

Survey of the adjourned sale rate of the Japanese home video game industry

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ABSTRACT

We carried out a survey of the adjourned sales rate of the Japanese home video games from *famitsu*, a major weekly magazine, in order to construct a reference index of project management. We chose Playstation®(PS), Playstation2® (PS2) and Game Boy Advance® (GBA®) as the platform and measured the fraction of the titles which were postponed for sale once or more times. The results are as follows: 1) During the first year after the release of the new platform, the rate of adjourned sale was high and gradually declined year by year. 2) In PS® platform, adjourned rate was nearly 50% in the first three years 1994-1996, and declined to 22% in 2001. 3) In PS2® platform, adjourned rate was 33% in the first year 2000, and declined to 26% in 2004, 4) In GBA® platform, adjourned rate was 24% in the first year 2001, and declined rapidly to 7% in 2004. 5) Game titles scheduled to go on sale around the new-year holidays or at the end of the fiscal year showed a significantly higher rate of adjourned sales

Author Keywords

Playstation®, Playstation2®, Game Boy Advance®, adjourned sale rate

NEXT GENERATION CONSOLE WARS AND DIFFICULTY IN DEVELOPMENT

From 2005, three new generation game consoles are released in Japan and we are now in the next generation console wars (Table1). As new generation consoles have more powerful MPU, graphic accelerator and higher-capacity memories than the old ones, it is often noted that developing a new game may demand more human and monetary resources.

Table 1: Sale date of Next Generation Console in Japan

Console	Developer	Date
Xbox360®	Microsoft	10/12/2005
Playstation3®	SONY	11/11/2006
Wii®	Nintendo	2/12/2006

In spite that both contents and software industries in Japan are insufficiently competitive in the world, video game industry produces worldly-competitive software and contents. However, developing video games will be more difficult and complex in the next generation and it is often said that it is difficult to keep the competitive advantage.

Developing a game is to make the multi-media content. It includes not only software architecture design and implementation but also scenario writing, animation production, recording and so on. Production process is more complex than that of the ordinary computer software and project management is important.

The aim of this paper is to propose the adjourned sales rate as an indicator of project management in the video game industry, report the result of the data survey in Playstation®, Playstation2® and Game Boy Advance®.

DATA SOURCE

We collected the data of the adjourned sales from *famitsu*, which is the most popular weekly magazines for video games in Japan. *Famitsu* has the article of “sale date calendar” and it is updated every week along with the news release of the new product or the change of the sale date. We use the *famitsu* from No.300(issued on 16/9/1994) to No. 850(issued on 1/4/2005) and research periods and the size of data on PS®,PS2®,GBA® are on Table 2. We do not count the games which are the limited editions, bundled editions, nor cheap-resaled editions. In addition, we also ignored the games which are halted to sale.

Table 2: Platform, span, and titles of surveyed data

Console	Span	#Titles
PS®	3/12/1994– 31/3/2005	3232
PS2®	3/3/2000 – 31/3/2005	1719
GBA®	22/3/2001 – 31/3/2005	697

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Genres

We group game titles under fourteen genres which are Action (ACT), Adventure (ADV), Fighting (FTG), Puzzle (PZL), Racing (RCG), Roleplaying (RPG), Simulation (SLG, including SRPG), Sports (SPT), Shooting (SHT), Table (TBL), and others (ETC). This classification is employed by *famitsu* and we also employ it.

Criterion of Judgment

In many cases, software companies do not announce the sale date of a game exactly. They often report only the month and the period of the month (first, second, or the last ten days at first and the exact date of the sale is announced later.. This is very serious problem for us to judge whether the game title is adjourned. We make the guideline to judge the adjourned sale (Table 3).

Table 3: Criterion of Judgement

Spring	Mar., Apr., and May.
Summer	Jun., Jul., and Aug.
Autumn	Sep., Oct., and Nov.
Winter	Dec., Jan., and Feb.
At 'XX	within 'XX
Beginning	First ten days
Middle	Second ten days
Last	Last ten/eleven days

Features of platforms and hypothesis

Table 4 illustrates the features of each platform. The console platforms, PS® and PS2®, employed the large-volume disc media, latest 3D graphics, and latest CPU technology (MIPS for PS, Emotion Engine for PS2). On the other hand, the mobile platform, GBA®, employed mask-ROM media, 2D graphics (no 3D accelerator installed), and ARM CPU architecture. Nintendo often choose the strategy to employ the matured technology for cost cutting and reliability of the devices.

Table 4: Features of each platform

	PS/PS2	GBA
Hardware Type	console	Mobile
Graphics	3D	2D
Media	CD/DVD	ROM
(Max capacity)	640M/4.7G	128M
Technology	Latest	Matured
Difficulty	High	Low

Compare the two kinds of platforms, we have a hypothesis. Those are:

- 1) In both platforms, the adjourned sale rate of the first year is high, and, because of the learning curve effect, it is gradually declined every year.
- 2) As it takes much time to be adapted to the new technologies, the initial adjourned sale rate of the console platform is higher than that of the mobile platform.
- 3) PS is the first disk media platform to have become the dominant, so it takes much time for the game developers to learn the know-how of the multi-media contents. As a result, the initial adjourned rate is highest of the three platforms.
- 4) The date-of-issue effect is very important. Table 4 shows the cumulative sales of titles in each platform. It is obvious that the fraction of the titles released is not flat and smooth and releases are concentrated on Mar. and Dec. In addition, even though the fraction is small on Jan., releases are concentrated around the New Year's Day. The reasons why releases are concentrated are because the settling day is usually established on the last day of March in Japan and because there is the custom of the Christmas present and *otoshi-dama*, which is to give some money to children at the New Year's Day.
- 5) Game Genre may have some influence to the adjourned sale rate.

Table 4: Cumulative Sales of Titles in each platform

	PS	PS2	GBA
Jan.	211 (6.5)	108 (6.3)	34 (4.7)
Feb.	244 (7.5)	153 (8.9)	35 (4.9)
Mar.	324 (10.0)	215 (12.5)	87 (12.1)
Apr.	245 (7.6)	108 (6.3)	63 (8.8)
May	203 (6.3)	95 (5.5)	27 (3.8)
Jun.	230 (7.1)	109 (6.3)	34 (4.7)
Jul.	257 (8.7)	138 (8.0)	90 (12.6)
Aug	229 (7.1)	123 (7.2)	66 (9.2)
Sep.	281 (8.7)	134 (7.8)	42 (5.9)
Oct.	264 (8.2)	118 (6.9)	44 (6.1)
Nov.	312 (9.7)	164 (9.5)	54 (7.5)
Dec.	432 (13.4)	254 (14.8)	141 (19.7)

RESULTS

Yearly transition

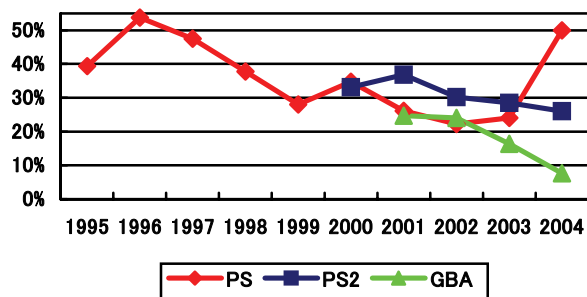


Figure 1: Yearly effect. each year represents Japanese fiscal year, from April to March. PS: 1995 includes from Dec.1994 to Mar.1996. PS2:2000 includes Mar.2000 to Mar.2001. GBA: 2001 includes Mar.2001 to Mar.2002.

Figure 1 illustrates the yearly transition of the adjourned sale rate of three platforms. Because of the problem of the aggregation period and the date of the issue of each platform, PS's year 1995 has sixteen months; PS2's year 2000 has thirteen months; and GBA's year 2001 has thirteen months.

It is obvious that there is the strong downward trend in every platform. However, the rate of declining is quite different. In PS, the initial adjourned rate are 39% in 1995 and 26% in 2001 (the number of titles released in PS from 2002 to 2004 is quite small and negligible to analyze). In GBA, the adjourned rate is 24% in 2001 and quickly declined to 7.6% in 2004. On the other hand, in PS2, they are 33% in 2000 and 26% in 2004.

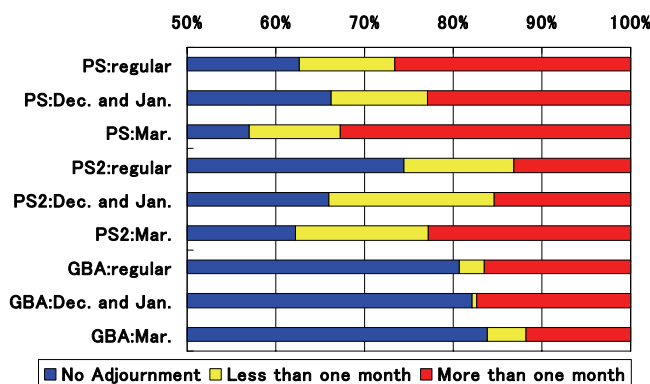


Figure 2: The date-of-issue effect

Figure2 shows the date-of-issue effect. In the PS and PS2 platforms, the adjourned rate on March is clearly larger than that of the other month. Furthermore, it is larger on December and January in the PS2 platform. It is quite a contrast to the GBA platform in which there is no clear

difference among the regular, March, and December and January.

Probit and Ordered Probit Estimations

To discuss and weigh the effect of each factor separately, we estimated the probit and ordered probit model.

Dependent variable is set no adjournment =0. In the probit model, adjournment is set to be 1, in the ordered probit model; adjournment within one month is set to be 1 and that of more than one month is set to be 2.

Explanatory variables are elapsed years (0, 1, 2...), hardware dummy variables (GBA, PS2, PS), date-of-issue dummy variables (regular season, March, December and January), and game genre dummy variables (11 genres). Benchmark is GBA, regular season and ETC.

We estimated four models which are 1) All Data (GBA, PS2 and PS), 2) GBA only, 3) PS2 only and 4) PS.

All Data

Table 5 shows the result of the estimations. Though many variables are statistically significant, it should be noted that elapsed years and hardware dummies (PS2, PS) have 1% significance. These results are quite obvious.

Table 5 Result of the Probit and Ordered Probit Estimation (All Data)

PS&PS2&GBA	Probit	Ordered Probit
Constant	-0.97**	-0.93**
PS2	0.38**	0.27**
PS	0.75**	0.81**
Year	-0.013**	-0.012**
Dec. & Jan.	0.019	-0.0011
Mar.	0.18**	0.18**
ACT	-0.053	-0.018
ADV	0.25**	0.28**
FTG	-0.10	-0.063
PZL	-0.092	-0.066
RCG	0.079	0.11
RPG	0.28**	0.35**
SLG	0.15*	0.16*
SPT	0.016	0.042
STG	0.12	0.14
TBL	-0.093	-0.072
cut		0.33**
Scaled R-Square	0.052	0.056
-LogL	2935.59	3925.17

* 5%, ** 1% level of significance

GBA

Table 6 shows the result in the case of GBA. Only elapsed year variable is significant and there is no influence of genre and the date-of-issue variables.

Table 6 Result of the Probit and Ordered Probit Estimation (GBA)

GBA	Probit	Ordered Probit
Constant	-0.42*	-0.52**
Year	-0.24**	-0.22**
Dec. & Jan.	-0.11	-0.082
Mar.	-0.17	-0.19
ACT	-0.071	-0.0052
ADV	-0.23	-0.14
PZL	-0.0086	0.14
RCG	-0.36	-0.32
RPG	-0.52	0.04
SLG	-0.69	-0.012
SPT	-0.065	0.020
STG	-0.073	0.025
TBL	-0.52	-0.42
Cut		0.099**
Scaled	0.038	0.034
R-Square		
-LogL	320.661	372.24

* 5%, ** 1% level of significance

PS2

Table 7 shows the result in the case of PS2. Elapsed year variable and the date-of-issue variables are significant and there is no influence of genre variables.

Table 7 Result of the Probit and Ordered Probit Estimation (PS2)

PS2	Probit	Ordered Probit
Constant	-0.45**	-0.47**
Year	-0.51*	-0.50*
Dec. & Jan.	0.23**	0.17*
Mar.	0.33**	0.34**
ACT	-0.19	-0.17
ADV	0.11	0.15
FTG	-0.29	-0.31

PZL	0.089	0.16
RCG	0.93	0.055
RPG	0.097	0.21
SLG	-0.38	-0.022
SPT	-0.11	-0.084
STG	-0.093	-0.14
TBL	-0.17	-0.16
Cut		0.50**
Scaled	0.022	0.026
R-Square		
-LogL	1029.58	1382.05

* 5%, ** 1% level of significance

PS

Table 8 shows the result in the case of PS. Elapsed year variable and some genre variables are significant. It is noted that the date-of-issue variables are not significant.

In genre dummy variables, ADV, RPG and SLG are significant. Without the all data case, there is only PS data case that three genre dummy variables are significant. It seems that some genre dummy variables are significant in the all data case because of the PS data.

Table 8 Result of the Probit and Ordered Probit Estimation (PS)

PS	Probit	Ordered Probit
Constant	0.060	0.051
Year	-0.0090**	-0.0095**
Dec. & Jan.	-0.11	-0.11*
Mar.	0.12	0.13*
ACT	-0.040	0.015
ADV	0.28**	0.33**
FTG	-0.0052	0.044
PZL	-0.18	-0.17
RCG	0.021	0.091
RPG	0.38**	0.45**
SLG	0.22**	0.25**
SPT	-0.032	-0.0085
STG	0.13	0.20
TBL	-0.076	-0.062
cut		0.32**
Scaled	0.045	0.055
R-Square		
-LogL	2066.02	2773.58

* 5%, ** 1% level of significance

DISCUSSION

Learning curve effect

In all four probit and ordered probit estimations, elapsed year variable is significant. There is no doubt a kind of learning curve effect that cumulative production improves the yield rate. However, where experience is accumulated and how this learning effect works is not obvious. We need extra survey, especially oral survey, to distinguish the industry level, organization level, and personal level improvement of productivity.

In addition, compared to the transition of the fraction of the adjourned rate in PS and PS2, it seems that the learning curve effect is saturated on the console platform.

Console vs mobile platform

In GBA, the initial adjourned rate is lower than PS and PS2, and declines quickly to less than 10%. It is clear that developing games on the mobile platform is easier than that on the console platform and know-how accumulation is quicker.

Genre effect

Genre variables, ADV, RPG and Simulation, are significant only in the PS data. These three types of game have long scenario and many static paintings.

Compared to the movie construction, because the length of the game scenario is extremely longer, about ten times or more as the movie scenario, scenario writing process is not completed when implementation for a game is started. In many cases scenario writing, material creation and code implementation are promoted side by side so that if

scenario writing process is delayed, the other process are forced to delay by domino effect.

In PS era, the video-game industry is not matured. In addition, as PS is the first dominant platform which has CD-ROM; it is not accustomed to develop the multimedia contents including voices and animation. It seems that know-how of the project management for producing the multimedia contents is accumulated during this era.

CONCLUSIONS

We have surveyed the adjourned sale data on the GBA, PS and PS2 platforms and got these conclusions:

- 1) The existence of the learning curve effect is confirmed.
- 2) The initial adjourned sale rate of the console platform is higher than that of the mobile console.
- 3) In the PS platform, the initial adjourned rate is highest and it takes long time to improve.
- 4) The date of the issue effect is significant especially in the PS2 platform.
- 5) Game genre effect is significant only in the PS platform.

REFERENCES

1. Sales date calendar, *Weekly Famitsu*, enterbrain, No. 300-850, 1994-2005