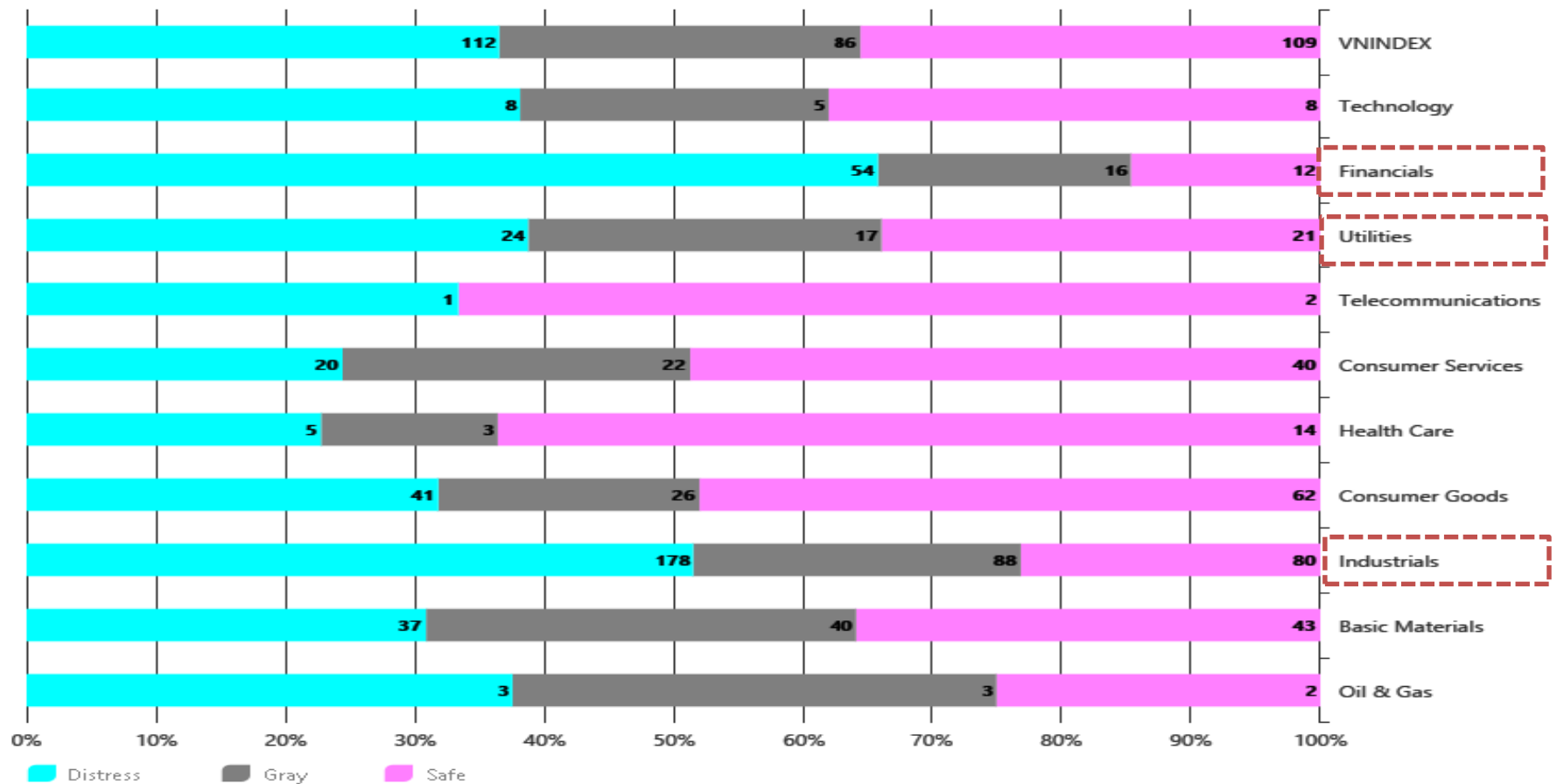
M-score in Q3/2017



Source: FiinPro Platform of StoxPlus

Z-Score applied for public companies: Financials, Industrials and Utilities are regarded as the industries having the Lowest Z-score. It implied a higher probability of bankruptcy of companies in these industry.

Z-score in Q3/2017



Source: FiinPro Platform of StoxPlus

We conducted a back test for sample of 10 companies, mostly private companies, which declared as bankruptcy/dissolution/suspension in 2016 and 2017. The scoring result confirmed the value of the model for Vietnamese companies

Z-score result

Company	Type	T1	T2	T3	T4	T5	Z-score	Zone
Hoa Binh Works JSC (Reg. No. 2800148295)	Private Manufacturing Company	0.42	-0.05	0	2.96	0	1.51	Grey
Viet Hai Shipping and Real Properties Corporation (Reg. No. 0303154993)	Public Company	-0.98	-4.11	-0.11	0.02	0.06	-7.22	Distress
Transport Engineering Construction And Business Investment Stock Company 584 (Reg. No. 0304967631)	Private Manufacturing Company	0.09	-0.01	0.01	0.14	0.05	0.19	Distress
Dinh Vu Steel Joint Stock Company (Reg. No. 0200513633)	Private Manufacturing Company	-2.98	-3.68	-0.1	-0.71	0.01	-5.86	Distress
Vifa Coating Joint Stock Company (Reg. No. 0200602308)	Private Manufacturing Company	-2	-3.15	-0.19	-0.72	0	-4.98	Distress
Phuc Quang - Hong Anh Company Limited (Reg. No. 0101025402)	Private General Company	0.04	0	0.02	0.32	0	0.76	Distress
Vinacafe Daklak Trade Service Joint Stock Company (Reg. No. 6000810206)	Private Manufacturing Company	-0.14	-1.14	-0.09	-0.28	0.01	-1.45	Distress
Dai Truong Phat Mineral Industry Joint Stock Company (Reg. No. 3100128390)	Private Manufacturing Company	-0.54	-0.28	0.04	-0.15	0.32	-0.24	Distress
Bach Dang Shipbuilding Industry Import Export Company Limited (Reg. No. 0200770084)	Private General Company	0	-0.03	-0.01	0.03	0	-0.1	Distress
Tan Thang Processing Import Export JSC (Reg. No. 3400824737)	Private General Company	-0.5	-0.45	-0.11	0.36	0	-4.6	Distress

Benchmark:	1. Public companies	2. Private companies	
		2a. Private manufacturing companies	2b. General companies
"Safe" Zone	Z>3.0	Z>2.9	Z>2.6
"Grey" Zone	1.8<Z<3.0	1.23<Z<2.9	1.1<Z<2.6
"Distress" Zone	Z<1.8	Z<1.23	Z<1.1

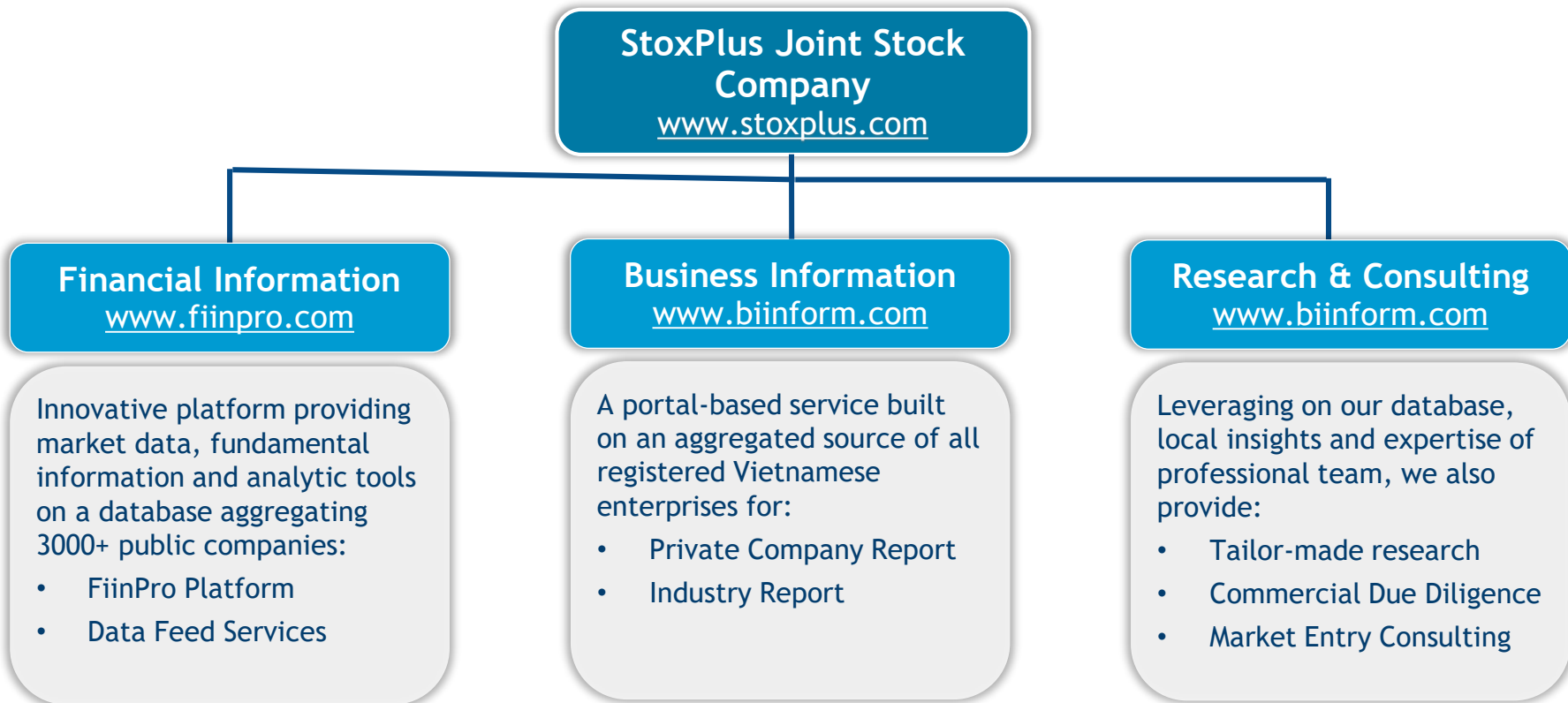
1. **Credit/counterparty risk is not only a top concern of lenders/banks and investors but also business/trading partners.** Unlike lenders, trading partners normally get it difficult to access to reliable information about their counterparts. Risk management operations or models will need a most possibly reliable corporate and financial data. However, corporate information system in Vietnam is rather fragmented with the poor quality of financial information and corporate reporting by Vietnamese companies.
2. **Corporate insolvency in Vietnam is prevailing** depending economic conditions as explained in data for business suspension, dissolution and bankruptcy. The number of corporate insolvency tends to increase over time, in all economic conditions including downturn and at various industries. We believe that many of them would be in these situation but they did not proceed to the filing as required for many reasons. It is not only super small enterprises (with annual sales < VND10bn or around US\$400K), but also medium and large companies especially in economic downturn.
3. We recommend that lenders, investors, trading partners to **conduct regular data validating, analyzing and monitoring** in order to have the risk model works well for emerging markets like Vietnam.
4. The application of big data and data analytics for risk management is a trend and practically needed in Vietnam. However, any risk system **needs clean and reliable data inputs** especially financial data, Given the corporate information infrastructure in Vietnam, data validation and standardization will be a huge work for any organization including banks to ensure the model works and its effectiveness.
5. It is our experience that **scoring models** such as Z-Score and M-Score do work in Vietnam. It is the matter of the reliability of data inputs and validation is the key to the effectiveness of the mode!

Introduction about StoxPlus



- Date of incorporation: March 11, 2008
- Number of staff: 80 (as of June 2017) including Data Analysts, Content Editors, Researchers, Product Developers.
- Two offices: Hanoi Head Office and HCMC Office

Our Strategic Partner and Shareholders:

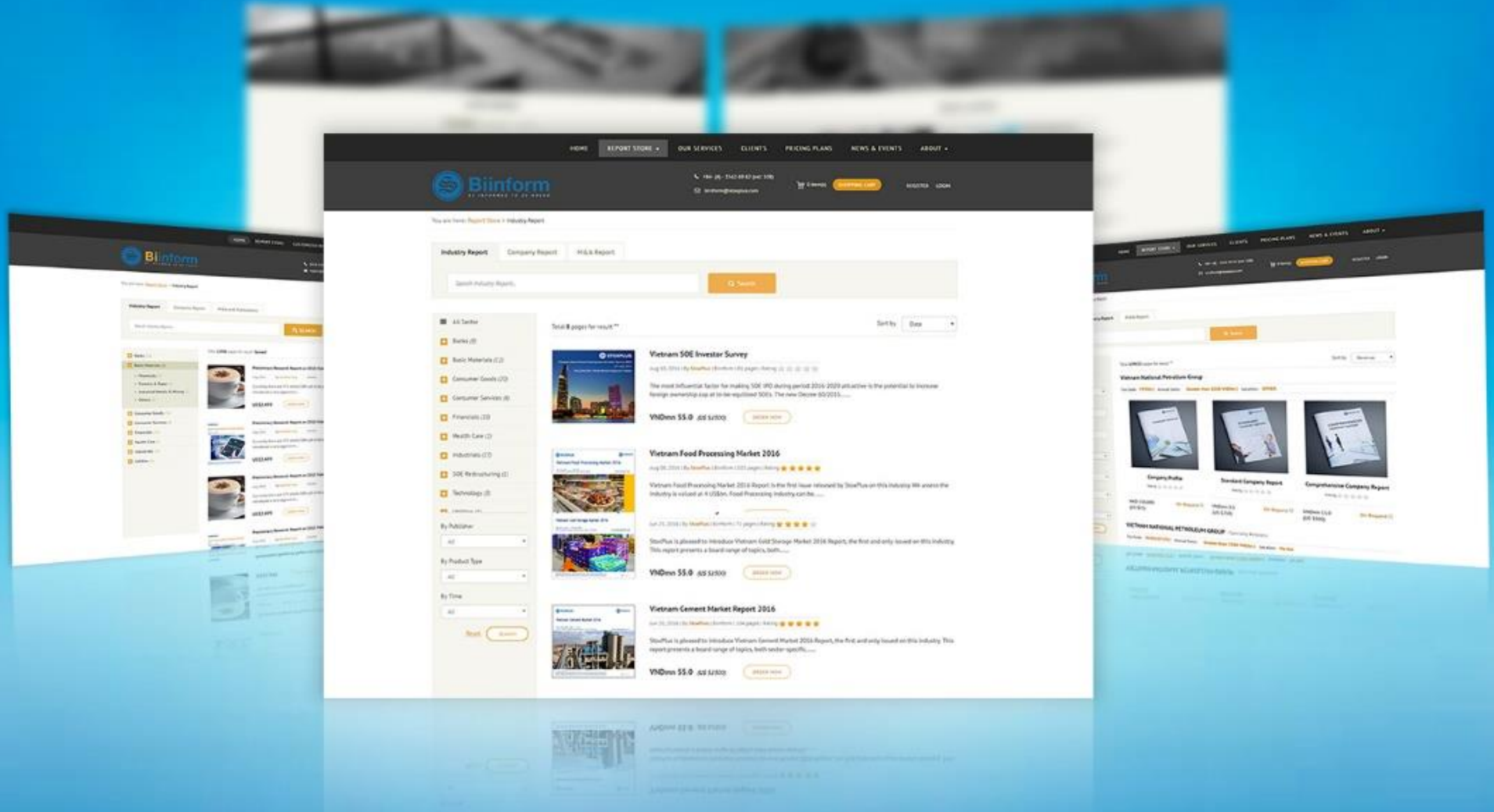


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Introduction about StoxPlus

We provide private company research reports to financial and non-financial customers via web portal and order basis



TRUNG NAM CONSTRUCTION INVESTMENT CORPORATION

COMPREHENSIVE COMPANY REPORT



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Comprehensive Company Report

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OUR SECTOR EXPERTISE AND PARTICIPATION OF INDUSTRY EXPERTS ENSURE INFORMATION COMPREHENSIVENESS AND IN-DEPTH ANALYSIS

FINANCIALS

Consumer Finance

Banking

Microfinance

Insurance

PACKAGING

Flexible Packaging

Plastic Packaging

AGRIBUSINESS

Fertilizers

Agrochemical

Animal Feed

Pesticides

HEALTHCARE

Hospitals & Clinics

Pharmaceuticals

Medical Devices

INDUSTRIALS

Cement

Cold Storage

Infrastructure

Logistics

RETAIL

Food Processing

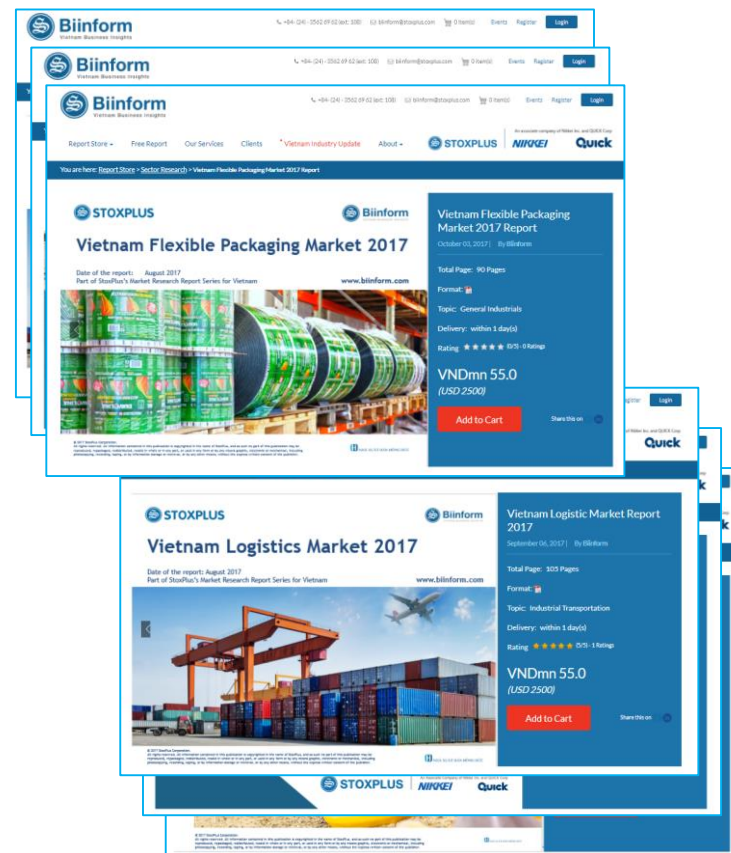
Apparel

Convenience Store

OTHERS

M&A

SOE IPOs



Thank you for attention!

If you have any questions about the content of this presentation, please don't hesitate to contact us at:

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